z/OS
2.5

Security Server RACF
Command Language Reference

IBM

SA23-2292-50

Note

Before using this information and the product it supports, read the information in "Notices" on page 659.

This edition applies to Version 2 Release 5 of z/OS® (5650-ZOS) and to all subsequent releases and modifications until otherwise indicated in new editions.

Last updated: 2023-06-28

Contents

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About this document

This document supports z/OS (5650-ZOS) and contains information about Resource Access Control Facility (RACF®), which is part of z/OS Security Server.

Purpose of this document

This document describes the syntax and the functions of the commands for RACF. The commands are presented in alphabetical order, and the operands within each command description are presented alphabetically. Exceptions occur where operands are positional, where alternative operands are grouped together or wherever alternative operand grouping is more practical for easier understanding.

The appendixes of this document contain information on generic and discrete profiles for data sets and general resources, as well as a list of the RACF classes.

Who should use this document

This document is intended for RACF-defined users who are responsible for creating, updating, or maintaining the profiles for users, groups, data sets, and general resources in the RACF database.

Readers must be familiar with the RACF concepts and terminology. Many RACF functions also require you to understand the more detailed descriptions in *z/OS Security Server RACF Security Administrator's Guide*.

How to use this document

- If you want a concise list of all the RACF commands, see Chapter 1, "Introduction," on page 1.
- If you need a general discussion on entering RACF commands, see Chapter 2, "Basic information for issuing RACF commands," on page 9.
- If you need information on how to read syntax diagrams, see "Syntax of RACF commands and operands" on page 11.
- If you want information about entering a RACF command as a RACF TSO command, see Chapter 3, "RACF TSO commands," on page 17.
- If you want information about entering a RACF command as a RACF operator command, see Chapter 4, "RACF operator commands," on page 21.
- If you know the command you want to enter, but are unsure of the syntax, see the chapter that documents the appropriate command.

z/OS information

This information explains how z/OS references information in other documents and on the web.

When possible, this information uses cross-document links that go directly to the topic in reference using shortened versions of the document title. For complete titles and order numbers of the documents for all products that are part of z/OS, see *z/OS Information Roadmap*.

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Summary of changes

This information includes terminology, maintenance, and editorial changes. Technical changes or additions to the text and illustrations for the current edition are indicated by a vertical line to the left of the change.

Note: IBM z/OS policy for the integration of service information into the z/OS product documentation library is documented on the z/OS Internet Library under IBM z/OS Product Documentation Update Policy (www-01.ibm.com/servers/resourcelink/svc00100.nsf/pages/ibm-zos-doc-update-policy?OpenDocument).

Summary of changes for z/OS Version 2 Release 5 (V2R5)

The following changes are made to z/OS Version 2 Release 5 (V2R5)

New

The following information is new.

June 2023

Content has been updated in support of RACF APAR OA63462 and SAF APAR OA63643. In the PTFs for these new APARs, the RACF support for Identity Tokens is enhanced to add support for several new use cases.

- **Generation of IDTs From an Existing ACEE Security Environment:** The new support introduces the capability for applications to use the initACEE callable service to generate an IDT from an ACEE. The returned IDT can be used to authenticate the user using the existing IDT support in RACROUTE REQEST=VERIFY. The new initACEE function can generate an IDT for a protected user without traditional authentication mechanisms.
- **Authentication of a User with IDT Generated from an ACEE:** The new support introduces the capability for RACROUTE REQEST=VERIFY to authenticate a user with an IDT which was generated from an ACEE. With this new support, a user with the protected attribute can optionally be authenticated with an IDT.

In support of RACF APAR OA63462 and SAF APAR OA63643, the following topics in this document are updated:

- “RALTER (Alter general resource profile)” on page 382.
- “RDEFINE (Define general resource profile)” on page 444.
- “RLIST (List general resource profile)” on page 512.

Updates were made in this book and 5 others:

- *z/OS Security Server RACF Security Administrator's Guide*
- *z/OS Security Server RACROUTE Macro Reference*
- *z/OS Security Server RACF Callable Services*
- *z/OS Security Server RACF Macros and Interfaces*
- *z/OS Security Server RACF Data Areas*

May 2023

Validated Boot for z/OS (APAR OA63507) is a solution that uses digital signatures to provide an initial program load (IPL)-time check that validates that IPL data is intact, not tampered with, and originated from a trusted source. It also enables detection of unauthorized changes to software executables.

RACF support for Validated Boot for z/OS is provided in the PTFs for APARs OA61878 and OA61901.

In support of Validated Boot for z/OS, the authorization requirements for the following commands are clarified:

- “RACDCERT ADDTOKEN (Add token)” on page 270
- “RACDCERT GENCERT (Generate certificate)” on page 302

June 2022

- RACF password phrase interval support (APAR OA61951) provides a new separate password phrase-specific change interval, which can be different than the existing password interval and supports much longer values. The password phrase interval can be set with the new PHRASEINT keyword at the system level with the SETROPTS command and at the user level with the PASSWORD or PHRASE commands. See “LISTUSER (List user profile)” on page 213, “PASSWORD or PHRASE (Specify user password or password phrase)” on page 232, and “SETROPTS (Set RACF options)” on page 571.
- RACF compliance data collection support (APAR OA61933) provides the following enhancements, which enable compliance data collection for the RACF subsystem:
  - ENF86 keyword is added to the STOP command. With this new keyword, you can stop the RACF subsystem from listening for event notification facility (ENF) code 86 without stopping the RACF address space. This function is provided for problem determination purposes. See “STOP (Stop RACF subsystem)” on page 617.
  - The following keywords are added to the RESTART command:
    - ENF keyword, which restarts the ENF listening function for the RACF subsystem address space.
    - ENF86 keyword, which re-establishes the ENF 86 listening exit for the RACF subsystem address space, if the exit was previously disabled through the STOP ENF86 command.

    See “RESTART (Restart RACF subsystem functions)” on page 509.
  - The SET LIST command now displays the status of the ENF listener exit for the RACF subsystem address space. See “SET” on page 553.

V2R5

- RACDCERT LIST, LISTCHAIN, and CHECKCERT output examples were updated with the Certificate Fingerprint entry. See:
  - “RACDCERT LIST (List certificate)” on page 325
  - “RACDCERT LISTCHAIN (List certificate chain)” on page 332
  - “RACDCERT CHECKCERT (Check certificate or certificate chain)” on page 280
- Added new IZP RACF class to the optionally shared SETROPTS RACLIST table. See “SETROPTS (Set RACF options)” on page 571
- The following RACF supplied resource classes and descriptions are added, see “Supplied resource classes for z/OS systems” on page 647:
  - IZP
  - ZOWE

Changed

June 2023

- RACDCERT LIST fields were updated with the Certificate Fingerprint entry. See:
  - “RACDCERT ADD (Add certificate)” on page 257
  - “RACDCERT ALTMAP (Alter mapping)” on page 274
  - “RACDCERT DELMAP (Delete mapping)” on page 293
  - “RACDCERT LIST (List certificate)” on page 325
  - “RACDCERT MAP (Create mapping)” on page 343

May 2023

- EARLYVERIFY | NOEARLYVERIFY has been amended with a more detailed description and a link to visit for more information. See: "SETROPTS (Set RACF options)" on page 571

Deleted

September 2022
As of z/VM Release 7.3, it is no longer possible to share a RACF database between z/OS and z/VM systems. Information that is related to z/VM is removed from this publication. For more information about using RACF databases on z/VM systems, see the RACF for z/VM publications.

V2R5
All references to RACF HELP commands are deleted.

Summary of changes for z/OS Version 2 Release 4 (V2R4)

The following changes are made to z/OS Version 2 Release 4 (V2R4)

New

The following information is new.

June 2021 refresh

- Updated **content-keyword(position)** mixed-case rule and **INTERVAL(maximum-change-interval)** password phrase content. See "SETROPTS (Set RACF options)" on page 571.

May 2021 refresh

- APAR OA60717 updates the MAP, IDNFILTER and SNDFILTER parameters for RACDCERT MAP. See "RACDCERT MAP (Create mapping)" on page 343.

February 2021 refresh

- Added information on the ADD(*data-set-name*) parameter. See "RACDCERT ADD (Add certificate)" on page 257.
- Added clarification on using the WITHLABEL parameter to specify a new label name during certificate renewal. See "RACDCERT ADD (Add certificate)" on page 257.

January 2021 refresh

- RACF has added support for a new enhanced PassTicket algorithm option. The original PassTicket algorithm is now referred to as legacy PassTickets.
- The base segment APPLDATA keyword description was updated to add details for enhanced PassTickets. See:
  - "RDEFINE (Define general resource profile)" on page 444
  - "RALTER (Alter general resource profile)" on page 382
  - "RLIST (List general resource profile)" on page 512

December 2020 refresh

- The following RACDCERT MAP parameters have been updated: MAP(data-set-name), IDNFILTER and SDNFILTER. See "RACDCERT MAP (Create mapping)" on page 343.

October 2020 refresh

- Added clarification on Protected user IDs for the SETROPTS INACTIVE parameter. See "SETROPTS (Set RACF options)" on page 571.

June 2020 refresh

- The RADCERT hardware requirements relating to Crypto Express3 coprocessor (CEX3C) have been updated. See "RACDCERT (Manage RACF digital certificates)" on page 249 for more information.

- The ADDSD, ALTDSD, RALTER, and RDEFINE commands have been updated to include the CSDATA segment. See:
  - “ADDSD (Add data set profile)” on page 31
  - “ALTDSD (Alter data set profile)” on page 86
  - “RALTER (Alter general resource profile)” on page 382
  - “RDEFINE (Define general resource profile)” on page 444

Prior to June 2020 refresh

- The RALTER, RDEFINE, and RLIST commands have been updated to include the IDTPARMS segment for the generation and validation of Identity Tokens (IDT). See:
  - “RALTER (Alter general resource profile)” on page 382
  - “RDEFINE (Define general resource profile)” on page 444
  - “RLIST (List general resource profile)” on page 512
- A new VALREXX keyword is added to the CFDEF segment of the general resource profile for RALTER and RDEFINE. See “RALTER (Alter general resource profile)” on page 382 and “RDEFINE (Define general resource profile)” on page 444 for more information.
- The TARGET command has been updated to include the NEWPREFIX and NEWWORKSPACE keywords. See“TARGET (Manage RRSF nodes)” on page 619 for more information.
- The ADDUSER, ALTUSER, RALTER, and RDEFINE commands have been updated to include to new encryption types for the ENCRYPT keyword in the KERB segment. See:
  - “ADDUSER (Add user profile)” on page 45
  - “ALTUSER (Alter user profile)” on page 110
  - “RALTER (Alter general resource profile)” on page 382
  - “RDEFINE (Define general resource profile)” on page 444
- The RALTER, RDEFINE, and RLIST commands have been updated for the JES segment. See:
  - “RALTER (Alter general resource profile)” on page 382
  - “RDEFINE (Define general resource profile)” on page 444
  - “RLIST (List general resource profile)” on page 512
- The RALTER, RDEFINE, and RLIST commands have been updated for new SSIGNON segment keywords. See:
  - “RALTER (Alter general resource profile)” on page 382
  - “RDEFINE (Define general resource profile)” on page 444
  - “RLIST (List general resource profile)” on page 512
- The RACDCERT GENCERT and RACDCERT REKEY commands have been updated with the new SIGATTR keyword. See:
  - “RACDCERT GENCERT (Generate certificate)” on page 302
  - “RACDCERT REKEY (Rekey certificate)” on page 349
- The RACDCERT ADD and RACDCERT LIST commands have been updated with information on supported signature algorithms. See:
  - RACDCERT ADD “PKCS #7 and PKCS #12 processing details:” on page 260
  - “RACDCERT LIST (List certificate)” on page 325

Changed

No information has been changed in this edition.

Deleted

No information has been deleted in this edition.

Summary of changes for z/OS Version 2 Release 3 (V2R3)

The following changes are made to z/OS Version 2 Release 3 (V2R3)

The most recent updates are listed at the top of each section.

New

- In support of APAR OA54350, the new *criteria-name* value, SERVICE, is added to "PERMIT (Maintain resource access lists)" on page 237.
- A new section for Certificate Date and Time value considerations is added to "RACDCERT (Manage RACF digital certificates)" on page 249 for APAR OA52844.
- The following updates are for APAR OA52650:
  - "Summary of commands and their functions" on page 1 is updated to include the new command, RACPRMCK.
  - "Summary of issuing options" on page 10 is updated to include the new command, RACPRMCK.
  - A new command, RACPRMCK, is introduced to validate the syntax of one or more parmlib members that contain data for the data set name and range table. For more information, see "RACPRMCK (Validate parmlib member syntax)" on page 381.
- The "ADDUSER (Add user profile)" on page 45 and "ALTUSER (Alter user profile)" on page 110 commands are updated to include a new WORKATTR keyword, WAEMAIL, which contains a user's qualified e-mail address.
- Added new parameter, ENHANCEDGENERICOWNER, to the SETROPTS command. For more information, see "SETROPTS (Set RACF options)" on page 571.
- The following resource classes for z/OS systems are added. For more information, see "Supplied resource classes for z/OS systems" on page 647.
  - HBRADMIN
  - HBRCONN
  - HBRCMD
  - MFADEF
  - WBEM
  - ZMFCLOUD

Changed

- "RACDCERT MAP (Create mapping)" on page 343 is updated to include clarification on the IDNFILTER and SDNFILTER specifications.
- "Syntax of RACF commands and operands" on page 11 is updated to include clarification on the use of quotation marks when you are specifying data set names.
- The parameters, PCICC and ICSF, are deprecated in the following RACDCERT commands:
  - "RACDCERT (Manage RACF digital certificates)" on page 249
  - "RACDCERT ADD (Add certificate)" on page 257
  - "RACDCERT GENCERT (Generate certificate)" on page 302
  - "RACDCERT IMPORT (Import certificate)" on page 320
  - "RACDCERT LIST (List certificate)" on page 325
  - "RACDCERT REKEY (Rekey certificate)" on page 349

- “RVARY (Change status of RACF database)” on page 534 is updated to include corrected syntax diagram.
- The SET command is updated to include information in regards to the support for TSO/E 8 character user ID support. For more information, see “SET” on page 553.
- The following commands is updated to handle DATAKEY field in DFP segment in data set profile:
  - “ADDSD (Add data set profile)” on page 31
  - “ALTDSD (Alter data set profile)” on page 86
  - “LISTDSD (List data set profile)” on page 192
- The following commands have updates to the ICSF segment of a CSFKEYS profile:
  - “RALTER (Alter general resource profile)” on page 382
  - “RDEFINE (Define general resource profile)” on page 444
  - “RLIST (List general resource profile)” on page 512
- The following commands have updates to the KERB segments:
  - “ALTUSER (Alter user profile)” on page 110
  - “RALTER (Alter general resource profile)” on page 382
  - “RDEFINE (Define general resource profile)” on page 444

Chapter 1. Introduction

The profiles in the RACF database contain the information RACF needs to control access to resources. The RACF commands allow you to add, change, delete, and list the profiles for:

- Users
- Groups
- Data sets
- General resources, which include terminals, DASD volumes, and all other resource classes defined in the RACF class descriptor table (CDT).

Table 1 on page 2 shows, in alphabetic order, each command, and its function.

Most RACF functions do not require special versions or releases of the operating system or operating system components. However, some do require that your system be at a certain level. If you are unsure about whether a particular RACF function is available with your system, see your security administrator.

Some commands require that the RACF subsystem be active or that you have authorization to issue the commands. Refer to the "Authorization Required" section with each command for details on the authorization required.

The following RACF commands are available only on RACF for VM:

- ADDFILE
- ADDDIR
- ALTFILE
- ALTDIR
- DELFILE
- DELDIR
- LFILE
- LDIRECT
- PERMFILE
- PERMDIR
- SRFILE
- SRDIR

See the appropriate *RACF Command Language Reference* for your VM system for more information.

Note: In data sharing mode or read-only mode, RACF employs global ENQs to serialize access to the RACF database before adding or removing protection from a resource. Otherwise - unless the installation has explicitly converted to GRS - RACF uses hardware RESERVE/RELEASE.

Summary of commands and their functions

RACF commands allow you to list, modify, add, and delete profiles for users, groups, connect entries, and resources. Table 1 on page 2 shows, in alphabetic order, each of the commands and its functions.

Table 1. Functions of RACF commands

RACF command	Command functions
ADDGROUP	• Define one or more new groups as a subgroup of an existing group. • Specify a model data set profile for a group. • Add a custom field for a group. • Define default DFP information for a group. • Define the z/OS UNIX information for a group. • Define a group as a universal group.
ADDSD	• RACF-protect one or more existing data sets. • RACF-define one or more data sets brought from another system where they were RACF-protected. • RACF-define generic data set profiles. • Create a new data set model profile.
ADDUSER	• Define one or more new users and connect the users to their default connect group. • Define a password, or a password and password phrase, for one or more users. • Specify a model data set profile for a user. • Add a custom field for a user. • Specify information related to one or more segments, such as the TSO and OMVS segments, of the user profile.
ALTDSD	• Change one or more discrete or generic data set profiles. • Protect a single volume of a multivolume, non-VSAM DASD data set. • Remove protection from a single volume of a multivolume, non-VSAM DASD data set.
ALTGROUP	• Change information in one or more group profiles (such as the superior group, owner, or model profile name). • Change or delete a custom field for a group. • Change or delete the default DFP information for a group. • Add, change, or delete information for the z/OS UNIX group.
ALTUSER	• Change information in one or more user profiles (such as the owner, universal access authority, or security level). • Revoke or reestablish one or more users' privileges to access the system. • Specify logging of information about the user, such as the commands the user issues. • Change the password or password phrase for one or more users. • Add, change, or delete information related to one or more segments, such as the TSO and OMVS segments, of the user profile.
CONNECT	• Connect one or more users to a group. • Modify one or more users' connection to a group. • Revoke or reestablish one or more users' privileges to access the system.

Table 1. Functions of RACF commands (continued)

RACF command	Command functions
DELDSD	• Delete one or more discrete or generic data set profiles. • Delete a discrete data set profile for a tape data set, while retaining the data set name in the TVTOC. • Remove a data set profile, but leave the data set RACF-indicated, when moving a RACF-protected data set to another system that has RACF.
DELGROUP	• Delete one or more groups and their relationship to the superior group.
DELUSER	• Delete one or more users and remove all of their connections to RACF groups.
DISPLAY	• Display users signed on to a RACF subsystem.
LISTDSD	• List the details of one or more discrete or generic data set profiles, including the users and groups authorized to access the data sets. • Determine the most specific matching generic profile for a data set. • Perform a local refresh of generic DATASET profiles.
LISTGRP	• List the details of one or more group profiles, including the users connected to the group. • List only the information contained in a specific segment (for example, OMVS or CSDATA) of the group profile. • Display limited information if the group is a UNIVERSAL group.
LISTUSER	• List the details of one or more user profiles, including all of the groups to which each user is connected. • List only the information contained in a specific segment (for example, OMVS or CSDATA) of the user profile.
PASSWORD ***or*** **PHRASE**	• Change your own user password or password phrase. • Change one or more users' change interval for passwords and password phrases. • Reset one or more user passwords to their default values.
PERMIT	• Give or remove authority to access a resource to specific users or groups. • Change the level of access authority to a resource for specific users or groups. • Copy the list of authorized users from one resource profile to another. • Delete an existing access list.

Table 1. Functions of RACF commands (continued)

RACF command	Command functions
RACDCERT	• List information about the certificates for a specified RACF-defined user ID, or your own user ID. • Add a certificate and associate it with a specified RACF-defined user ID, or your own user ID, and set the TRUST status. • Check to see if a certificate has been defined to RACF. • Alter the TRUST status or label for a certificate. • Delete a certificate. • List a certificate or a chain of certificates contained in a data set and determine if it is associated with a RACF-defined user ID. • Add or remove a certificate from a key ring. • Create, delete, or list a key ring. • Generate a public/private key pair and certificate, replicate a digital certificate with a new public/private key pair, or retire the use of an existing private key. • Write (export) a certificate or certificate package to a data set. • Create a certificate request. • Create, alter, delete, or list a certificate name filter (user ID mapping). • Add, delete, or list a z/OS PKCS #11 token. • Bind a certificate to a z/OS PKCS #11 token. • Remove (unbind) a certificate from a z/OS PKCS #11 token. • Import a certificate (with its private key, if present) from a z/OS PKCS #11 token and add it to RACF.
RACLINK	• Define, approve, and delete (undefine) a user ID association. • List information related to a user ID association. • Establish password synchronization between user IDs.
RACMAP	• Create an association between a distributed user identity and a RACF user ID. • Define, delete, list, and query a distributed identity filter.
RACPRIV	• List, activate, and inactivate the user's write-down setting. • Reset the user's write-down setting to the installation-defined default.
RACPRMCK	• Validate the syntax of one or more RACF parmlib members. • Verify that the data within the RACF parmlib members is valid for the data set name table and range table.
RALTER	• Change the discrete or generic profiles for one or more resources whose class is defined in the class descriptor table. • Define, change, or delete attributes for classes in the dynamic class descriptor table. • Maintain the global access checking table. • Maintain security categories and security levels. • Define, change, or delete information related to one or more segments of a general resource profile.

Table 1. Functions of RACF commands (continued)

RACF command	Command functions
RDEFINE	• RACF-protect by a discrete or generic profile any resource whose class is defined in the class descriptor table. • Define attributes for classes in the dynamic class descriptor table. • Define entries in the global access checking table. • Define security categories and security levels. • Define information related to one or more segments of a general resource profile.
RDELETE	• Remove RACF-protection from one or more resources whose class is defined in the class descriptor table. • Delete the global access checking tables. • Delete the security category and security level tables. • Delete a class from the list of classes for which RACF saves RACLISTed results on the RACF database.
REMOVE	• Remove one or more users from a group and assign a new owner for any group data sets owned by the users.
RESTART	• Restart a function in the RACF subsystem address space. • Restart the connection to a specific member system on a multisystem node.
RLIST	• List the details of discrete or generic profiles for one or more resources whose class is defined in the class descriptor table. • List the contents of one or more segments of a general resource profile. • Perform a local refresh of generic general resource profiles.
RVARY	• Dynamically deactivate and reactivate the RACF function. • Dynamically deactivate and reactivate the RACF primary and backup database. • Switch the primary and backup RACF databases. • Deactivate resource protection, for any resource whose class is defined in the class descriptor table, while RACF is deactivated. • Select operational mode when RACF is enabled for sysplex communication.

Table 1. Functions of RACF commands (continued)

RACF command	Command functions
SEARCH	• Obtain a list of RACF profile names that meet the search criteria for a class of, resources, users, or groups. These profile names can then be displayed on your terminal. – Profile names that contain a specific character string – Profiles for resources that have not been referenced for more than a specific number of days – Profiles that RACF recognizes as model profiles – Data set and general resource profiles that contain a level equal to or greater than the level you specify – User and resource profiles that contain a security label that matches the security label you specify. – User and resource profiles that contain a security level that matches the security level that you specify – User and resource profiles that contain an access category that matches the access category that you specify. – User profiles that contain an OMVS UID equal to the UID you specify. – Group profiles that contain an OMVS GID equal to the GID you specify. – Profiles for tape volumes that contain only data sets with an expiration date that matches the criteria you specify. – Profiles for data sets that reside on specific volumes (or VSAM data sets that are cataloged in catalogs on specific volumes). – Profiles for tape data sets, non-VSAM DASD data sets, or VSAM data sets. • Format the selected profile names with specific character strings into a series of commands or messages and retain them in a CLIST data set. • Create a CLIST of the RACF profile names that meet a search criteria for a class of resources.
SET	• List information related to RACF remote sharing facility (RRSF) on the local node. • List the value for the template version following the FMID/APAR value. • Specify the name of a member of the RACF parameter library to be processed by RACF. • Enable and disable tracing for specified events. • Specify options for automatic command direction. • Improve performance of generic profiles by specifying GENERICANCHOR options.

Table 1. Functions of RACF commands (continued)

RACF command	Command functions
SETROPTS	Dynamically set system-wide options relating to resource protection, specifically: • Choose the resource classes that RACF is to protect. • Gather and display RACF statistics. • Set the universal access authority (UACC) for terminals. • Specify logging of certain RACF commands and events. • Permit list-of-groups access checking. • Display options currently in effect. • Enable or disable generic profile checking on a class-by-class basis. • Control user password syntax rules. • Activate checking for previous passwords and password phrases. • Limit unsuccessful attempts to access the system using incorrect passwords and password phrases. • Control maximum and minimum change intervals for passwords and password phrases. • Control mixed-case passwords. • Warn of password expiration. • Control global access checking for selected individual resources or generic names with selected generalized access rules. • Set the passwords for authorizing use of the RVARY command. • Initiate® refreshing of in-storage generic profile lists and global access checking tables. • Enable or disable shared generic profiles for general resources in common storage. • Enable or disable shared profiles through RACLIST processing for general resources. • Activate or deactivate auditing of access attempts to RACF-protected resources based on installation-defined security levels. • Activate enhanced generic naming. • Control the use of automatic data set protection (ADSP). • Activate profile modeling for GDG, group, and user data sets. • Activate protection for data sets with single-level names. • Control logging of real data set names. • Control the job entry subsystem (JES) options. • Activate tape data set protection. • Control whether or not data sets must be RACF-protected. • Control the erasure of scratched DASD data sets. • Activate program control. • Control whether a profile creator's user ID is automatically added to the profile's access list. • Make the name of the local RACF registry available to EIM services. • Control use of the dynamic class descriptor table. • Control multilevel security options.
SIGNOFF	• Sign off users from a RACF subsystem.

Table 1. Functions of RACF commands (continued)

RACF command	Command functions
STOP	• Stop the RACF subsystem address space.
TARGET	• List the operational and network protocol attributes of one or more RRSF nodes. • Add or modify an RRSF node. • Convert a remote RRSF node from one network protocol to another. • Add a network protocol or modify protocol attributes for an RRSF node. • Activate or inactivate an RRSF node or a protocol instance for an RRSF node. • Specify a prefix and other attributes for the workspace data sets allocated and used by each RRSF node. • Purge a workspace data set for an RRSF node. • Delete an RRSF node or a protocol instance for an RRSF node.

Chapter 2. Basic information for issuing RACF commands

You can use the RACF commands to add, modify, or delete RACF profiles and to define system-wide options. Before you can issue a RACF command, you must be defined to RACF with a sufficient level of authority.

How to enter RACF commands

There are several ways to enter RACF commands.

RACF TSO commands

Some RACF commands can be entered as RACF TSO commands. For information on entering RACF commands as RACF TSO commands, see Chapter 3, "RACF TSO commands," on page 17. For a complete list of which RACF commands can be entered as RACF TSO commands, see Table 2 on page 10.

RACF operator commands

Some RACF commands can be entered as RACF operator commands. For information on entering RACF commands as RACF operator commands, see Chapter 4, "RACF operator commands," on page 21. For a complete list of which RACF commands can be entered as RACF operator commands, see Table 2 on page 10.

Command direction and automatic command direction

With command direction, some RACF commands can be directed to run under the authority of a user ID on a remote node, or the same node. Use the AT keyword on your command for command direction. For information on command direction, see *z/OS Security Server RACF Security Administrator's Guide*. For information on the AT keywords, see the eligible command descriptions. For a complete list of RACF commands that are eligible for command direction, see Table 2 on page 10.

A failure might occur while attempting to execute a command issued on one (uplevel) system and manually or automatically directed to another (downlevel) system through RACF remote sharing facility (RRSF) for any of the following reasons:

- The command references a class unknown to the target system (for example, if the class descriptor tables are different),
- The command references a segment or field unknown to the target system (for example, if the templates or dynamic parse definition are different)
- The command uses a command keyword unknown to the target (for example, if the dynamic parse definitions or command processor code is different), or if it specifies a profile or member name that is unacceptable to the target system (for example, if the class descriptor tables have different syntax requirements for profile name length or syntax).

If an out-of-synchronization condition occurs while using automatic command direction, a RACF TSO command can be directed with the ONLYAT keyword to fix the condition. The command runs on the node specified on the ONLYAT keyword and are not propagated to any other node. (Note that if the AT keyword is used, the command can be propagated by automatic command direction to other nodes.) For information on the ONLYAT keyword, see the eligible command descriptions. For a complete list of RACF commands that are eligible for automatic command direction, see Table 2 on page 10.

Some RACF TSO commands can be automatically directed to remote nodes in order to keep profiles synchronized between the nodes. For information on automatic command direction, see *z/OS Security Server RACF Security Administrator's Guide*.

RACF parameter library

Some RACF commands can be processed from the RACF parameter library. For information on using the RACF parameter library, see *z/OS Security Server RACF System Programmer's Guide*. For a complete list of commands that can be processed from within the RACF parameter library, see Table 2 on page 10.

Note: The RACF commands allow you to abbreviate an operand to the least number of characters that uniquely identify the operand. To avoid conflicts in abbreviations, it is a good practice to fully spell out all operands on commands that are hardcoded in the RACF parameter library.

R_admin callable service

You can also issue commands by calling the `R_admin` callable service (IRRSEQ00). For more information on using this callable service, and for a complete list of commands that can be issued in this manner, see *z/OS Security Server RACF Callable Services*.

Summary of issuing options

Table 2 on page 10 lists the ways you can enter each RACF command.

Table 2. How the RACF commands can be issued

RACF command	As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
ADDGROUP	Yes	Yes	Yes	Yes	Yes
ADDSD	Yes	Yes	Yes	Yes	Yes
ADDUSER	Yes	Yes	Yes	Yes	Yes
ALTDSD	Yes	Yes	Yes	Yes	Yes
ALTGROUP	Yes	Yes	Yes	Yes	Yes
ALTUSER	Yes	Yes	Yes	Yes	Yes
BLKUPD **“1” on page 11**	Yes	No	No	No	No
CONNECT	Yes	Yes	Yes	Yes	Yes
DELDSD	Yes	Yes	Yes	Yes	Yes
DELGROUP	Yes	Yes	Yes	Yes	Yes
DELUSER	Yes	Yes	Yes	Yes	Yes
DISPLAY	No	Yes	No	No	Yes
LISTDSD	Yes	Yes	Yes	No	Yes
LISTGRP	Yes	Yes	Yes	No	Yes
LISTUSER	Yes	Yes	Yes	No	Yes
PASSWORD	Yes	Yes	Yes	Yes	Yes
PERMIT	Yes	Yes	Yes	Yes	Yes
RACDCERT	Yes	No	No “2” on page 11	No “3” on page 11	No
RACLINK	Yes	Yes	No	No	No
RACMAP	Yes	No	No “2” on page 11	No “3” on page 11	No

Table 2. How the RACF commands can be issued (continued)

RACF command	As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
RACPRIV	Yes	No	No	No	No
RACPRMCK	Yes	Yes	No	No	No
RALTER	Yes	Yes	Yes	Yes	Yes
RDEFINE	Yes	Yes	Yes	Yes	Yes
RDELETE	Yes	Yes	Yes	Yes	Yes
REMOVE	Yes	Yes	Yes	Yes	Yes
RESTART	No	Yes	No	No	No
RLIST	Yes	Yes	Yes	No	Yes
RVARY	Yes	Yes	No	No	Yes
SEARCH	Yes	Yes	Yes "4" on page 11	No	Yes
SET	No	Yes	No	No	Yes
SETROPTS	Yes	Yes	Yes	Yes "5" on page 11	Yes
SIGNOFF	No	Yes	No	No	Yes
STOP	No	Yes	No	No	No
TARGET	No	Yes	No	No	Yes

Note:

1. Information about the block update (BLKUPD) command appears in *z/OS Security Server RACF Diagnosis Guide*, not this document.
2. This command cannot be directed to a remote system using the AT or ONLYAT keyword.
3. Updates made to the RACF database by this command are eligible for propagation with automatic direction of application updates based on certain RRSFDATA profiles. For details, see "Issuing options" in the command syntax topic for this command.
4. The SEARCH command is not eligible for command direction when the CLIST keyword is specified.
5. The SETROPTS LIST command without other keywords is not eligible for automatic command direction.

Syntax of RACF commands and operands

This publication describes the syntax and function of the RACF commands. The commands are presented in alphabetical order. Each command description contains several examples.

For the key to the symbols used in the command syntax diagrams, see Figure 1 on page 12.

1. UPPERCASE LETTERS or WORDS must be coded as they appear in the syntax diagrams but do not have to be uppercase.
2. Lowercase letters or words represent variables for which you must supply a value.
3. Parentheses ( ) must be entered exactly as they appear in the syntax diagram.
4. An ellipsis ... (three consecutive periods) indicates that you can enter the preceding item more than once.
5. A single item in brackets [ ] indicates that the enclosed item is optional. Do not specify the brackets in your command.
6. Stacked items in brackets [ ] indicate that the enclosed items are optional. You can choose one or none. Do not specify the brackets in your command.
7. Stacked items in braces { } indicate that the enclosed items are alternatives. You must specify one of the items. Do not specify the braces in your command.

   Note: When you select a bracket that contains braces, you must specify one of the alternatives enclosed within the braces.
8. Items separated by a vertical bar | indicate that you can specify only one of the items. Do not specify the vertical bar in your command.
9. An underlined operand indicates the default value when no alternate value is specified.
10. **BOLDFACE** or **boldface** indicates information that must be given for a command.
11. Single quotation marks ' ' indicate that information must be enclosed in single quotation marks.

Figure 1. Key to symbols in command syntax diagrams

The syntax for all occurrences of the *userid*, *group-name*, *password*, *class-name*, *profile-name*, *volume-serial*, *terminal-id*, *date*, and *data-set-name* operands in this book is as follows:

userid
: 1 - 8 alphanumeric characters in length, consisting of any combination of uppercase A - Z, 0 - 9, # (X'7B'), $ (X'5B'), or @ (X'7C').

  Note: TSO and MVS™ also require that the first character of user IDs be uppercase A - Z, # (X'7B'), $ (X'5B'), or @ (X'7C').

group-name
: 1 - 8 alphanumeric characters beginning with an alphabetic, # (X'7B'), $ (X'5B'), or @ (X'7C') character. (You can set the default prefix to a group name only if the group name contains 1 - 7 characters. If the group name has 8 characters, you must always enter fully-qualified group data set names on the commands.

password
: 1 - 8 alphanumeric characters. Each installation can define its own password syntax rules. Lowercase alphanumeric characters are valid and maintained in the case entered if SETROPTS PASSWORD(MIXEDCASE) is in effect. Some additional symbolic characters are valid if SETROPTS PASSWORD(SPECIALCHARS) is in effect.

class-name
: Valid class names are USER, GROUP, DATASET, and those classes defined in the class descriptor table.

  The entries supplied by IBM in the class descriptor table are listed in Appendix B, “Supplied RACF resource classes,” on page 647.

profile-name
: Either a discrete name or a generic name, as described in Appendix A, “Naming considerations for resource profiles,” on page 637.

terminal-id
1 - 8 alphanumeric characters.

volume-serial
1 - 6 alphanumeric characters.

date
RACF interprets dates as 20*yy* when the year is less than 71, and 19*yy* when the year is 71 or higher.

data-set-name
The RACDCERT commands use the data set naming convention on z/OS, where quotation marks are optional. If the data set name is not enclosed in quotation marks, the TSO login ID is prefixed to the data set name. If you surround the data set name in quotation marks, the syntax can be clearer and more specific. Therefore, quotation marks are encouraged and are used in the code samples that are provided.

Return codes from RACF commands

All of the RACF commands (except RVARY) issue the following return codes. RVARY issues return codes of 0, 8, and 12.

Decimal code
Meaning

0
Normal completion.

4
The command encountered a user error or an authorization failure and attempted to continue processing. Refer to documentation of the error message that RACF issues to determine what part of the current entity (if any) was completed. If additional entities were specified on the command, RACF attempts to process them.

8
The command encountered a user error or an authorization failure and terminated processing.

12
The command encountered a system error and terminated processing.

Except for commands entered using the AT keyword or the RACLINK command, you can use CLIST processing or REXX exec processing to check for these return codes. Commands entered using the AT keyword or the RACLINK command run in two phases:

- The first phase validates the issuer's authority to use the function and determines whether the RACF subsystem address space is available to handle the second phase. A return code of 0 from the first phase means the request was successfully passed to the RACF subsystem address space. A return code of 8 means the command was rejected.
- The second phase runs in the RACF subsystem address space. Return codes within the address space cannot be interrogated by the issuer's CLIST or REXX exec. The success of the command processing within the second phase must be determined from the returned output messages, if any.

RACF command limits for non-base segments in RACF profiles

In general, you can specify up to 255 operands with a single command to create or alter a non-base profile segment. **Exception:** For the CSDATA segment in user and group profiles, you can specify up to 85 operands with a single command.

Examples of non-base segments in user profiles include the OMVS, TSO and CSDATA segments. Examples of non-base segments in general resource profiles include the CDTINFO, EIM, and STDATA segments.

The following RACF commands create or alter non-base segments in profiles, and operate within these limits:

- ADDGROUP

- ADDSD
- ADDUSER
- ALTDSD
- ALTGROUP
- ALTUSER
- RALTER
- RDEFINE.

If you issue a single command specifying more than 255 operands for a non-base profile segment (other than the CSDATA segment), the command will not execute correctly although it will appear successful. Only the remainder of *n* ÷ 255 operands will be applied to the database, where *n* is the number of operands you specified for the segment. For example, if you issue the ALTUSER command specifying 259 operands for a non-base segment, RACF applies only the last 4 operands to the database.

If you issue a single command specifying more than 85 operands for the CSDATA segment, the command will not execute correctly although it will appear successful. Only the first 85 operands will be applied to the database, and the rest will be ignored. For example, if you issue the ALTUSER command specifying 93 operands for the CDTINFO segment, RACF applies only the first 85 CSDATA operands and ignores the last 8 CSDATA operands.

Installation exit routines from RACF commands

RACF provides a general purpose exit, IRREVX01, that can be modified by installations to receive control when the following RACF TSO commands are issued.

ADDGROUP
ADDSD
ADDUSER
ALTDSD
ALTGROUP
ALTUSER
CONNECT
DELDSD
DELGROUP
DELUSER
LISTDSD
LISTGRP
LISTUSER
PASSWORD
PERMIT
RALTER
RDEFINE
RDELETE
REMOVE
RLIST
SEARCH
SETROPTS

RACF does not invoke the IRREVX01 exit for the BLKUPD, RVARY, RACDCERT, RACMAP, RACLINK and RACPRIV commands or for true RACF operator commands such as RESTART, TARGET, and SIGNOFF.

Your location might use installation-written exit routines to take additional security actions during RACF command processing, and these actions can affect the results you get when you issue a RACF command. For example, your location could use the ICHPWX01 preprocessing exit to install its own routine to examine a new password and new change interval.

For a complete description of RACF installation exits, see *z/OS Security Server RACF System Programmer's Guide*.

Attribute and authority summary

Each command description in this book includes a section called "Authorization Required", which describes how attributes and authorities affect your use of that command.

Group authorities

The group authorities, which define user responsibilities within the group, are shown, in the following, in order of least to most authority. Each level includes the privileges of the levels preceding it.

USE
Allows you to access resources to which the group is authorized

CREATE
Allows you to create RACF data set profiles for the group

CONNECT
Allows you to connect other users to the group

JOIN
Allows you to add new subgroups or users to the group, as well as assign group authorities to the new members

For more information on group authority, refer to *z/OS Security Server RACF Security Administrator's Guide*.

Access authority for data sets

Data sets can have one of the following access authorities:

NONE
Does not allow users to access the data set.

EXECUTE
For a private load library, EXECUTE allows users to load and execute, but not to read or copy, programs (load modules) in the library.

In order to specify EXECUTE for a private load library, you must ask for assistance from your RACF security administrator.

Important: Anyone who has READ, UPDATE, CONTROL, or ALTER authority to a protected data set can create a copy of it. As owner of the copied data set, that user has control of the security characteristics of the copied data set, and can change them. For this reason, you should assign a UACC of NONE, and then selectively permit a small number of users to access your data set, as their needs become known.

READ
Allows users to access the data set for reading only. (Note that users who can read the data set can copy or print it.)

UPDATE
Allows users to read from, copy from, or write to the data set. UPDATE does *not* authorize a user to delete, rename, move, or scratch the data set.

Allows users to perform normal VSAM I/O (not improved control interval processing) to VSAM data sets.

CONTROL
For VSAM data sets, CONTROL is equivalent to the VSAM CONTROL password; that is, it allows users to perform improved control interval processing - CONTROL is control-interval access (access to individual VSAM data blocks), and the ability to retrieve, update, insert, or delete records in the specified data set.

For non-VSAM data sets, CONTROL is equivalent to UPDATE.

ALTER
ALTER allows users to read, update, delete, rename, move, or scratch the data set.

When specified in a discrete profile, ALTER allows users to read, alter, and delete the profile itself *including the access list*.[1]

ALTER does not allow users to change the owner of the profile using the ALTDSD command. However, if a user with ALTER access authority to a discrete data set profile renames the data set, changing the high-level qualifier to his or her own user ID, both the data set and the profile are renamed, *and* the OWNER of the profile is changed to the new user ID.

ALTER authority to a generic profile allows users to create new data sets that are covered by that profile, it does not give users authority over the profile itself.

[1] More information about ALTER authority and how to limit it can be found in Limiting ALTER access authority in discrete profiles in *z/OS Security Server RACF Security Administrator's Guide*.

Chapter 3. RACF TSO commands

Most RACF commands can be entered as RACF TSO commands. For a complete list of the RACF commands that can be entered as RACF TSO commands, see Table 2 on page 10.

RACF list commands, such as LISTUSER * or LISTGRP *, can generate many thousands of lines of output. This quantity of output is likely to be unusable, except as input to a processing program and can exhaust address space resources below the 16 MB line.

Restriction: RACF commands that provide output listings (LISTDSD, LISTGRP, LISTUSER, RACDCERT, RACLINK, RLIST, and SETROPTS) are intended to be issued by users, not by programs. IBM does not support the processing of these commands by programs. The output format of these commands is not an intended interface and might change with any z/OS release or as the result of service (PTFs) applied within a release. Programs should not examine the output of these commands. Instead, programs should use documented programming interfaces, such as the following interfaces:

- The output file from the IRRDBU00 (database unload) utility, which was designed specifically for this use.
- The results returned by the RACROUTE REQUEST=EXTRACT request.
- The results returned by the ICHEINTY macro.
- The results returned by the `R_admin` (IRRSEQ00) callable service when using one of the profile extract function codes, or one of the SETROPTS retrieval function codes.

The syntax of RACF TSO commands is the same as the syntax of TSO commands. For example, a comma or one or more blanks are valid delimiters for use between operands.

Note:

1. "Syntax of RACF commands and operands" on page 11 contains the key to symbols used in the command syntax diagrams.
2. The TSO parse routines allow you to abbreviate an operand on a TSO command to the least number of characters that uniquely identify the operand. To avoid conflicts in abbreviations, it is a good practice to fully spell out all operands on commands that are hardcoded (as in programs, CLISTs and the RACF parameter library, for example).
3. If you specify a keyword in the BASE segment multiple times on the same command, RACF uses only the last occurrence. If a keyword in a non-BASE segment (such as TSO, CICS®, SESSION) is specified multiple times on the same command, the last occurrence is also used, except for keywords for which a list of values is valid. For example, ADDUSER USER1 NETVIEW(OPCLASS(*value1 value2 value3* ...))). For these keywords, all values on all specifications are accepted.
4. Ensure that your job or logon specifies a region size that is large enough to run the commands, or it might ABEND unpredictably.

How to enter RACF TSO commands

The following sections describe how to enter RACF TSO commands. You can enter RACF TSO commands directly in the foreground during a TSO terminal session or by using the RACF ISPF panels.

You can enter commands in the background by using a batch job. You cannot use alias data set names in the RACF commands or panels. Alias names are alternative names for a data set that are defined in the catalog. RACF does not allow alias names because RACF uses the RACF database, not the catalog, for its processing.

Additional authorization for using the ISPF panels: You must authorize general users to use ISPF panels to add data to custom fields in user and group profiles. For details, see Authorizing users to update data in a custom field in *z/OS Security Server RACF Security Administrator's Guide*.

Using the ISPF panels

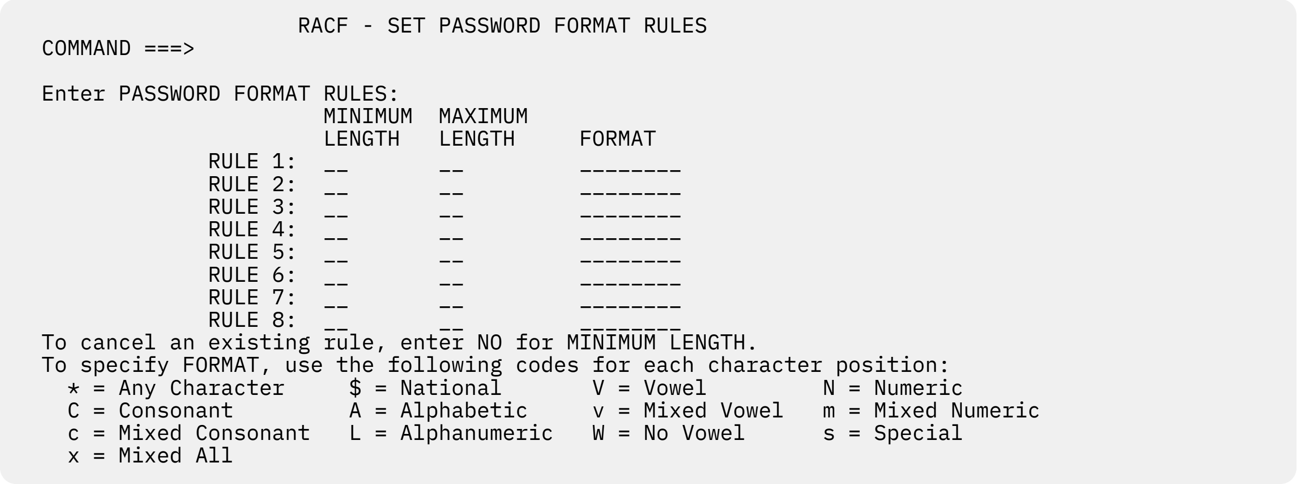
In general, you can perform the same RACF functions using the ISPF panels.

The **ISPF panels** provide the following advantages:

- When you use the panels, you avoid having to memorize a command and type it correctly. Panels can be especially useful if the command is complex or you perform a task infrequently.
- ISPF creates in the ISPF log a summary record of the work that you do. Unless you use the TSO session manager, the RACF commands do not create such a record.
- From the panels, you can press the HELP key to display brief descriptions of the fields on the panels.
- The options chosen when installing the RACF panels determine whether output (for example, profile listings, search results, and RACF options) is displayed in a scrollable form.
- The ISPF panels for working with password rules allow you to enter all of the password rules on one panel. The figure below shows one of these panels.
- When you use the ISPF panels to update a custom field definition in the CFDEF segment, the current values are displayed. You can then overtype the values to make changes.
- When you use the ISPF panels to add, update, or delete custom field information (CSDATA segment fields), the panels are primed with the custom field names and values. You can then make additions, changes, and deletions.

Limitations: The following limitations apply to the use of the ISPF panels:

- The ISPF panels do not support all options of all commands. For example, the SETROPTS PASSWORD option to activate and deactivate mixed-case password support is not available through the RACF panels.
- The ISPF RACF panels are limited to 32000 lines of command output. If the output listing for a command (most commonly, the RLIST command) exceeds 32000 lines, the output is truncated at the 32000 line limit and an error is likely to occur. To avoid this limitation, use one of the following alternate methods:
  - Issue the command using a batch execution of the terminal monitor program (TMP) and use the SDSF **XD** command to store the output in a data set.
  - Create a report using output from the RACF database unload (IRRDBU00) utility.



```
                    RACF - SET PASSWORD FORMAT RULES
COMMAND ===>

Enter PASSWORD FORMAT RULES:
                      MINIMUM  MAXIMUM
                      LENGTH   LENGTH     FORMAT
             RULE 1:  __       __         ________
             RULE 2:  __       __         ________
             RULE 3:  __       __         ________
             RULE 4:  __       __         ________
             RULE 5:  __       __         ________
             RULE 6:  __       __         ________
             RULE 7:  __       __         ________
             RULE 8:  __       __         ________
To cancel an existing rule, enter NO for MINIMUM LENGTH.
To specify FORMAT, use the following codes for each character position:
  * = Any Character     $ = National       V = Vowel         N = Numeric
  C = Consonant         A = Alphabetic     v = Mixed Vowel   m = Mixed Numeric
  c = Mixed Consonant   L = Alphanumeric   W = No Vowel      s = Special
  x = Mixed All
```

Figure 2. Sample ISPF panel for RACF

Entering RACF TSO commands in the foreground

To enter RACF TSO commands in the foreground, you must be able to:

- Conduct a TSO terminal session

- Use the TSO commands
- Use system-provided aids (HELP command, attention interrupt, conversational messages)
- Respond to TSO prompts

See *z/OS TSO/E Primer* and *z/OS TSO/E Command Reference* for any information you need.

In addition, to enter RACF TSO commands from the foreground, you must be defined to the system.

The TSO LOGON command is used to define you to the system as a RACF user through the *user identity* (user ID), *password*, GROUP, and OIDCARD operands. To change your RACF password, use the *new_password* option on the LOGON command. If you have more than one account number defined in your TSO profile, you must supply an account number on the LOGON command.

The default data set name prefix in your TSO profile is used as the high-level qualifier of a DASD or tape data set name if you do not enter the fully qualified name in a TSO or RACF command. RACF also uses the TSO default prefix as the high-level qualifier for the name of a CLIST created as a result of the RACF SEARCH command. If you do not have a prefix specified in your TSO profile, (PROFILE NOPREFIX), the user ID from the SEARCH command issuer's ACEE is used as the qualifying prefix.

If you frequently use RACF TSO commands on RACF-protected data sets, you can set your TSO default prefix as follows:

- Set the default prefix to your user ID if you do a good deal of work with your own data sets.
- Set the default prefix to a specific RACF group name if you are working mostly with data sets from that group.

Although, the command examples in this document generally use uppercase characters, you can enter commands using either uppercase or lowercase characters.

Entering RACF TSO commands in the background

You can enter RACF TSO commands in the background by submitting a batch job as follows:

- Using the batch internal or remote reader facility of the job entry subsystem (JES)
- Using the TSO SUBMIT command from a terminal

The RACF data you need to enter on your JCL depends on whether the job entry subsystem (JES) at your installation includes the JES RACF user identification feature. If your level of JES includes the RACF user identification propagation feature, any jobs you submit to the background while logged onto TSO are automatically identified to RACF with the same user identifier. When the job runs, RACF uses your default group as your current connect group. (User, password, and group information is not required on the JOB statement, but if you do specify this information, it overrides the propagated specifications.)

If your level of JES does not include the RACF user identification propagation feature, you must include the USER, PASSWORD, and, optionally, GROUP parameters on the JCL JOB statement.

The USER, PASSWORD, and GROUP parameters on the JCL JOB statement identify you to the system as a RACF user. To change your RACF password, you can use the *new-password* operand of the PASSWORD command. For information on how to code these parameters, see *z/OS MVS JCL Reference*.

As an alternative to coding PASSWORD on JCL statements, you can use the TSO SUBMIT command (for systems that do not have the JES RACF user identification propagation feature) to automatically include this information during job submission. To use SUBMIT, you should code the USER (*userid*) and PASSWORD operands on the SUBMIT command. These operands are then put on the JCL JOB statement that the command generates. When the job runs, RACF uses the name of the user's default group as the current connect group.

Example of RACF TSO commands in the background

The following example shows how to submit RACF TSO commands in the background as a batch job:

```
//jobname     JOB   …
//STEP1       EXEC  PGM=IKJEFT01,DYNAMNBR=20
```

```
//SYSTSPRT    DD    SYSOUT=A
//SYSTSIN     DD    *
 ADDGROUP     PROJECTA
 ADDUSER      (PAJ5 ESH25)
 ADDSD  'PROJECTA.XYZ.DATA'
 PERMIT 'PROJECTA.XYZ.DATA' ID(PAJ5) ACCESS(UPDATE)
/*
```

When a fully-qualified data set name is not given in a command entered in the background, the effect is the same as for a command entered in the foreground; the user's TSO default data set name prefix is used as the high-level qualifier of a DASD or tape data set name. The prefix is also used as the high-level qualifier for the name of a command procedure (CLIST) created as a result of the RACF SEARCH command. If the user is defined to TSO, the default prefix is in the TSO profile for the user specified in the USER parameter on the JCL JOB statement or the USER operand in the TSO SUBMIT command. If the user is not defined to TSO, there is no default prefix unless the TSO PROFILE command is used.

Chapter 4. RACF operator commands

The RACF operator commands allow you to perform RACF functions from an operator console. For a complete list of the RACF commands that can be entered as RACF operator commands, see Table 2 on page 10.

Note: Use of these commands requires that the RACF subsystem has been started. If the RACF subsystem has not been started at your installation, contact your system programmer.

These commands allow an MVS operator to perform certain RACF operations in the RACF subsystem. The RACF subsystem prefix in front of the command identifies the RACF subsystem as the processing environment. Some things to remember:

- RACF operator commands require an MVS environment with the RACF subsystem active.
- The DISPLAY and SIGNOFF commands require APPC/MVS and persistent verification.
- If a command can be issued as both a RACF TSO command or a RACF operator command:
  - RACF first checks that the issuer is defined to RACF and if not, an error message is issued.

    If you are defined to RACF, RACF verifies that you have sufficient authority to the proper resource in the OPERCMDS class to determine if you have authority to issue the command as an operator command. See *z/OS Security Server RACF Security Administrator's Guide* for further information.

    If the OPERCMDS class is not active, or if no OPERCMDS profile exists, then the user is allowed to issue the command as a RACF operator command.
  - You must to be logged on to the console to issue the command as a RACF operator command.

  Note: The RVARY command is the exception, because it can be issued as both a RACF TSO command and an RACF operator command but does not have to fit these circumstances.
- If a command can be issued as a RACF operator command, but not as a RACF TSO command:
  - RACF first checks to see if you have OPERCMDS authority. If the user is logged on to the console, the OPERCMDS class is active, and a OPERCMDS profile exists, you have OPERCMDS authority.
  - If you are not logged on to the console, the OPERCMDS class is inactive, or no OPERCMDS profile exists, you can only issue the command from the master console or a console with system authority.

    Note: The DISPLAY command is the exception, because it can be issued under these circumstances without any particular console authority.

Rules for entering RACF operator commands

1. A RACF operator command must contain the RACF subsystem prefix. A command such as the DISPLAY command could be entered on the command line as follows:

   ```
   #DISPLAY xxxxx
   ```

   Where:

   #

      specifies the subsystem prefix. The subsystem prefix specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your system programmer.

      If no subsystem prefix has been defined, and the subsystem name is `rac1`, the same command would be entered as follows:

      ```
      rac1 DISPLAY xxxxx
      ```

Note: If you need to find out what the subsystem prefix is, contact your system programmer.

xxxx
specifies DISPLAY operands.

2. Separate operands with commas. Do not specify commas before the first operand or after the last operand.

   For example, enter a DISPLAY command with two operands as follows:

   ```
   #DISPLAY xxxx,yyyy
   ```

3. You can also separate operands with blanks. This practice is not encouraged, however, because future releases might not allow this.
4. The order in which you specify the operands on the command line does not affect the command. For example: the commands `#DISPLAY` *xxxx*,*yyyy* and `#DISPLAY` *yyyy*,*xxxx* give the same result.
5. RACF commands entered as RACF operator commands must meet the MVS restrictions on command length and operand content. A command with intended mixed-case input cannot be entered as an operator command because it is automatically translated to uppercase before it is sent to RACF. In addition, command messages and output from RACF to the console are also translated to uppercase. When dealing with profile names or fields requiring mixed-case characters, enter the command as a TSO command, not as an operator command.

Chapter 5. RACF command syntax

This topic describes the syntax and function of the RACF commands. The commands are presented in alphabetic order. Each command description contains several examples.

ADDGROUP (Add group profile)

Purpose

Use the ADDGROUP command to define a new group to RACF.

The command adds a profile for the new group to the RACF database. It also establishes the relationship of the new group to the superior group you specify.

Group profiles consist of a BASE segment and, optionally, other segments such as DFP and OMVS. You can use this command to specify information in any segment of the profile.

Issuing options

The following table identifies the eligible options for issuing the ADDGROUP command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	Yes	Yes	Yes	Yes

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, "RACF operator commands," on page 21.

You must be logged on to the console to issue this command as a RACF operator command.

Related commands

- To delete a group profile, see "DELGROUP (Delete group profile)" on page 182.
- To change a group profile, see "ALTGROUP (Alter group profile)" on page 100.
- To connect a user to a group, see "CONNECT (Connect user to group)" on page 171.
- To remove a user from a group, see "REMOVE (Remove user from group)" on page 506.
- To obtain a list of group profiles, see "SEARCH (Search RACF database)" on page 541.
- To list a group profile, see "LISTGRP (List group profile)" on page 204.

Authorization required

When issuing this command as a RACF operator command, you might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

To use the ADDGROUP command, you must have at least one of the following authorizations:

- Have the SPECIAL attribute,

- Have the group-SPECIAL attribute and the superior group is within your group-SPECIAL scope,
- Be the owner of the superior group, or
- Have JOIN authority in the superior group.

To add segments, such as DFP or OMVS, to a group's profile, you must have at least one of the following authorizations:

- You must have the SPECIAL attribute.
- Your installation must permit you to do so through field-level access checking.

For information on field-level access checking, see *z/OS Security Server RACF Security Administrator's Guide*.

To specify the AT keyword, you must have READ authority to the DIRECT.*node* resource in the RRSFDATA class and a user ID association must be established between the specified *node.userid* pair(s).

To specify the ONLYAT keyword you must have the SPECIAL attribute, the *userid* specified on the ONLYAT keyword must have the SPECIAL attribute, and a user ID association must be established between the specified *node.userid* pair(s) if the user IDs are not identical.

To specify the SHARED keyword, you must have the SPECIAL attribute or at least READ authority to the SHARED.IDS resource in the UNIXPRIV class.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the ADDGROUP command is:

```
[subsystem-prefix]{ADDGROUP | AG}

    (group-name ...)

    [ AT([node].userid ...) | ONLYAT([node].userid ...) ]

    [ CSDATA(
          [ custom-field-name(custom-field-value) ] ...
          ) ]

    [ DATA('installation-defined-data') ]

    [ DFP(
          [ DATAAPPL(application-name) ]
          [ DATACLAS(data-class-name) ]
          [ MGMTCLAS(management-class-name) ]
          [ STORCLAS(storage-class-name) ]
          ) ]

    [ MODEL(dsname) ]

    [ OMVS
          [( AUTOGID | GID(group-identifier) [ SHARED ] )] ]
```

[OVM [(GID(*group-identifier*))]]
[OWNER(*userid or group-name*)]
[SUPGROUP(*group-name*)]
[TERMUACC | NOTERMUACC]
[TME([ROLES(*profile-name ...*)])]
[UNIVERSAL]

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

group-name

Specifies the name of the group whose profile is to be added to the RACF database. If you are defining more than one group, the list of group names must be enclosed in parentheses.

This operand is required and must be the first operand following ADDGROUP. Each *group-name* must be unique and must not currently exist in the RACF database as a group name or a user ID.

AT | ONLYAT

The AT and ONLYAT keywords are only valid when the command is issued as a RACF TSO command.

AT([*node*].*userid ...*)

Specifies that the command is to be directed to the node specified by *node*, where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed to the local node.

ONLYAT([*node*].*userid ...*)

Specifies that the command is to be directed only to the node specified by *node* where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed only to the local node.

CSDATA

Specifies information to add a custom field for this group.

Usage for each custom field is defined using the CFDEF operand of the RDEFINE command for resource profiles in the CFIELD class. Contact your security administrator to see how custom fields are used at your installation. For more information about custom fields, see *z/OS Security Server RACF Security Administrator's Guide*.

***custom-field-name*(*custom-field-value*) ...**

Specifies the name and value of a custom field for this group. You can add values for multiple custom field values with a single ADDGROUP command.

Rules:

- You must use the same *custom-field-name* as defined by the CFIELD profile named GROUP.CSDATA.*custom-field-name*. (The CFIELD profile is defined using the CFDEF operand of the RDEFINE command.)
- You must specify a *custom-field-value* that is valid for the attributes of this custom field. (The attributes, such as data type, are defined in the CFDEF segment of the CFIELD profile.)

DATA('*installation-defined-data*')

Specifies up to 255 characters of installation-defined data to be stored in the group profile and must be enclosed in single quotation marks. It might also contain double-byte character set (DBCS) data.

Use the LISTGRP command to list this information.

DFP

Specifies that when you define a group to RACF, you can enter any of the following suboperands to specify default values for the DFP data, management, and storage classes. DFP uses this information to determine data management and DASD storage characteristics when a user creates a new group data set.

DATAAPPL(*application-name*)

Specifies DFP data application identifier. The maximum length of a data class name is 8 characters.

DATACLAS(*data-class-name*)

Specifies the default data class. The maximum length of a data class name is 8 characters.

A data class can specify some or all of the physical data set attributes associated with a new data set. During new data set allocation, data management uses the value you specify as a default unless it is preempted by a higher priority default, or overridden in some other way (for example, by JCL).

Note: The value you specify must be a valid data class name defined for use on your system. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

For information on defining DFP data classes, see *z/OS DFSMSdfp Storage Administration*.

MGMTCLAS(*management-class-name*)

Specifies the default management class. The maximum length of a management class name is 8 characters.

A management class contains a collection of management policies that apply to data sets. Data management uses the value you specify as a default unless it is preempted by a higher priority default, or overridden in some other way (for example, by JCL).

Note: The value you specify must be defined as a profile in the MGMTCLAS general resource class, and the group must be granted at least READ access to the profile. Otherwise, RACF does not allow the group access to the specified MGMTCLAS. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

For information on defining DFP management classes, see *z/OS DFSMSdfp Storage Administration*.

STORCLAS(*storage-class-name*)

Specifies the default storage class. The maximum length of a *storage-class-name* is 8 characters.

A storage class specifies the service level (performance and availability) for data sets managed by the Storage Management Subsystem (SMS). During new data set allocation, data management uses the value you specify as a default unless it is preempted by a higher priority default, or overridden in some other way (for example, by JCL).

Note: The value you specify must be defined as a profile in the STORCLAS general resource class, and the group must be granted at least READ access to the profile. Otherwise, RACF does not allow the group access to the specified STORCLAS. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

For information on defining DFP storage classes, see *z/OS DFSMSdfp Storage Administration*.

MODEL(*dsname*)

Specifies the name of a discrete MVS data set profile to be used as a model for new *group-name* data sets. For this operand to be effective, the MODEL(GROUP) option (specified on the SETROPTS command) must be active.

RACF always prefixes the data set name with *group-name* when it accesses the model.

For information about automatic profile modeling, refer to *z/OS Security Server RACF Security Administrator's Guide*.

OMVS

Specifies z/OS UNIX System Services information for the group being defined to RACF.

AUTOGID | GID

Specifies whether RACF is to automatically assign an unused GID value to the group or if a specific GID value is to be assigned.

AUTOGID

Specifies that RACF is to automatically assign an unused GID value to the group. The GID value is derived from information obtained from the BPX.NEXT.USER profile in the FACILITY class. For more information on setting up BPX.NEXT.USER, see *z/OS Security Server RACF Security Administrator's Guide*.

If you are using RRSF automatic command direction for the GROUP class, the command sent to other nodes will contain an explicit assignment of the GID value which was derived by RACF on the local node.

Rules:

- AUTOGID cannot be specified if more than one group is entered.
- The AUTOGID keyword is mutually exclusive with the SHARED keyword.
- If both GID and AUTOGID are specified, AUTOGID is ignored.
- Field-level access checking for the GID field applies when using AUTOGID.

GID(*group-identifier*) [SHARED]

GID(*group-identifier*)

Specifies the group identifier. The GID is a numeric value from 0 - 2 147 483 647.

When a GID is assigned to a group, all users connected to that group who have a user identifier (UID) in their user profile can use functions such as the TSO/E command, OMVS, and can access z/OS UNIX files based on the GID and UID values assigned.

Rules:

- If the security administrator has defined the SHARED.IDS profile in the UNIXPRIV class, the GID must be unique. Use the SHARED keyword in addition to GID to assign a value that is already in use.
- If SHARED.IDS is not defined, RACF does not require the GID to be unique. The same value can be assigned to multiple groups, but this is not recommended because individual group control would be lost. However, if you want a set of groups to have exactly the same access to z/OS UNIX resources, you might decide to assign the same GID to more than one group.

- RACF allows you to define and connect a user to more than 300 (which is the same as the NGROUPS_MAX variable defined in the POSIX standard) groups, but when a process is created or z/OS UNIX group information is requested, only up to the first 300 z/OS UNIX groups are associated with the process or user.

  The first 300 z/OS UNIX groups, that have GIDs, to which a user is connected are used by z/OS UNIX. LISTUSER displays the groups in the order that RACF examines them when determining which of the user's groups are z/OS UNIX groups.

  See *z/OS UNIX System Services Planning* for information on NGROUPS_MAX.

SHARED

If the security administrator has chosen to control the use of shared GIDs, this keyword must be used in addition to the GID keyword to specify the group identifier if it is already in use by at least one other group. The administrator controls shared GIDs by defining the SHARED.IDS profile in the UNIXPRIV class.

Rules:

- If the SHARED.IDS profile is not defined, SHARED is ignored.
- If SHARED is specified in the absence of GID, it is ignored.
- If the SHARED.IDS profile is defined and SHARED is specified, but the value specified with GID is not currently in use, SHARED is ignored and UNIXPRIV authority is not required.
- Field-level access checking for the GID field applies when using SHARED.
- The SHARED keyword is mutually exclusive with the AUTOGID keyword.

OVM

Specifies OpenExtensions VM information for the group being defined to RACF. This data is not relevant to z/OS, but is stored in the RACF database if specified. For more information, see the RACF for z/VM publications.

GID(*group-identifier*)

This data is not relevant to z/OS, but is stored in the RACF database if specified. For more information, see the RACF for z/VM publications.

OWNER(*userid or group-name*)

Specifies a RACF-defined user or group to be assigned as the owner of the new group. If you do not specify an owner, you are defined as the owner of the group. If you specify a group name, it must be the name of the superior group for the group you are adding.

SUPGROUP(*group-name*)

Specifies the name of an existing RACF-defined group. This group becomes the superior group of the group profile you are defining.

If you omit SUPGROUP, RACF uses your current connect group as the superior group.

If you specify a group name and also specify OWNER with a group name, you must use the same group name on both SUPGROUP and OWNER.

If your authority to issue ADDGROUP comes from the group-SPECIAL attribute, any group you specify must be within the scope of the group in which you are a group-SPECIAL user.

TERMUACC | NOTERMUACC

TERMUACC

Specifies that during terminal authorization checking, RACF allows any user in the group access to a terminal based on the universal access authority for that terminal. TERMUACC is the default value if you omit both TERMUACC and NOTERMUACC.

NOTERMUACC

Specifies that the group or a user connected to the group must be explicitly authorized (through the PERMIT command with at least READ authority) to access a terminal.

TME

Specifies that information for the Tivoli® Security Management Application is to be added.

Note: The TME segment fields are intended to be updated only by the Tivoli Security Management Application, which manages updates, permissions, and cross references. A security administrator should only directly update Tivoli Security Management fields on an exception basis.

ROLES(*profile-name ...*)

Specifies a list of roles that reference this group.

The *profile-name* value should be the name of a defined role, which is a discrete general resource profile in the ROLE class.

UNIVERSAL

Specifies that this is a universal group that allows an effectively unlimited number of users to be connected to it for the purpose of resource access. The number of users in a universal group with authority higher than USE, or with the attributes SPECIAL, OPERATIONS or AUDITOR at the group level, is still limited to 5957.

When displayed with the LISTGRP command, not all group members will be listed. Only users with authority higher than USE or with the attributes SPECIAL, OPERATIONS or AUDITOR at the group level will be shown in the member list.

Examples

Example	Activity label	Description
1	*Operation*	User IA0 wants to add the group PROJECTA as a subgroup of RESEARCH. User IA0 will be the owner of group PROJECTA. Users in group PROJECTA will be allowed to access a terminal based on the universal access authority assigned to that terminal.
	Known	User IA0 has JOIN authority to group RESEARCH. User IA0 is currently connected to group RESEARCH. User IA0 wants to issue the command as a RACF operator command, and the RACF subsystem prefix is `@`.
	Command	`@ADDGROUP PROJECTA`
	Defaults	SUPGROUP(RESEARCH) OWNER(IA0) TERMUACC
2	*Operation*	User ADM1 wants to add the group PROJECTB as a subgroup of RESEARCH. Group RESEARCH will be the owner of group PROJECTB. Group PROJECTB must be authorized to use terminals through the PERMIT command.
	Known	User ADM1 has JOIN authority to group RESEARCH. User ADM1 is currently connected to group SYS1. USER ADM1 wants to issue the command as a RACF TSO command.
	Command	`ADDGROUP PROJECTB SUPGROUP(RESEARCH) OWNER(RESEARCH) NOTERMUACC`
	Defaults	None.

Example	Activity label	Description
3	*Operation*	User ADM1 wants to add the group SYSINV as a subgroup of RESEARCH. This group will be used as the administrative group for RACF and will use a model name of `SYSINV.RACF.MODEL.PROFILE`. User ADM1 wants to direct the command to run under the authority of user APW02.
	Known	User APW02 has JOIN authority to group RESEARCH and ADM1 wants to issue the command as a RACF TSO command. ADM1 and APW02 have an established user ID association.
	Command	`ADDGROUP SYSINV SUPGROUP(RESEARCH) MODEL(RACF.MODEL.PROFILE) DATA('RACF ADMINISTRATION GROUP') AT(.APW02)`
	Defaults	OWNER(ADM1) TERMUACC Command direction defaults to the local node.
4	*Operation*	User ADM1 wants to add the group DFPADMN as a subgroup of SYSADMN. Group SYSADMN will be the owner of group DFPADMN. Users in group DFPADMN will be allowed to access a terminal based on the universal access authority assigned to that terminal. Group DFPADMN will be assigned the following default information to be used for new DFP-managed data sets created for the group: • Data class DFP2DATA • Management class DFP2MGMT • Storage class DFP2STOR • Data application identifier DFP2APPL.
	Known	• User ADM1 has JOIN authority to group SYSADMN. • User ADM1 is currently connected to group SYS1. • User ADM1 has field-level access of ALTER to the fields in the DFP segment. • DFP2MGMT has been defined to RACF as a profile in the MGMTCLAS general resource class, and group DFPADMN has been given READ access to this profile. • DFP2STOR has been defined to RACF as a profile in the STORCLAS general resource class, and group DFPADMN has been given READ access to this profile. • User ADM1 wants to issue the command as a RACF TSO command.
	Command	`ADDGROUP DFPADMN SUPGROUP(SYSADMN) OWNER(SYSADMN) DFP(DATACLAS(DFP2DATA) MGMTCLAS(DFP2MGMT) STORCLAS(DFP2STOR) DATAAPPL(DFP2APPL))`
	Defaults	TERMUACC

Example	Activity label	Description
5	*Operation*	User ADM1 wants to add the UNIVERSAL group NETGROUP as a subgroup of SYS1. User IBMUSER will be the owner of group NETGROUP. Universal group NETGROUP can have an unlimited number of members (that have USE authority and are not SPECIAL, OPERATIONS, or AUDITOR).
	Known	• User ADM1 has group-SPECIAL authority to group SYS1. • User ADM1 is currently connected to group SYS1.
	Command	`ADDGROUP NETGROUP DATA('INTERNET CUSTOMER GROUP') SUPGROUP(SYS1) OWNER(IBMUSER) UNIVERSAL`
	Defaults	None apply.
6	*Operation*	User RACFADM with SPECIAL or UPDATE authority requests the addition of a new z/OS UNIX group. The user specifies AUTOGID so that RACF will automatically assign an unused GID to the new user.
	Known	The group profile is owned by RACFADM and belongs to RACFADM's current connect group SYSOM. The BPX.NEXT.USER profile in the FACILITY class has been set up to allow automatic GID assignment.
	Command	`ADDGROUP UNIXGRP OMVS(AUTOGID HOME('/u/unixgrp') CPUTIMEMAX(5000) ASSIZEMAX(40000000))`
	Defaults	DFLTGRP(SYSOM) OWNER(RACFADM)

ADDSD (Add data set profile)

Purpose

Use the ADDSD command to add RACF protection to data sets with either discrete or generic profiles.

Changes made to discrete profiles take effect after the ADDSD command is processed. Changes made to generic profiles do not take effect until one or more of the following steps is taken:

- The user of the data set issues the LISTDSD command:

  ```
  LISTDSD DA(data-set-protected-by-the-profile) GENERIC
  ```

  Note: Use the data set name, not the profile name.
- The security administrator issues the SETROPTS command:

  ```
  SETROPTS GENERIC(DATASET) REFRESH
  ```

  See SETROPTS command for authorization requirements.
- The user of the data set logs off and logs on again.

For more information, refer to *z/OS Security Server RACF Security Administrator's Guide*.

Issuing options

The following table identifies the eligible options for issuing the ADDSD command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	Yes	Yes	Yes	Yes

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

You must be logged on to the console to issue this command as a RACF operator command.

Related commands

- To change a data set profile, see “ALTDSD (Alter data set profile)” on page 86.
- To delete a data set profile, see “DELDSD (Delete data set profile)” on page 178.
- To permit or deny access to a data set profile, see “PERMIT (Maintain resource access lists)” on page 237.
- To obtain a list of data set profiles, see “SEARCH (Search RACF database)” on page 541.
- To list a data set profile, see “LISTDSD (List data set profile)” on page 192.

Authorization required

When issuing this command as a RACF operator command, you might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

Note:

1. You need not have the SPECIAL attribute to specify the OWNER operand.
2. To specify the AT keyword, you must have READ authority to the DIRECT.*node* resource in the RRSFDATA class and a user ID association must be established between the specified *node.userid* pair(s).
3. To specify the ONLYAT keyword you must have the SPECIAL attribute, the *userid* specified on the ONLYAT keyword must have the SPECIAL attribute, and a user ID association must be established between the specified *node.userid* pair(s) if the user IDs are not identical.

The level of authority you need to use the ADDSD command and the types of profiles you can define are:

- To protect a user data set with RACF, one of the following must be true:
  - The high-level qualifier of the data set name (or the qualifier supplied by the RACF naming conventions table or by a command installation exit) must match your user ID.
  - You must have the SPECIAL attribute.
  - The user ID for the data set profile must be within the scope of a group in which you have the group-SPECIAL attribute.
- To protect a group data set with RACF, one of the following must be true:
  - You must have at least CREATE authority in the group.
  - You must have the SPECIAL attribute.
  - You must have the OPERATIONS attribute and not be connected to the group.
  - The data set profile must be within the scope of the group in which you have the group-SPECIAL attribute.
  - The data set profile must be within the scope of the group in which you have the group-OPERATIONS attribute, and you must not be connected to the group.
    - If you have the OPERATIONS or group-OPERATIONS attribute and are connected to a group, you must have at least CREATE authority in that group to protect a group data set.

  - When creating a group data set profile, the profile creator's user ID is placed on the access list with ALTER authority unless the creation was allowed due to OPERATIONS or group-OPERATIONS authority or unless the SETROPTS NOADDCREATOR option is in effect.

- To define to RACF a data set that was brought from another system where it was RACF-indicated and RACF-protected with a discrete profile, one of the following must be true:
  - You must either have the SPECIAL attribute, or the data set's profile is within the scope of a group in which you have the group-SPECIAL attribute
  - Your user ID must be the high-level qualifier of the data set name (or the qualifier supplied by the naming conventions routine or a command installation exit).
- To assign a security category to a profile, you must have the SPECIAL attribute or have the category in your user profile.
- To assign a security level to a profile, you must have the SPECIAL attribute or, in your own profile, a security level that is equal to or greater than the security level you are defining.
- To assign a security label to a profile, you must have the SPECIAL attribute or READ authority to the security label profile. However, the security administrator can limit the ability to assign security labels to only users with the SPECIAL attribute.
- To access the DFP or TME segment, field-level access checking is required.
- When either a user or group uses modeling to protect a data set with a discrete profile, RACF copies the following fields from the model profile: the level number, audit flags, global audit flags, the universal access authority (UACC), the owner, the warning, the access list, installation data, security category names, the security level name, the user to be notified, the retention period for a tape data set, and the erase indicator.
- To add a discrete profile for a VSAM data set already RACF-protected by a generic profile, you must have ALTER access authority to the catalog or to the data set through the generic profile.

Model profiles: To specify a model data set profile (using, as required, FROM, FCLASS, FGENERIC, and FVOLUME), you must have sufficient authority over the model profile (the *from* profile). RACF makes the following checks until one of the conditions is met:

- You have the SPECIAL attribute.
- The *from* profile is within the scope of a group in which you have the group-SPECIAL attribute.
- You are the owner of the *from* profile.
- The high-level qualifier of the profile name (or the qualifier supplied by the naming conventions routine or a command installation exit routine) is your user ID.
- For a discrete profile, you have ALTER authority.[2]

Syntax

For the key to the symbols used in the command syntax diagrams, see “Syntax of RACF commands and operands” on page 11. The complete syntax of the ADDSD command is:

[*subsystem-prefix*]{ADDSD | AD}
(***profile-name-1*** [/*password*] ...)
[ADDCATEGORY(*category-name* ...)]
[AT([*node*].*userid* ...) | ONLYAT([*node*].*userid* ...)]

[2] More information about ALTER authority and how to limit it can be found in Limiting ALTER access authority in discrete profiles in *z/OS Security Server RACF Security Administrator's Guide*.

[AUDIT(*access-attempt*[(*audit-access-level*)] ...)]
[CSDATA([*custom-field-name*(*custom-field-value*) | NO*custom-field-name*] ...) | NOCSDATA]
[DATA('*installation-defined-data*')]
[DFP(RESOWNER(*userid or group-name*)][DATAKEY(CKDS *key label*)])]
[ERASE]
[FCLASS(*profile-name-2-class*)]
[FGENERIC]
[FILESEQ(*number*)]
[FROM(*profile-name-2*)]
[FVOLUME(*profile-name-2-serial*)]
[{GENERIC | MODEL | TAPE}]
[LEVEL(*nn*)]
[{SET | SETONLY | NOSET}]
[NOTIFY[(*userid*)]]
[OWNER(*userid or group-name*)]
[RETPD(*nnnnn*)]
[SECLABEL(*security-label*)]
[SECLEVEL(*security-level*)]
[TME([ROLES(*role-access-specification* ...)])]
[UACC(*access-authority*)]
[UNIT(*type*)]
[VOLUME(*volume-serial* ...)]

```
[ WARNING ]
```

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

profile-name-1

Specifies the name of the discrete or generic profile to be added to the RACF database. If you specify more than one name, the list of names must be enclosed in parentheses.

The format of the profile name should follow the TSO/E data set naming conventions, except that the high-level qualifier of the profile name (or the qualifier determined by the naming conventions table or by a command installation exit) must be a user ID or a group name. See *z/OS Security Server RACF Security Administrator's Guide* for more information about the TSO/E data set naming conventions.

To specify a user ID other than your own, you must have the SPECIAL attribute, or the data set profile must be within the scope of a group in which you have the group-SPECIAL attribute. To define a group data set, you must have at least CREATE authority in the specified group, or the SPECIAL attribute, or the data set must be within the scope of a group in which you have the group-SPECIAL attribute.

This operand is required and must be the first operand following ADDSD. Note that, because RACF uses the RACF database and not the system catalog, you cannot use alias data set names.

For additional information, see “Profile names for data sets” on page 638 and the section describing rules for defining data set profiles in *z/OS Security Server RACF Security Administrator's Guide*.

Tape data set: If you are defining a discrete profile that protects a tape data set, you must specify TAPE. If you are defining more than one tape data set profile, the data sets must all reside on the same volume, and you must specify the profile names in an order that corresponds to the file sequence numbers of the data sets on the volume.

VSAM data set: All of the components of a VSAM data set are protected by the profile that protects the cluster name. It is not necessary to create profiles that protect the index and the data components of the cluster.

Data sets cataloged by an indirect VOLSER: When you catalog a data set using an *indirect* VOLSER - using asterisks (******) or a symbolic such as &SYSRS in place of the VOLSER - you can protect the data set with a generic profile (preferred method) or else with one or more discrete data set profiles that contain the real unit and volume for each data set covered by the catalog entry. The latter must be done while the data set is online.

/password

Specifies the data set password if you are protecting an existing password-protected data set. If you specify a generic or model profile, RACF ignores this operand.

For a non-VSAM password-protected data set, the WRITE level password must be specified.

For a VSAM data set that is not password-protected, you do not need the password or RACF access authority for the catalog.

A password is not required when you specify NOSET.

If the command is executing in the foreground and you omit the password for a password-protected data set, the logon password is used. You are prompted if the password you enter or the logon password is incorrect. (If it is a non-VSAM multivolume data set, you are prompted once for each volume on which the data set resides.)

If the command is executing in a batch job and you either omit the password for a password-protected data set or supply an incorrect password, the operator is prompted. (If it is a non-VSAM multivolume data set, the operator is prompted once for each volume on which the data set resides.)

ADDCATEGORY(*category-name ...*)

Specifies one or more names of installation-defined security categories. The names you specify must be defined as members of the CATEGORY profile in SECDATA class. For information on defining security categories, see *z/OS Security Server RACF Security Administrator's Guide*.

When the SECDATA class is active and you specify ADDCATEGORY, RACF performs security category checking in addition to its other authorization checking. If a user requests access to a data set, RACF compares the list of security categories in the user's profile with the list of security categories in the data set profile. If RACF finds any security category in the data set profile that is not in the user's profile, RACF denies access to the data set. If the user's profile contains all the required security categories, RACF continues with other authorization checking.

Note: RACF does not perform security category checking for a started task or user that has the RACF privileged or trusted attribute. The RACF privileged or trusted attribute can be assigned to a started task through the RACF started procedures table or STARTED class, or to other users by installation-supplied RACF exits.

AT | ONLYAT

The AT and ONLYAT keywords are only valid when the command is issued as a RACF TSO command.

AT ([*node*].*userid ...*)

Specifies that the command is to be directed to the node specified by *node*, where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed to the local node.

ONLYAT ([*node*].*userid ...*)

Specifies that the command is to be directed only to the node specified by *node* where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed only to the local node.

AUDIT(*access-attempt*[(*audit-access-level*)]*...*)

Specifies which access attempts and access levels you want logged to the SMF data set.

access-attempt

Specifies which access attempts you want logged to the SMF data set. The following options are available:

ALL

Specifies that you want to log both authorized accesses and detected unauthorized access attempts.

FAILURES

Specifies that you want to log detected unauthorized attempts. FAILURES is the default value if you omit *access-attempt*.

NONE

Specifies that you do not want any logging to be done.

SUCCESS

Specifies that you want to log authorized accesses.

audit-access-level

Specifies which access levels you want logged to the SMF data set. The levels you can specify are:

ALTER

Logs ALTER access-level attempts only.

CONTROL

Logs access attempts at the CONTROL and ALTER levels.

READ

Logs access attempts at any level. READ is the default value if you omit *audit-access-level*.

UPDATE

Logs access attempts at the UPDATE, CONTROL, and ALTER levels.

FAILURES(READ) is the default value if you omit the AUDIT operand. You cannot audit access attempts at the EXECUTE level.

CSDATA | NOCSDATA

CSDATA

Specifies information to add, change, or remove a custom field for this data set.

custom-field-name ...* | NO*custom-field-name ...

***custom-field-name*(*custom-field-value*) ...**

Specifies the name and value of a custom field for this user. You can specify values for multiple custom fields with a single ADDSD command.

Usage for each custom field is defined using the CFDEF operand of the RDEFINE command for resource profiles in the CFIELD class. Contact your security administrator to see how custom fields are used at your installation. For more information about custom fields, see *z/OS Security Server RACF Security Administrator's Guide*.

Rules:

- You must use the same *custom-field-name* as defined by the CFIELD profile named DATASET.CSDATA.*custom-field-name*. (The CFIELD profile is defined using the CFDEF operand of the RDEFINE command.)
- You must specify a *custom-field-value* that is valid for the attributes of this custom field. (The attributes, such as data type, are defined in the CFDEF segment of the CFIELD profile.)

NO*custom-field-name* ...

Removes the custom field information for this data set. You can remove values for multiple custom fields with a single ADDSD command.

When you append the prefix **NO** to the name of the custom field, you delete the value for that custom field from the data sets profile. For example, if your installation has defined a custom field named ADDRESS and you want to remove the ADDRESS field from the profile of the user SHANNON, you might issue the following command:

Example:

```
ADDSD SHANNON CSDATA(NOADDRESS)
```

NOCSDATA

Deletes the CSDATA segment from the data set profile.

DATA('*installation-defined-data*')

Specifies up to 255 characters of installation-defined data to be stored in the data set profile and must be enclosed in single quotation marks. It might also contain double-byte character set (DBCS) data.

Use the LISTDSD command to list this information.

DFP

Specifies that for an SMS-managed data set, you can enter the following information:

RESOWNER(*userid or group-name*)

Specifies the user ID or group of the actual owner of the data sets protected by the profile specified in *profile-name-1*. This name must be that of a RACF-defined user or group. (The data set resource owner, specified with RESOWNER, is distinguished from the owner specified with OWNER, which represents the user or group that owns the data set profile).

If RESOWNER is not specified, the user or group represented by the high level qualifier of the data set profile is assigned as the owner of data sets protected by the profile when SMS needs to determine the RESOWNER.

DATAKEY(CKDS *key label*)

Specifies the CKDS key label that SMS will associate with a data set protected by the profile specified in profile-name-1 at the time of allocation. The label name cannot exceed 64 characters. The first character must be an alphabetic character or a national character (#, @, or $). Subsequent characters can be a period character (.) or any alphanumeric or national character.

If DATAKEY is not specified, no CKDS key label will be associated with a data set protected by the profile specified in profile-name-1 at the time of allocation.

ERASE

Specifies that when SETROPTS ERASE is active, data management is to physically erase the contents of deleted data sets and scratched or released DASD extents. Erasing the data set means overwriting its contents with binary zeroes so that it cannot be read.

Restrictions: The ERASE operand is ignored when any of the following conditions exist:

- When the data set is a *tape* data set and your installation did not activate the TAPEAUTHDSN option in the DEVSUPxx member of SYS1.PARMLIB. See Erasing scratched or released data (ERASE option) in *z/OS Security Server RACF Security Administrator's Guide* for more information.
- When SETROPTS NOERASE is active for your installation. (User and data set profile definitions are overridden.)

FCLASS(*profile-name-2-class*)

Specifies the name of the class to which *profile-name-2* belongs. The valid class names are DATASET and those classes defined in the class descriptor table. If you omit this operand, RACF assumes the DATASET class. This operand is valid only when you also specify the FROM operand; otherwise, RACF ignores it.

FGENERIC

Specifies that RACF is to treat *profile-name-2* as a generic name, even if it is fully qualified (meaning that it does not contain any generic characters). This operand is only needed when *profile-name-2* is a DATASET profile.

FILESEQ(*number*)

Specifies the file sequence number for a tape data set. The number can range from 1 through 65535.

If you specify more than one *profile name*, RACF assigns the file sequence number that you specify to the first profile name, then increments the number by one for each additional name. Thus, be sure to specify profile names in the order of their file sequence numbers.

If you omit FILESEQ, the default is FILESEQ(1). If you omit VOLUME, RACF retrieves the volume serial number from the catalog.

If you omit TAPE, RACF ignores FILESEQ.

FROM(*profile-name-2*)

Specifies the name of an existing discrete or generic profile that RACF is to use as a model for the new profile. The model profile name you specify on the FROM operand overrides any model name specified in your user or group profile. If you specify FROM and omit FCLASS, RACF assumes that *profile-name-2* is the name of a profile in the DATASET class.

To specify FROM, you must have sufficient authority to both *profile-name-1* and *profile-name-2*, as described in "Authorization required" on page 32.

Naming conventions processing affects *profile-name-2* in the same way that it affects *profile-name-1*.

Mixed-case profile names are accepted and preserved when FCLASS refers to a class defined in the static class descriptor table with CASE=ASIS or in the dynamic class descriptor table with CASE(ASIS).

If the profile being added is for a group data set and the user has the GRPACC attribute for that group, RACF places the group on the access list with UPDATE access authority. Otherwise, if the group is already on the access list, RACF changes the group's access authority to UPDATE.

Possible Changes to Copied Profiles When Modeling Occurs: When a profile is copied during profile modeling, the new profile could differ from the model in the following ways:

- Certain conditional access list conditions are valid only for specific classes. For example, WHEN(SYSID) is valid only for the PROGRAM class and WHEN(CRITERIA) is valid only for general resource classes (not data sets). When copying the conditional access list from *profile-name-2* to *profile-name-1*, the profile might differ if the condition is not valid for the data set class. For example, if *profile-name-2* is a PROGRAM profile with SYSID or CRITERIA entries in the conditional access list, those entries are not copied to the new data set profile (*profile-name-1*).
- RACF places the user on the access list with ALTER access authority or, if the user is already on the access list, changes the user's access authority to ALTER. This does not occur if the NOADDCREATOR option is in effect.

  If the profile being added is for a group data set and the user has the GRPACC attribute for that group, RACF places the group on the access list with UPDATE access authority. If the group is already on the access list, RACF changes the group's access authority to UPDATE. These access list changes do not occur if the data set profile is created only because the user has the OPERATIONS attribute.
- The security label, if specified in the model profile, is not copied. Instead, the user's current security label is used.
- Information in the non-BASE segments (for example, the DFP segment) is not copied.

FVOLUME(*profile-name-2-serial*)

Specifies the volume RACF is to use to locate the model profile (*profile-name-2*).

If you specify FVOLUME and RACF does not find *profile-name-2* associated with that volume, the command fails. If you omit this operand and the data set name appears more than once in the RACF database, the command fails.

FVOLUME is valid only when FCLASS either specifies or defaults to DATASET and when *profile-name-2* specifies a discrete profile. Otherwise, RACF ignores FVOLUME.

GENERIC | MODEL | TAPE

GENERIC

Specifies that RACF is to treat *profile-name-1* as a fully qualified generic name, even if it does not contain any generic characters.

MODEL

Specifies that you are defining a model profile to be used when new data sets are created. The SETROPTS command (specifying MODEL operand with either GROUP or USER) controls whether this profile is used for data sets with group names or user ID names.

When you specify MODEL, you can omit UNIT and VOLUME.

When you specify MODEL, the SET, GENERIC, and TAPE operands are ignored, and NOSET is used as the default.

MODEL and GENERIC operands are mutually exclusive. You cannot specify a generic profile for automatic profile modelling through the MODEL operand of ADDUSER, ALTUSER, ADDGROUP, or

ALTGROUP. However, you can explicitly use a generic profile as a model with the FROM operand, and if needed, the FGENERIC operand of the ADDSD command.

For information about automatic profile modeling, refer to *z/OS Security Server RACF Security Administrator's Guide*.

TAPE

Specifies that the data set profile is to protect a tape data set. If tape data set protection is not active, RACF treats TAPE as an invalid operand and issues an appropriate error message. If *profile-name-1* is a generic profile name, RACF ignores this operand. (RACF processes a tape data set protected by a generic profile in the same way as it processes a DASD data set protected by a generic profile.)

LEVEL(*nn*)

Specifies a level indicator, where *nn* is an integer from 0 and 99. The default is 0.

Your installation assigns the meaning of the value.

RACF includes it in all records that log data set accesses and in the LISTDSD command display.

SET | SETONLY | NOSET

If you do not specify SET, SETONLY, or NOSET, the default value is SET.

SET

Specifies that the data set is to be RACF-indicated. SET is the default value when you are RACF-protecting a data set. If the indicator is already on, the command fails. If you specify a generic profile name or the GENERIC operand, RACF ignores this operand.

SETONLY

Specifies that for a tape data set, RACF is to create only an entry in the TVTOC; it is not to create a discrete data set profile. Specifying SETONLY allows you to protect a tape data set with a TVTOC and a generic profile.

Thus, you would normally specify SETONLY with TAPE, and, when you do, RACF ignores the OWNER, UACC, AUDIT, DATA, WARNING, LEVEL, and RETPD operands. If you specify SETONLY without TAPE, RACF treats SETONLY as SET.

NOSET

Specifies that the data set is not to be RACF-indicated.

For a DASD data set, use NOSET when you are defining a data set to RACF that has been brought from another system where it was RACF-protected. (The data set is already RACF-indicated.)

For a tape data set, use NOSET when, because of a previous error, the TVTOC indicates that the data set is RACF-indicated, but the discrete profile is missing.

If you specify NOSET, for a discrete profile, when the data set is not already RACF-indicated, RACF access control to that data set is not enforced.

If you specify NOSET, the volumes on which the data set or catalog resides need not be online, and the password in the first operand of this command is not required.

To use NOSET, one of the following must be true:

- You must have the SPECIAL attribute
- The profile must fall within the scope of a group in which you have the group-SPECIAL attribute
- The high-level qualifier of the data set name (or the qualifier supplied by a command installation exit routine) must be your user ID.

If you specify a generic profile name, RACF ignores this operand.

Note: If you specify a profile name that exists as a generation data group (GDG) data set base name with NOSET - but do not specify a unit and volume, RACF creates a model profile for the data set instead of a discrete profile. In this situation, the model profile provides the same protection as a discrete profile.

NOTIFY[(*userid*)]

Specifies the user ID of a RACF-defined user to be notified whenever RACF uses this profile to deny access to a data set. If you specify NOTIFY without *userid*, RACF takes your user ID as the default; you are notified whenever the profile denies access to a data set.

A user who is to receive NOTIFY messages should log on frequently, both to take action in response to the unauthorized access attempts the messages describe and to clear the messages from the SYS1.BRODCAST data set. (When the profile also includes WARNING, RACF might have granted access to the data set to the user identified in the message.)

Note: The user ID specified on the NOTIFY operand is not notified when the profile disallows creation or deletion of a data set. NOTIFY is used only for resource access checking, not for resource creation or deletion.

OWNER(*userid or group-name*)

Specifies a RACF-defined user or group to be assigned as the owner of the data set profile. When you define a group data set, the user you designate as owner must have at least USE authority in the group specified by the high-level qualifier of the data set name (or the qualifier determined by the naming conventions routine or by a command installation exit routine).

If you omit this operand, you are defined as the owner of the data set profile. However, if the high-level qualifier is a user ID that is different from your user ID, the OWNER of the profile is the user ID specified in the high-level qualifier. In addition, if you are using naming convention processing, either through the naming convention table or an exit, the owner of the profile is determined by the naming convention processing. If you have the SPECIAL attribute and define a profile for a group data set while SETROPTS ADDCREATOR is in effect, your user ID is added to the access list for the data set with ALTER access authority, whether or not you specify the OWNER operand. If you have the SPECIAL attribute and define a profile for a user data set, your user ID is not added to the access list for the data set.

If you specify OWNER(*userid*), the user you specify as the owner does not automatically have access to the data set. Use the PERMIT command to add the owner to the access list as desired. If you specify OWNER(*group-name*), RACF treats any users who have the group-SPECIAL attribute in the group as owners of the data set profile.

RETPD(*nnnnn*)

Specifies the RACF security retention period for a tape data set. The security retention period is the number of days that must elapse before a tape data set profile expires. (Note that, even though the data set profile expires, RACF-protection for data sets protected by the profile is still in effect. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

The number you specify, *nnnnn* must be one to five digits in the range of 0 through 65533. To indicate a data set that never expires, specify *nnnnn* as 99999. When 99999 is used, the SETROPTS command stores it internally as 65534.

The RACF security retention period is the same as the data set retention period specified by the EXPDT/RETPD parameters on the JCL DD statement only when the data set profile is discrete and you do not modify the RACF security retention period.

When the TAPEVOL class is active, RACF checks the RACF security retention period before it allows a data set to be overwritten. RACF adds the number of days in the retention period to the creation date for the data set. If the result is less than the current date, RACF continues to protect the data set.

When the TAPEVOL class is not active, RACF ignores the RETPD operand.

If you omit RETPD and your installation has established a default security retention period (through the RETPD operand on the SETROPTS command), RACF uses the default. If you omit RETPD and your installation has not established a default, RACF uses 0 as a default.

Specifying this operand for a DASD data set does not cause an error, but it has no meaning because RACF ignores the operand during authorization checking.

SECLABEL(*security-label*)

Specifies the name of an installation-defined security label representing an association between a particular security level and a set of zero or more categories.

A security label corresponds to a particular security level (such as CONFIDENTIAL) with a set of zero or more security categories (such as PAYROLL or PERSONNEL).

RACF stores the name of the security label you specify in the data set profile if you are authorized to use that label.

If you are not authorized to use the security label or if the name you had specified is not defined as a SECLABEL profile in the SECLABEL class, the data set profile is not created.

SECLEVEL(*security-level*)

Specifies the name of an installation-defined security level. This name corresponds to the number that is the minimum security level a user must have to access the data set. *security-level* must be a member of the SECLEVEL profile in the SECDATA class.

When you specify SECLEVEL and the SECDATA class is active, RACF adds security level access checking to its other authorization checking. If global access checking does not grant access, RACF compares the security level allowed in the user profile with the security level required in the data set profile. If the security level in the user profile is less than the security level in the data set profile, RACF denies the access. If the security level in the user profile is equal to or greater than the security level in the data set profile, RACF continues with other authorization checking.

Note: RACF does not perform security level checking for a started task or user that has the RACF privileged or trusted attribute. The RACF privileged or trusted attribute can be assigned to a started task through the RACF started procedures table or STARTED class, or to other users by installation-supplied RACF exits.

If the SECDATA class is not active, RACF still stores the *security-level* you specified in the data set profile, but cannot perform security level checking until you have activated the SECDATA class. If the name you specify is not defined as a SECLEVEL profile and the SECDATA class is active, you are prompted to provide a valid name for *security-level*.

TME

Specifies that information for the Tivoli Security Management Application is to be added.

Note: The TME segment fields are intended to be updated only by the Tivoli Security Management application, which manages updates, permissions, and cross references. A security administrator should only directly update TME fields on an exception basis.

ROLES(*role-access-specification ...*)

Specifies a list of roles and associated access levels related to this profile.

One or more *role-access-specification* values can be specified, each separated by blanks. Each value should contain no imbedded blanks and should have the following format:

```
role-name:authority[:conditional-class:conditional-profile]
```

where *role-name* is a discrete general resource profile defined in the ROLE class. The *authority* is the access authority (NONE, EXECUTE, READ, UPDATE, CONTROL, or ALTER) with which groups in the role definition should be permitted to the resource.

The *conditional-class* is a class name (APPCPORT, CONSOLE, JESINPUT, PROGRAM, TERMINAL, or SYSID) for conditional access permission, and is followed by the *conditional-profile* value, a resource profile defined in the conditional class.

UACC(*access-authority*)

Specifies the universal access authority to be associated with the data sets. The universal access authorities are ALTER, CONTROL, UPDATE, READ, EXECUTE, and NONE. If you omit UACC or specify UACC with no access authority, RACF uses the default value in your current connect group. If you specify CONTROL for a tape data set or a non-VSAM DASD data set, RACF treats the access authority as UPDATE. If you specify EXECUTE for a tape data set, or a DASD data set not used as a program library, RACF treats the access authority as NONE.

If a user accessing a data set has the RESTRICTED attribute, RACF treats the universal access authority (UACC) as NONE for that access attempt.

UNIT(*type*)

Specifies the unit type on which a tape data set or a non-VSAM DASD data set resides. You can specify an installation-defined unit name, a generic device type, or a specific device address. If you specify UNIT and VOLUME for a DASD data set, RACF assumes that the data set is a non-VSAM data set; therefore, do not use UNIT and VOLUME for a VSAM data set.

If the data set is not cataloged, UNIT and VOLUME are required. You must specify UNIT and VOLUME for data sets cataloged with an esoteric name (such as an installation-defined unit name).

If you specify a generic or model profile name, RACF ignores this operand.

VOLUME(*volume-serial ...*)

Specifies the volumes on which a tape data set or a non-VSAM DASD data set resides. If you specify UNIT and VOLUME for a DASD data set, RACF assumes that the data set is a non-VSAM data set; therefore, do not use UNIT and VOLUME for a VSAM data set.

If the data set is not cataloged, UNIT and VOLUME are required. You must specify UNIT and VOLUME for data sets cataloged with an esoteric name (such as an installation-defined unit name).

If you specify a tape data set profile name, you can specify only one volume.

If you specify a generic or model profile name, RACF ignores this operand.

WARNING

Specifies that even if access authority is insufficient, RACF is to issue a warning message and allow access to the resource. RACF also records the access attempt in the SMF record if logging is specified in the profile.

When SETROPTS MLACTIVE(FAILURES) is in effect: A user or task can access a data set that is in WARNING mode and has no security label even when MLACTIVE(FAILURES) is in effect and the class requires security labels. The user or task receives a warning message and gains access.

Examples

Example	Activity label	Description
1	*Operation*	User ADM1 wants to create a generic profile to protect all data sets having the high-level qualifier SALES. Only users with a security level of CONFIDENTIAL or higher are to be able to access the data sets.
	Known	User ADM1 has the SPECIAL attribute and the installation has defined CONFIDENTIAL as a valid security level name. User ADM1 wants to issue the command as a RACF TSO command.

	Command	`ADDSD 'SALES.*' UACC(READ) AUDIT(ALL(READ))`
		`SECLEVEL(CONFIDENTIAL)`

	Defaults	OWNER(ADM1) LEVEL(0)

Example	Activity label	Description
2	*Operation*	User AEH0 wants to protect the data set AEH0.DEPT1.DATA with a discrete RACF profile.
	Known	User AEH0 is RACF-defined. AEH0.DEPT1.DATA is not cataloged. It resides on volume USER03 which is a 3330 volume. User AEH0 wants to issue the command as a RACF TSO command.
	Command	`ADDSD 'AEH0.DEPT1.DATA' UNIT(3330) VOLUME(USER03)`
	Defaults	OWNER(AEH0) UACC(UACC of user AEH0 in current connect group) AUDIT(FAILURES(READ)) LEVEL(0) SET
3	*Operation*	User ADM1 wants to RACF-define the DASD data set SYS1.ICH02.DATA which was brought from another system where it was protected by a discrete RACF profile and was RACF-indicated. On the new system, only users with a security category of DEPT1 are to be allowed to access the data set.
	Known	User ADM1 has the SPECIAL attribute. SYS1.ICH02.DATA is cataloged. User ADM1 has create authority in group SYS1 and is connected to group SYS1 with the group-SPECIAL attribute. The installation has defined DEPT1 as a valid security category. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`ADDSD 'SYS1.ICH02.DATA' OWNER(SYS1) UACC(NONE) AUDIT(ALL) NOSET CATEGORY(DEPT1)`
	Defaults	LEVEL(0)
4	*Operation*	User AEHO wants to create a model profile for group RSC and place an installation-defined description in the profile.
	Known	User AEHO has at least CREATE authority in group RSC. User AEHO wants to issue the command as a RACF TSO command.
	Command	`ADDSD 'RSC.ACCESS.PROFILE' MODEL DATA('PROFILE THAT CONTAINS MODELING INFORMATION')`
	Defaults	OWNER(AEHO), UACC(*the UACC of user AEHO in current group*) AUDIT(FAILURES(READ)) LEVEL(0)
5	*Operation*	User AEH1 wants to protect the tape data set named AEH1.TAPE.RESULTS with a discrete RACF profile.
	Known	User AEH1 is a RACF-defined user. Data set AEH1.TAPE.RESULTS is cataloged, and tape data set protection is active. User AEH1 wants to issue the command as a RACF TSO command.
	Command	`ADDSD 'AEH1.TAPE.RESULTS' UACC(NONE) AUDIT(ALL(READ)) TAPE NOTIFY FILESEQ(1) RETPD(100)`
	Defaults	LEVEL(0)

Example	Activity label	Description
6	*Operation*	User AEH1 wants to protect the tape data set named AEH1.TAPE.FUTURES with a discrete RACF profile, which is so much like the profile created for AEH1.TAPE.RESULTS (Example 5) that AEH1 can use the existing profile as a model for the new profile.
	Known	User AEH1 is a RACF-defined user. Data set AEH1.TAPE.FUTURES is cataloged, and tape data set protection is active. User AEH1 wants to issue the command as a RACF TSO command.
	Command	`ADDSD 'AEH1.TAPE.FUTURES' FROM('AEH1.TAPE.RESULTS') FILESEQ(2)`
	Defaults	LEVEL(0)
7	*Operation*	User ADM1 wants to create a generic profile to protect all data sets having the high-level qualifier PROJECTA. The data sets protected by the profile will be managed by DFP. Group TEST4 will be assigned as the actual owner of the data sets protected by the profile. The profile will have a universal access authority of READ. User ADM1 wants to direct the command to run at the local node under the authority of user DAP02 and prohibit the command from being automatically directed to other nodes.
	Known	Users ADM1 and DAP02 have the SPECIAL attribute. TEST4 is a RACF-defined group. Users ADM1 and DAP02 have an already established user ID association. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`ADDSD 'PROJECTA.*' UACC(READ) DFP(RESOWNER(TEST4)) ONLYAT(.DAP02)`
	Defaults	OWNER(ADM1) LEVEL(0) AUDIT(FAILURES(READ))
	Results	The command is only processed on the local node and not automatically directed to any other nodes in the RRSF configuration.
8	*Operation*	User TSO7 wants to create a generic profile to protect all data sets having the high-level qualifier PROJECTB with a security label of CONF. User TSO7 is authorized to the security label. User TSO7 wants to issue the command as a RACF operator command, and the RACF subsystem prefix is `@`.
	Known	User TSO7 is a RACF-defined user.
	Command	`@ADDSD 'PROJECTB.*' SECLABEL(CONF)`
	Defaults	None.

ADDUSER (Add user profile)

Purpose

Use the ADDUSER command to define a new user to RACF and establish the user's relationship to an existing RACF-defined group.

The command adds a profile for the new user to the RACF database and creates a connect profile that connects the user to whichever default group you specify.

The user profile consists of a BASE segment and, optionally, other segments such as a TSO segment, a DFP segment, or an OMVS segment. You can use this command to define information in any segment of the user's profile.

Although user ID association information is in the user's profile, you must use the RACLINK command to define a user ID association.

⚠ **Attention:**

- When the ADDUSER command is issued from ISPF, the TSO command buffer (including password and password phrase data) is written to the ISPLOG data set. As a result, you should not issue this command from ISPF or you must control the ISPLOG data set carefully.
- If the ADDUSER command is issued as a RACF operator command, the command and all data (including password and password phrase data) is written to the system log. You should not issue the ADDUSER command as an operator command unless specifying NOPASSWORD. For all other cases you should execute it as a TSO command.

Note that you cannot:

- Use the ADDUSER command to change or add multi-factor authentication information. You must use the ALTUSER command.

This command is not intended to be used for profiles in the DIGTCERT or DIGTNMAP classes.

Issuing options

The following table identifies the eligible options for issuing the ADDUSER command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	Yes	Yes	Yes	Yes

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, "RACF operator commands," on page 21.

You must be logged on to the console to issue this command as a RACF operator command.

Related commands

- To change a user profile, see "ALTUSER (Alter user profile)" on page 110.
- To delete a user profile, see "DELUSER (Delete user profile)" on page 185.
- To list a user profile, see "LISTUSER (List user profile)" on page 213.
- To administer user ID associations, see "RACLINK (Administer user ID associations)" on page 364.
- To obtain a list of user profiles, see "SEARCH (Search RACF database)" on page 541.

Authorization required

When issuing this command as a RACF operator command, you might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

To use the ADDUSER command, you must have one of the following:

- The SPECIAL attribute

- The CLAUTH attribute for the USER class while one of the following is true:
  - You are the owner of the default group specified in this command.
  - You have JOIN authority in the default group specified in this command.
  - The default group is within the scope of a group in which you have the group-SPECIAL attribute.

You must have the SPECIAL attribute to give the new user the OPERATIONS, SPECIAL, AUDITOR, or ROAUDIT attribute. You need *not* have the SPECIAL attribute to specify the OWNER operand.

You cannot assign a user an attribute or authority higher than your own.

To assign a security category to a profile, you must have the SPECIAL attribute, or the category must be in your user profile.

To assign a security level to a profile, you must have the SPECIAL attribute or, in your own profile, a security level that is equal to or greater than the security level you are assigning.

To define information within a segment other than the base segment, you must have one of the following:

- The SPECIAL attribute
- At least UPDATE authority to the desired field within the segment through field-level access control.

For information on field-level access checking, see *z/OS Security Server RACF Security Administrator's Guide*.

To specify the AT keyword, you must have READ authority to the DIRECT.*node* resource in the RRSFDATA class and a user ID association must be established between the specified *node.userid* pair(s).

To specify the ONLYAT keyword you must have the SPECIAL attribute, the *userid* specified on the ONLYAT keyword must have the SPECIAL attribute, and a user ID association must be established between the specified *node.userid* pair(s) if the user IDs are not identical.

To specify the SHARED keyword, you must have the SPECIAL attribute or at least READ authority to the SHARED.IDS resource in the UNIXPRIV class.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the ADDUSER command is:

[*subsystem-prefix*]{ADDUSER | AU}
(***userid ...***)
[ADDCATEGORY(*category-name ...*)]
[ADSP | NOADSP]
[AT([*node*].*userid ...*) | ONLYAT([*node*].*userid ...*)]
[AUDITOR | NOAUDITOR]
[AUTHORITY(*group-authority*)]

[CICS([OPCLASS(*OPERATOR-CLASS ...*)] [OPIDENT(*OPERATOR-ID*)] [OPPRTY(*OPERATOR-PRIORITY*)] [RSLKEY(*RSLKEY* ... | 0 | 99)] [TIMEOUT(*TIMEOUT-VALUE*)] [TSLKEY(*TSLKEY* ... | 0 | 1 | 99)] [XRFSOFF(FORCE | NOFORCE])]
[CLAUTH(*class-name ...*) | NOCLAUTH]
[CSDATA([*custom-field-name*(*custom-field-value*)] ...)]
[DATA('*installation-defined-data*')]
[DCE([AUTOLOGIN(YES | NO)] [DCENAME(*user-principal-name*)] [HOMECELL(*dce-cell-name*)] [HOMEUUID(*home-cell-UUID*)] [UUID(*universal-unique-identifier*)]])]
[DFLTGRP(*group-name*)]
[DFP([DATAAPPL(*application-name*)] [DATACLAS(*data-class-name*)] [MGMTCLAS(*management-class-name*)] [STORCLAS(*storage-class-name*)])]
[EIM(LDAPPROF(*ldapbind_profile*))]
[GRPACC | NOGRPACC]

```
[ KERB(
      [ ENCRYPT (
            [ DES | NODES ]
            [ DES3 | NODES3 ]
            [ DESD | NODESD ]
            [ AES128 | NOAES128 ]
            [ AES256 | NOAES256 ]
            [ AES128SHA2 | NOAES128SHA2 ]
            [ AES256SHA2 | NOAES256SHA2 ]
            )]
      [ KERBNAME(kerberos-principal-name) ]
      [ MAXTKTLFE(max-ticket-life) ]
      ) ]

[ LANGUAGE(
      [ PRIMARY(language) ]
      [ SECONDARY(language) ]
      ) ]

[ LNOTES(
      [ SNAME(short-name) ]
      ) ]

[ MODEL(dsname) ]

[ NAME(user-name) ]

[ NDS(
      [ UNAME(user-name) ] ]
      ) ]

[ NETVIEW(
      [ CONSNAME(console-name) ]
      [ CTL(GENERAL | GLOBAL | SPECIFIC) ]
      [ DOMAINS(domain-name ...) ]
      [ IC('command | command-list') ]
      [ MSGRECVR(NO | YES ) ]
      [ NGMFADMN(NO | YES ) ]
      [ NGMFVSPN(view-span) ]
      [ OPCLASS(class ...) ]
      ) ]

[ OIDCARD | NOOIDCARD ]
[ OMVS[(
      [ ASSIZEMAX(address-space-size) ]
      [ AUTOUID | UID(user-identifier) [SHARED] ]
      [ CPUTIMEMAX(cpu-time) ]
      [ FILEPROCMAX(files-per-process) ]
      [ HOME(initial-directory-name) ]
      [ MEMLIMIT(nonshared-memory-size) | NOMEMLIMIT ]
      [ MMAPAREAMAX(memory-map-size) ]
      [ PROCUSERMAX(processes-per-UID) ]
      [ PROGRAM(program-name) ]
      [ SHMEMMAX(shared-memory-size) | NOSHMEMMAX  ]
      [ THREADSMAX(threads-per-process) ]
      ] ]
```

```
[ OPERATIONS | NOOPERATIONS ]
```

```
[ OPERPARM(
      [ ALTGRP(alternate-console-group) ]
      [ AUTH(operator-authority) ]
      [ AUTO( YES | NO ) ]
      [ CMDSYS(system-name) ]
      [ DOM( NORMAL | ALL | NONE ) ]
      [ HC( YES | NO ) ]
      [ INTIDS( YES | NO ) ]
      [ KEY(searching-key) ]
      [ LEVEL(message-level) ]
      [ LOGCMDRESP( SYSTEM | NO ) ]
      [ MFORM(message-format) ]
      [ MIGID( YES | NO ) ]
      [ MONITOR(event) ]
      [ MSCOPE( system-names | * | *ALL ) ]
      [ ROUTCODE( ALL | NONE | routing-codes ) ]
      [ STORAGE(amount) ]
      [ UD( YES | NO ) ]
      [ UNKNIDS( YES | NO ) ]
      ) ]
```

```
[ OVM(
      [ FSROOT(file-system-root) ]
      [ HOME(initial-directory-name) ]
      [ PROGRAM(program-name) ]
      [ UID(user-identifier) ]
      ) ]
```

```
[ [ OWNER(userid or group-name) ]
```

```
[ PASSWORD(password) | NOPASSWORD ]
```

```
[ [ PHRASE('password-phrase') ]
[ PROXY[(
      [ LDAPHOST(ldap_url) ]
      [ BINDDN(bind_distinguished_name) ]
      [ BINDPW(bind_password) ]
      )] ]

[ RESTRICTED | NORESTRICTED ]

[ ROAUDIT | NOROAUDIT ]

[ SECLABEL(seclabel-name) ]

[ SECLEVEL(seclevel-name) ]

[ SPECIAL | NOSPECIAL ]

[ TSO(
      [ ACCTNUM(account-number) ]
      [ COMMAND(command-issued-at-logon) ]
      [ DEST(destination-id) ]
      [ HOLDCLASS(hold-class) ]
      [ JOBCLASS(job-class) ]
      [ MAXSIZE(maximum-region-size) ]
      [ MSGCLASS(message-class) ]
      [ PROC(logon-procedure-name) ]
      [ SECLABEL(security-label) ]
      [ SIZE(default-region-size) ]
      [ SYS(sysout-class) ]
      [ UNIT(unit-name) ]
      [ USERDATA(user-data) ]
      ) ]

[ UACC(access-authority) ]

[ WHEN(
      [ DAYS(day-info) ]
      [ TIME(time-info) ]
      ) ]
```

```
[ WORKATTR(
      [ WAACCNT(account-number) ]
      [ WAADDR1(address-line-1) ]
      [ WAADDR2(address-line-2) ]
      [ WAADDR3(address-line-3) ]
      [ WAADDR4(address-line-4) ]
      [ WABLDG(building) ]
      [ WADEPT(department) ]
      [ WANAME(name) ]
      [ WAROOM(room) ]
      [ WAEMAIL(e-mail) ]
      ) ]
```

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

userid

Specifies the user to be defined to RACF. If you are defining more than one user, the list of user IDs must be enclosed in parentheses.

This operand is required and must be the first operand following ADDUSER.

Each user ID must be unique and must not currently exist on the RACF database as a user ID or a group name.

ADDCATEGORY(*category-name ...*)

Specifies one or more names of installation-defined security categories. The names you specify must be defined as members of the CATEGORY profile in a SECDATA class. For information on defining security categories, see *z/OS Security Server RACF Security Administrator's Guide*.

When the SECDATA class is active and you specify ADDCATEGORY, RACF performs security category checking in addition to its other authorization checking. If a user requests access to a resource, RACF compares the list of security categories in the user's profile with the list of security categories in the resource profile. If RACF finds any security category in the resource profile that is not in the user's profile, RACF denies access to the resource. If the user's profile contains all the required security categories, RACF continues with other authorization checking.

Note: RACF does not perform security category checking for a started task or user with the RACF privileged or trusted attribute. The RACF privileged or trusted attribute can be assigned to a started task through the RACF started procedures table or STARTED class, or to other users by installation-supplied RACF exits.

ADSP | NOADSP

ADSP

Specifies that all permanent tape and DASD data sets created by the new user are to be automatically RACF-protected by discrete profiles. ADSP specified on the ADDUSER command overrides NOADSP specified on the CONNECT command.

If SETROPTS NOADSP is in effect, RACF ignores the ADSP attribute at logon or job initiation.

NOADSP

Specifies that the new user is not to have the ADSP attribute. NOADSP is the default value if you omit both ADSP and NOADSP.

AT | ONLYAT

The AT and ONLYAT keywords are only valid when the command is issued as a RACF TSO command.

AT ([*node*].*userid ...*)

Specifies that the command is to be directed to the node specified by *node*, where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed to the local node.

ONLYAT ([*node*].*userid ...*)

Specifies that the command is to be directed only to the node specified by *node* where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed only to the local node.

AUDITOR | NOAUDITOR

AUDITOR

Specifies that the new user has full responsibility for auditing the use of system resources, and is able to control the logging of detected accesses to any RACF-protected resources during RACF authorization checking and accesses to the RACF database.

You must have the SPECIAL attribute to enter the AUDITOR operand.

NOAUDITOR

Specifies that the new user does not have the AUDITOR attribute. NOAUDITOR is the default value if you omit both AUDITOR and NOAUDITOR.

AUTHORITY(*group-authority*)

Specifies the level of group authority for the new user in the default group. The valid group authority values are USE, CREATE, CONNECT, and JOIN, as described in "Group authorities" on page 14. If you omit this operand or specify AUTHORITY without *group-authority*, the default value is USE.

This operand is group-related. If a user is connected to other groups (with the CONNECT command), the user can have a different group authority in each group.

CICS

Defines CICS operator information for a new CICS terminal user. You can control access to an entire CICS segment or to individual fields within the CICS segment by using field-level access checking. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

OPCLASS(*operator-class ...*)

Specifies numbers 1 - 24, defined as two digits, representing classes assigned to this operator to which BMS (basic mapping support) messages are to be routed.

OPIDENT(*operator-id*)

Specifies a 1 - 3 character identification of the operator for use by BMS.

Operator identifiers can consist of any characters, and can be entered with or without single quotation marks. The following rules apply:

- If parentheses, commas, blanks, or semicolons are to be entered as part of the operator identifier, the character string must be enclosed in single quotation marks. For example, if the operator identifier is `(1)`, you must enter `OPIDENT('(1)')`.

- If a single quotation mark is intended to be part of the character string, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

If OPIDENT is not specified, the field defaults to blanks in the RACF user profile, and blanks appear in the field in the LISTUSER command output.

OPPRTY(*operator-priority*)

Specifies the number from 0 - 255 that represents the priority of the operator.

If OPPRTY is not specified, the field defaults to zeros in the RACF user profile, and zeros appear in the field in the LISTUSER command output.

RSLKEY(*rslkey ...* | 0 | 99)

Specifies the resource security level (RSL) keys assigned to the user. The RSL keys are used by CICS on distributed platforms. Each CICS resource has one RSL key assigned to it; in order for a user to access a resource, the user must have the same RSL key as the RSL key assigned to the resource.

- RSLKEY(*rslkey ...*) specifies a list of one or more numbers in the range of 1 through 24 which represent the resource security level (RSL) keys assigned to the user.
- If RSLKEY(0) is specified, no RSL keys are assigned to the user.
- If RSLKEY(99) is specified, all RSL keys are assigned to the user (1 - 24, inclusive).
- Keys 0 and 99 are mutually exclusive and cannot be specified with any other keys.
- If RSLKEY is specified with no key numbers, RSLKEY(0) is defaulted.
- If RSLKEY is not specified, CICS will treat it as RSLKEY(0).

TIMEOUT(*timeout-value*)

Specifies the time, in hours and minutes, that the operator is allowed to be idle before being signed off. The value for TIMEOUT can be entered in the form *m*, *mm*, *hmm*, *hhmm*, where the value for *m* or *mm* must be 00 - 59, or 00 - 60 when *h* or *hh* is not specified or is specified as `0` or `00`. The value for *h* or *hh* must be 00 - 99.

TIMEOUT defaults to 0 if omitted, meaning no timeout.

TSLKEY(*tslkey ...* | 0 | 1 | 99)

Specifies the transaction security level (TSL) keys assigned to the user. The TSL keys are used by CICS on distributed platforms. Each CICS transaction has one TSL key assigned to it; in order for a user to run a transaction, the user must have the same TSL key as the TSL key assigned to the transaction.

- TSLKEY(*tslkey ...*) specifies a list of one or more numbers in the range of 1 through 64 which represent the transaction security level (TSL) keys assigned to the user.
- If TSLKEY(0) is specified, no TSL keys are assigned to the user.
- If TSLKEY(99) is specified, all TSL keys are assigned to the user (1 - 64, inclusive).
- Keys 0 and 99 are mutually exclusive and cannot be specified with any other keys.
- If TSLKEY is specified with no key numbers, TSLKEY(1) is defaulted.
- If TSLKEY is not specified, CICS will treat it as TSLKEY(1).

XRFSOFF(FORCE | NOFORCE)

FORCE means that the user is signed off by CICS when an XRF takeover occurs.

CLAUTH | NOCLAUTH

CLAUTH(*class-name ...*)

Specifies the classes in which the new user is allowed to define profiles to RACF for protection. Classes you can specify are USER, and any resource classes defined in the class descriptor table.

To enter the CLAUTH operand, you must have the SPECIAL attribute or have the CLAUTH attribute for the classes specified. If you do not have sufficient authority for a specified class, RACF ignores the CLAUTH specification for that class and continues processing with the next class name specified.

Note: The CLAUTH attribute has no meaning for the FILE and DIRECTORY classes.

NOCLAUTH

Specifies that the new user is not to have the CLAUTH attribute. NOCLAUTH is the default if you omit both CLAUTH and NOCLAUTH.

CSDATA

Specifies information to add a custom field for this user.

Usage for each custom field is defined using the CFDEF operand of the RDEFINE command for resource profiles in the CFIELD class. Contact your security administrator to see how custom fields are used at your installation. For more information about custom fields, see *z/OS Security Server RACF Security Administrator's Guide*.

***custom-field-name*(*custom-field-value*) ...**

Specifies the name and value of a custom field for this user. You can add values for multiple custom fields with a single ADDUSER command.

Rules:

- You must use the same *custom-field-name* as defined by the CFIELD profile named USER.CSDATA.*custom-field-name*. (The CFIELD profile is defined using the CFDEF operand of the RDEFINE command.)
- You must specify a *custom-field-value* that is valid for the attributes of this custom field. (The attributes, such as data type, are defined in the CFDEF segment of the CFIELD profile.)

DATA('*installation-defined-data*')

Specifies up to 255 characters of installation-defined data to be stored in the user's profile and must be enclosed in single quotation marks. It can also contain double-byte character set (DBCS) data. Note that only 254 characters are chained off the ACEE.

Use the LISTUSER command to list this information.

DCE

Adds a DCE segment to the user profile of the specified z/OS DCE user or Distributed File Service (DFS) Server Message Block (SMB) user. You can enter any of the following suboperands to specify information for that user. Each suboperand defines information that RACF stores in a field within the DCE segment of the user's profile.

You can control access to an entire DCE segment or to individual fields within the DCE segment by using field level access checking.

To define information within the DCE segment, you must have one of the following:

- The SPECIAL attribute
- At least UPDATE authority to the desired field within the segment through field-level access control.

For information on field-level access checking, see *z/OS Security Server RACF Security Administrator's Guide*.

Note: The ability to associate a RACF and DCE identity depends on replicated information between DCE and RACF. Do *not* change the user's UUID, principal name, or cell name in either RACF or the DCE registry without a corresponding update in the other registry.

AUTOLOGIN(NO | YES)

Specifies whether z/OS UNIX DCE is to log this user into z/OS UNIX DCE automatically. If AUTOLOGIN(NO) is specified, z/OS UNIX DCE does *not* attempt to login this user to z/OS UNIX DCE automatically. If AUTOLOGIN is not specified, AUTOLOGIN(NO) is the default.

DCENAME(*user-principal-name*)

Specifies the DCE principal name defined for this RACF user in the DCE registry.

The DCENAME you define to RACF can contain 1 - 1023 characters and can consist of any character. You can enter the name with or without single quotation marks, depending on the following:

- If parentheses, commas, blanks, or semicolons are entered as part of the name, the character string must be enclosed in single quotation marks.
- If a single quotation mark is intended to be part of the name, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered. RACF does not ensure that a valid DCENAME has been specified.

The DCENAME assigned to a user must be the same as the DCE principal name defined to the DCE registry.

If DCENAME is not specified, the user cannot login as a z/OS UNIX DCE user automatically, even when AUTOLOGIN(YES) is specified.

Note: RACF does not enforce the uniqueness of each DCENAME. The DCENAME specified must match the user's DCE principal name that is defined to the DCE registry. If the DCENAME entered does not correspond to the DCE principal name entered in the DCE registry for this user, z/OS UNIX DCE cannot correctly associate the identity of the DCE principal with the correct RACF user ID.

HOMECELL(*dce-cell-name*)

Specifies the DCE cell name defined for this RACF user.

The HOMECELL you define to RACF can contain 1 - 1023 characters and can consist of any character. You can enter the name with or without single quotation marks, depending on the following:

- If parentheses, commas, blanks, or semicolons are entered as part of the cell name, the character string must be enclosed in single quotation marks.
- If a single quotation mark is intended to be part of the cell name, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered. The fully qualified path name should be specified. RACF does not ensure that a valid DCE cell name has been specified.

The HOMECELL assigned to a user *must* be the same as the DCE cell name that this user has been defined to.

If the HOMECELL is not specified, z/OS UNIX DCE single signon to DCE support assumes that the HOMECELL for this user is the same cell that this MVS system is defined to.

RACF checks that the prefix of the HOMECELL name entered has a prefix of either `/.../` or `/.:/`.

The notation `/.../` indicates that the HOMECELL name is a global domain name service (DNS) cell name or X.500 global name.

The notation `/.:/` indicates that the HOMECELL name is a cell relative CDS (cell directory service) name. When determining the naming conventions used within your DCE cell, you should contact your DCE cell administrator.

HOMEUUID(*home-cell-UUID*)

Specifies the DCE universal unique identifier (UUID) for the cell that this user is defined to. The UUID is a 36-character string that consists of numeric and hexadecimal characters. This string must have the delimiter character (`-`) in positions 9, 14, 19, and 24. The general format for the UUID string is *xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx*, in which *x* represents a valid numeric or hexadecimal character.

Be careful when assigning UUIDs. The UUID *cannot* be randomly assigned. The HOMEUUID is the DCE UUID of the cell that this RACF user is defined to. If HOMEUUID is not specified, the LISTUSER command displays NONE for the HOMEUUID field.

Note: The HOMEUUID specified must match the UUID of the DCE cell to which this principal (specified by the DCENAME operand) is defined.

UUID(*universal-unique-identifier*)

Specifies the DCE universal unique identifier (UUID) of the DCE principal defined in DCENAME. The UUID is a 36-character string that consists of numeric and hexadecimal characters. This string must have the delimiter character (-) in positions 9, 14, 19, and 24. The general format for the UUID string is *xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx*, in which *x* represents a valid numeric or hexadecimal character.

Be careful when assigning UUIDs. The UUID *cannot* be randomly assigned. Note that RACF does not enforce the uniqueness of each UUID entered. The DCE UUID assigned to a user *must* be the same as the DCE UUID assigned when defining this RACF user to the DCE registry as a DCE principal that is being cross-linked with this RACF user ID. This DCE principal is specified using the DCENAME operand.

DFLTGRP(*group-name*)

Specifies the name of a RACF-defined group to be used as the default group for the user. If you do not specify a group, RACF uses your current connect group as the default.

Note: You do not have to issue the CONNECT command to connect new users to their default groups.

DFP

Specifies that when you define a user to RACF, you can enter any of the following suboperands to specify default values for DFP data application identifier, data class, management class, and storage class. DFP uses this information to determine data management and DASD storage characteristics when a user creates a new data set.

You can control access to an entire DFP segment or to individual fields within the DFP segment by using field-level access checking. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

DATAAPPL(*application-name*)

Specifies an 8-character DFP data application identifier.

DATACLAS(*data-class-name*)

Specifies the default data class. The maximum length of *data-class-name* is 8 characters.

A data class can specify some or all of the physical data set attributes associated with a new data set. During new data set allocation, data management uses the value you specify as a default unless it is preempted by a higher priority default, or overridden in some other way, for example by JCL.

Note: The value you specify must be a valid data class name defined for use on your system. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

For information on defining DFP data classes, see *z/OS DFSMSdfp Storage Administration*.

MGMTCLAS(*management-class-name*)

Specifies the default management class. The maximum length of *management-class-name* is 8 characters.

A management class contains a collection of management policies that apply to data sets. Data management uses the value you specify as a default unless it is preempted by a higher priority default, or overridden in some other way, for example by JCL.

Note: The value you specify must be protected by a profile in the MGMTCLAS general resource class, and the user must be granted at least READ access to the profile. Otherwise, RACF does not allow the user access to the specified MGMTCLAS. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

For information on defining DFP management classes, see *z/OS DFSMSdfp Storage Administration.*.

STORCLAS(*storage-class-name*)

Specifies the default storage class. The maximum length of *storage-class-name* is 8 characters.

A storage class specifies the service level (performance and availability) for data sets managed by the storage management subsystem (SMS). During new data set allocation, data management uses the value you specify as a default unless it is preempted by a higher priority default, or overridden in some other way (for example, by JCL).

Note: The value you specify must be protected by a profile in the STORCLAS general resource class, and the user must be granted at least READ access to the profile. Otherwise, RACF does not allow the user access to the specified STORCLAS. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

For information on defining DFP storage classes, see *z/OS DFSMSdfp Storage Administration*.

EIM

Specifies the bind information required to establish a connection with the EIM domain.

LDAPPROF(*ldapbind_profile*)

Specifies the name of a profile in the LDAPBIND class. The profile in the LDAPBIND class contains the name of an EIM domain and the bind information required to establish a connection with the EIM domain. The EIM services attempt to retrieve this information when it is not explicitly supplied through invocation parameters. Applications or other services that use the EIM services might instruct their callers to define a profile in the LDAPBIND class or the IRR.PROXY.DEFAULTS profile in the FACILITY class.

The *ldapbind_profile* specifies the name of a profile in the LDAPBIND class containing the EIM domain and the LDAP bind information. The *ldapbind_profile* name may be 1 - 246 characters long. It is not a case-sensitive name.

GRPACC | NOGRPACC

GRPACC

Specifies that any group data sets protected by DATASET profiles defined by the new user are automatically accessible to other users in the group. The group whose name is used as the high-level qualifier of the data set name (or the qualifier supplied by a command installation exit) has UPDATE access authority in the new profile. GRPACC specified on the ADDUSER command overrides NOGRPACC specified on the CONNECT command.

NOGRPACC

Specifies that the new user does not have the GRPACC attribute. NOGRPACC is the default value if you omit both GRPACC and NOGRPACC.

KERB

Specifies *z/OS Integrated Security Services Network Authentication Service Administration* information for a user you are defining to RACF. Each subkeyword defines information that RACF stores in a field within the KERB segment of the user's profile.

Note: The RACF user password must be changed to be non-expired in order to complete the definition of the *z/OS Network Authentication Service* principal. The user cannot use any *z/OS Network Authentication Service* function until the definition is complete.

ENCRYPT

Specifies which keys the user (the *z/OS Network Authentication Service* principal) is allowed to use.

When a principal's password changes, a key of each allowed type is generated and stored in the principal's user profile. The use of each key is based on the *z/OS Network Authentication Service* configuration.

ENCRYPT is the default value when you specify KERB. The default values for ENCRYPT are DES, DES3, DESD, AES128, AES256, AES128SHA2, and AES256SHA2.

DES | NODES
Whether DES encrypted keys can be used.

DES3 | NODES3
Whether DES3 encrypted keys can be used.

DESD | NODESD
Whether DESD encrypted keys can be used.

AES128 | NOAES128
Whether AES128 encrypted keys can be used.

AES256 | NOAES256
Whether AES256 encrypted keys can be used.

AES128SHA2 | NOAES128SHA2
Whether AES128 encrypted keys can be used.

AES256SHA2 | NOAES256SHA2
Whether AES256 encrypted keys can be used.

When a principal's password changes, a key of each type is generated and stored in the principal's user profile. The use of each key is based on the *z/OS Network Authentication Service* configuration.

Important: The principal's password *must* be changed to ensure that a key of each type is generated and stored in the principal's user profile.

See *z/OS Integrated Security Services Network Authentication Service Administration* for information about how *z/OS Network Authentication Service* uses keys and how to customize environment variables related to keys.

KERBNAME(*kerberos-principal-name*)
Specifies the z/OS user ID's local *kerberos-principal-name*.

The value specified for the local *kerberos-principal-name* must be unique. Consequently, a list of users cannot be specified on an ADDUSER command with the KERBNAME keyword.

The *kerberos-principal-name* you define to RACF can consist of any character except the @ (X'7C') character. You can enter the name with or without single quotation marks, depending on the following:

- If parentheses, commas, blanks, or semicolons are entered as part of the name, the name must be enclosed in single quotation marks.
- If a single quotation mark is intended to be part of the name and the entire character string is enclosed in single quotation marks, you must use two single quotation marks together to represent each single quotation mark within the string.
- If the first character of the name is a single quotation mark, you must enter the string within single quotation marks, with two single quotation marks entered for that single quotation mark.

Guideline: Avoid using EBCDIC variant characters to prevent problems with different code pages.

Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered. However, RACF does not ensure that a valid *kerberos-principal-name* has been specified.

A local *kerberos-principal-name* must *not* be qualified with a realm name when specified with the KERBNAME keyword. However, RACF verifies that the local principal name, when fully qualified with the name of the local realm:

```
/.../local_realm_name/principal_name
```

does not exceed 240 characters. For example,

- If the local realm name is

  ```
  X
  ```

fully qualified local principal names are prefixed with

```
/.../X/
```

and are limited to a maximum of 233 characters.

- If the local realm name is

  ```
  KERB390.ENDICOTT.IBM.COM
  ```

  fully qualified local principal names will be prefixed with

  ```
  /.../KERB390.ENDICOTT.IBM.COM/
  ```

  and be limited to a maximum of 210 characters.

This length verification requires that the REALM profile for the local realm KERBDFLT be defined and contain the name of the local realm, prior to the specification of local *z/OS Network Authentication Service* principals. Otherwise, *z/OS Network Authentication Service* users might not be properly defined.

Note: Because of the relationship between local realm names and local *kerberos-principal-names*, in which the length of a fully qualified name cannot exceed 240 characters, caution and planning must go into renaming the local realm because the combined length is only checked by RACF when a local *kerberos-principal-name* is added or altered. Renaming the realm should be avoided as a result.

MAXTKTLFE(*max-ticket-life*)

Specifies the *max-ticket-life* in seconds, and is represented by a numeric value from 1 - 2 147 483 647. Note that `0` is not a valid value.

If MAXTKTLFE is specified on the definition of a local z/OS Network Authentication Service principal, the z/OS Integrated Security Services Network Authentication Service takes the most restrictive of the value defined for the local principal and the value specified on the definition of the local realm (the KERBDFLT profile in the REALM class). Consequently, if the realm *max-ticket-life* is 24 hours, a principal cannot get a ticket with a longer lifetime even if the *max-ticket-life* is set to 48 hours in the user profile. If this field is not specified for a local principal, or if NOMAXTKTLFE has been specified, the maximum lifetime for tickets created for this principal is determined from the definition of the local z/OS Network Authentication Service realm.

LANGUAGE

Specifies the user's preferred national languages. Specify this operand if the user is to have languages other than the system-wide defaults (established by the LANGUAGE operand on the SETROPTS command).

- If this profile is for a TSO/E user who is to establish an extended MCS console session, the languages you specify should be one of the languages specified on the LANGUAGE LANGCODE statements in the MMSLSTxx PARMLIB member. See your MVS system programmer for this information.

  For more information on TSO/E national language support, see *z/OS TSO/E Customization*.
- If this profile is for a CICS user, see your CICS administrator for the languages supported by CICS on your system.

  For more information, visit CICS Transaction Server for z/OS (www.ibm.com/docs/en/cics-ts).

PRIMARY(*language*)

Specifies the user's primary language.

SECONDARY(*language*)

Specifies the user's secondary language.

Note:

1. For the primary and secondary languages, specify either the installation-defined name of a currently active language (a maximum of 24 characters) or one of the language codes (three characters in length) for a language installed on your system.
2. The language name can be a quoted or unquoted string.
3. The same language can be specified with both PRIMARY and SECONDARY parameters.
4. If the MVS message service is not active, the PRIMARY and SECONDARY values must be a 3-character language code.

LNOTES

Specifies the Lotus Notes® for z/OS information for the user profile being added.

SNAME(*short-name*)

Specifies the Lotus Notes for z/OS *short-name* of the user being defined. This value should match the name stored in the Lotus® Notes® for z/OS address book for this user, but this is not verified by the command.

The *short-name* you define to RACF can contain 1 - 64 characters. The *short-name* can contain the following characters: uppercase and lowercase alphabetic characters (`A - Z`, `a - z`), `0 - 9`, & (X'50'), - (X'60'), . (X'4B'), _ (X'6D'), and blanks (X'40').

If the *short-name* you specify contains any blanks, it must be enclosed in single quotation marks. The *short-name* is stripped of leading and trailing blanks.

The value specified for the *short-name* must be unique. Consequently, a list of users cannot be specified on an ADDUSER command with the SNAME keyword.

MODEL(*dsname*)

Specifies the name of a discrete data set profile that is used as a model when new data set profiles are created that have *userid* as the high-level qualifier. For this operand to be effective, the MODEL(USER) option (specified on the SETROPTS command) must be active.

RACF always prefixes the data set name with *userid* when it accesses the model. For information about automatic profile modeling, refer to *z/OS Security Server RACF Security Administrator's Guide*.

NAME(*user-name*)

Specifies the user name to be associated with the new user ID. You can use a maximum of 20 alphanumeric or non-alphanumeric characters. If the name you specify contains any blanks, it must be enclosed in single quotation marks.

Names longer than 20 characters are truncated to 20 characters when you enclose the name in quotation marks. However, when you specify a name longer than 20 characters *without* enclosing the name in quotation marks, you receive an error from the TSO parse routine.

If you omit the NAME operand, RACF uses a default of twenty # (X'7B') characters ('###...'). Note, however, that the corresponding entry in a LISTUSER output is the word `UNKNOWN`.

NDS

Specifies the Novell Directory Services for OS/390® information for the user profile being added.

UNAME(*user-name*)

Specifies the Novell Directory Services for OS/390 *user-name* of the user being defined. The *user-name* value should match the name stored in the Novell Directory Services for OS/390 directory for this user, but this is not verified by the command.

The *user-name* you define to RACF can contain 1 - 246 characters. However, the *user-name* cannot contain the following characters: * (X'5C'), + (X'4E'), | (X'4F'), = (X'7E'), , (X'6B'), " (X'7F'), ` (X'79'), / (X'61'), : (X'7A'), ; (X'5E'), ¢ (X'4A'), and brackets [and] (X'AD' and X'BD').

If the *user-name* you specify contains any parentheses or blanks, it must be enclosed in single quotation marks. The *user-name* is stripped of leading and trailing blanks. If a single quotation mark is intended to be part of the *user-name*, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

The value specified for the *user-name* must be unique. Consequently, a list of users cannot be specified on an ADDUSER command with the UNAME keyword.

NETVIEW

CONSNAME(*console-name*)

Specifies the default master console station (MCS) console name used for this operator. This default console name is used when the operator does not specify a console name on the NetView® GETCONID command.

The *console-name* value is an identifier 1 - 8 characters in length whose validity is checked by MVS processing when the operator tries to use it. See *z/OS MVS Planning: Operations* for information on valid values for a particular release.

CTL

Specifies whether a security check is performed for this NetView operator when they try to use a span or try to do a cross-domain logon.

GENERAL

Specifies that checking is done as described for SPECIFIC, and, in addition, that the operator is allowed to access devices that are not part of any span.

GLOBAL

Specifies that no checking is done.

SPECIFIC

Specifies that the operator is allowed to control only devices that are in spans the operator started, and that a security check is to be performed through RACROUTE REQUEST=AUTH whenever this operator attempts to use a span. Also, any cross-domain logon must be to a domain listed in the operator's NETVIEW segment with the DOMAINS keyword.

SPECIFIC is the default.

DOMAINS(*domain-name ...*)

Specifies the identifiers of NetView programs in another NetView domain where this operator can start a cross-domain session. The NetView program identifiers are coded on the NCCFID definition statement for the other domains, and represent the name given to that NetView program on the APPL statement.

Domain-name is a 1 - 5 character identifier. The characters can be alphabetic, numeric, or national.

IC('*command* | *command-list*')

Specifies the command or command list (up to 255 characters) to be processed by NetView for this operator when this operator logs on to NetView.

If the command or command list you specify contains any commas, blanks, or other special characters that TSO/E requires to be quoted, it must be enclosed in single quotation marks.

MSGRECVR(NO | YES)

Specifies whether this operator is to receive unsolicited messages that are not routed to a specific NetView operator.

NO

Specifies that the operator is not to receive the messages.

NO is the default.

YES

Specifies that the operator is to receive the messages.

NGMFADMN(NO | YES)

Specifies whether a NetView operator has administrator authority to the NetView Graphic Monitor Facility (NGMF).

NO

Specifies that the operator does not have authority.

NO is the default.

YES

Specifies that the operator has the authority.

NGMFVSPN (*view-span*)

Reserved for future use by the NetView Graphic Monitor Facility.

OPCLASS(*class ...*)

NetView scope classes for which the operator has authority. The OPCLASS values are only used if NetView is doing the checking itself, rather than using SAF and the NETCMDS class that RACF provides. If the OPCLASS operand is not specified, the operator is considered to have authority in scope classes.

The *class* value is a number from 1 to 2040 that specifies a NetView scope class.

OIDCARD | NOOIDCARD

OIDCARD

Specifies that the new user must supply an operator identification card when logging onto the system. If you specify the OIDCARD operand, the system prompts you to enter the new user's operator identification card as part of the processing of the ADDUSER command. If you specify the OIDCARD operand in a job executing in the background or when you cannot be prompted in the foreground, the ADDUSER command fails.

NOOIDCARD

Specifies that the new user is not required to supply an operator identification card. NOOIDCARD is the default value if you omit both OIDCARD and NOOIDCARD.

OMVS

Specifies z/OS UNIX System Services information for the user being defined to RACF. Information is stored in the OMVS segment of the user's profile.

You can control access to an entire OMVS segment or to individual fields in the OMVS segment by using field-level access checking.

ASSIZEMAX(*address-space-size*)

Specifies the RLIMIT_AS hard limit (maximum) resource value that processes receive when they are dubbed a process. The *address-space-size* you define to RACF is a numeric value from 10485760 - 2 147 483 647. ASSIZEMAX indicates the address space region size in bytes. The soft limit (current) resource value is obtained from MVS. If the soft limit value from MVS is greater than the *address-space-size*, the soft limit is used.

The value specified for ASSIZEMAX is also used when processes are initiated by a daemon process using an exec after `setuid()`. In this case, both the RLIMIT_AS hard and soft limits are set to the *address-space-size* value.

The value specified for ASSIZEMAX overrides any value provided by the MAXASSIZE parameter of BPXPRMxx. For more information, see *z/OS UNIX System Services Planning*.

AUTOUID | UID

Specifies whether RACF is to automatically assign an unused UID value to the user or if a specific UID value is to be assigned.

AUTOUID

Specifies that RACF is to automatically assign an unused UID value to the user. The UID value is derived from information obtained from the BPX.NEXT.USER profile in the FACILITY class. For more information on setting up BPX.NEXT.USER, see *z/OS Security Server RACF Security Administrator's Guide*.

If you are using RRSF automatic command direction for the USER class, the command sent to other nodes will contain an explicit assignment of the UID value which was derived by RACF on the local node.

Rules:

- AUTOUID cannot be specified if more than one user ID is entered.
- The AUTOUID keyword is mutually exclusive with the SHARED keyword.
- If both UID and AUTOUID are specified, AUTOUID is ignored.
- Field-level access checking for the UID field applies when using AUTOUID.

UID(*user-identifier*) [SHARED]

UID(*user-identifier*)

Specifies the user identifier. The UID is a numeric value from 0 - 2 147 483 647.

When assigning a UID to a user, you should make sure that the user's default group has a GID. A user who has a UID and a current connect group that has a GID can use functions such as the TSO/E OMVS command and can access z/OS UNIX files based on the UID and GID values assigned.

Care should be taken in assigning 0 as the user identifier. UID 0 is considered a superuser. The superuser passes all z/OS UNIX security checks. Assigning a UID to a user ID that appears in the RACF started procedures table (ICHRIN03) should also be done with care. RACF defined started tasks that have the trusted or privileged attribute are considered superusers even if their UID is a value other than 0.

Rules:

- If the security administrator has defined the SHARED.IDS profile in the UNIXPRIV class, the UID value must be unique. Use the SHARED keyword in addition to UID to assign a value that is already in use.
- If SHARED.IDS is not defined, RACF does not require the UID to be unique. The same value can be assigned to multiple users but this is not recommended because individual user control would be lost. However, if you want a set of users to have exactly the same access to z/OS UNIX resources, you might decide to assign the same UID to more than one user.
- The maximum number of user IDs that can share a UID or groups that can share a GID is 132 when each consists of 8 characters. More user IDs or groups are available using less than 8 characters. If the limit is met, you can combine user ID functions (for started tasks or daemons) to use physically less user IDs sharing the same UID. You may also use SUPERUSER granularity functionality to reduce the need to assign and share SUPERUSER authority using UID 0.
- If the UID is not specified, the user is unable to become a z/OS UNIX user and a LISTUSER for that user ID shows NONE for the UID.

SHARED

If the security administrator has chosen to control the use of shared UIDs, this keyword must be used in addition to the UID keyword to specify the user identifier if it is already in use by at least one other user. The administrator controls shared UIDs by defining the SHARED.IDS profile in the UNIXPRIV class.

Rules:

- If the SHARED.IDS profile is not defined, SHARED is ignored.
- If SHARED is specified in the absence of UID, it is ignored.
- If the SHARED.IDS profile is defined and SHARED is specified, but the value specified with UID is not currently in use, SHARED is ignored and UNIXPRIV authority is not required.
- Field-level access checking for the UID field applies when using SHARED.

- The SHARED keyword is mutually exclusive with the AUTOUID keyword.

CPUTIMEMAX(*cpu-time*)

Specifies the RLIMIT_CPU hard limit (maximum) resource value that the user's z/OS UNIX processes receive when they are dubbed a process. The *cpu-time* you define to RACF is a numeric value from 7 - 2 147 483 647. RLIMIT_CPU indicates the *cpu-time* in seconds that a process is allowed to use. The soft limit (current) resource value is obtained from MVS. If the soft limit value from MVS is greater than the *cpu-time* value, the soft limit is used.

The value specified for CPUTIMEMAX is also used when processes are initiated by a daemon process using an exec after `setuid()`. In this case, both the RLIMIT_CPU hard limit and the soft limit are set to the *cpu-time* value.

For processes running in, or forked from TSO or BATCH, the *cpu-time* value has no effect. For processes created by the rlogin command or other daemons, the *cpu-time* is the time limit for the address space.

The value specified for CPUTIMEMAX overrides any value provided by the MAXCPUTIME parameter of BPXPRMxx. For more information, see *z/OS UNIX System Services Planning*.

FILEPROCMAX(*files-per-process*)

Specifies the maximum number of files this user is allowed to have concurrently active or open. The *files-per-process* you define to RACF is a numeric value from 3 and 524287. FILEPROCMAX is the same as the OPEN_MAX variable defined in the POSIX standard.

FILEPROCMAX lets you limit the amount of system resources available to a user process. Select FILEPROCMAX by considering:

- For conformance to standards, set FILEPROCMAX to:
  - At least 16 to conform to the POSIX standard, and
  - At least 25 to conform to the FIPS standard.
- 256 is a commonly recommended value.
- A process can change its own value for the number of files it has active or open using the `setrlimt()` function. Only processes with appropriate privileges can increase their limits.
- The minimum value of 3 supports the standard files for a process: standard input, standard output, and standard error.
- The value needs to be larger than 3 to support z/OS UNIX shell users. If the value is too small, the shell might issue the message, `File descriptor not available`.

The value specified for FILEPROCMAX overrides any value provided by the MAXFILEPROC parameter of BPXPRMxx. For more information, see *z/OS UNIX System Services Planning*.

HOME(*initial-directory-name*)

Specifies the user's z/OS UNIX initial directory path name. This is the current working directory for the user's process when the user enters the TSO/E.

When you define a HOME directory name to RACF, it can contain 1 - 1023 characters. The HOME path name can consist of any characters and can be entered with or without single quotation marks. The following rules apply:

- If parentheses, commas, blanks, or semicolons are to be entered as part of the path name, the character string must be enclosed in single quotation marks.
- If a single quotation mark is intended to be part of the path name, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered. The fully qualified path name should be specified. RACF does not ensure that a valid path name has been specified. If you issue the ADDUSER command as a RACF operator command and you specify the path name in lowercase, you must include the path name within single quotations.

If HOME is not specified, MVS sets the working directory for the user to / (the root directory). However, the default value is not placed in the user's profile, and is not displayed when a LISTUSER command is entered.

MEMLIMIT | NOMEMLIMIT

MEMLIMIT(*nonshared-memory-size*)

Specifies the maximum number of bytes of nonshared memory that can be allocated by the user. The *nonshared-memory-size* value must be numeric 0 - 16777215, followed by the letter M, G, T, or P. The M, G, T or P letter indicates the multiplier to be used. The maximum value is 16383P.

Byte multiplier label	Decimal	Binary	Hexadecimal
M—megabyte	1048576	2^{20}	00000000 00100000
G—gigabyte	1073741824	2^{30}	00000000 40000000
T—terabyte	1099511627776	2^{40}	00000100 00000000
P—petabyte	1125899906842624	2^{50}	00040000 00000000

The following are different MEMLIMIT(*nonshared-memory-size*) examples:

- `MEMLIMIT(1M)` indicates a nonshared-memory-size of 1048576 bytes.
- `MEMLIMIT(1500M)` indicates a nonshared-memory-size of 1572864000 bytes.
- `MEMLIMIT(10G)` indicates a nonshared-memory-size of 10737418240 bytes.

For more extensive information, see *z/OS UNIX System Services Planning*.

NOMEMLIMIT

Specifies that you want to delete the nonshared memory size from the OMVS segment of the user's profile.

MMAPAREAMAX(*memory-map-size*)

Specifies the maximum amount of data space storage, in pages, that can be allocated by the user for memory mappings of z/OS UNIX files. Storage is not allocated until memory mappings are active. The *memory-map-size* you define to RACF is a numeric value from 1 - 16777216.

Use of memory map services consumes a significant amount of system memory. For each page (4KB) that is memory mapped, 96 bytes of ESQA are consumed when a file is not shared with any other users. When a file is shared by multiple users, each subsequent user after the initial user causes 32 bytes of ESQA to be consumed for each shared page. The ESQA storage is consumed when the `mmap()` function is invoked by the application program.

The value specified for MMAPAREAMAX overrides any value provided by the MAXMMAPAREA parameter of BPXPRMxx. For more information, see *z/OS UNIX System Services Planning*.

PROCUSERMAX(*processes-per-UID*)

Specifies the maximum number of processes this user is allowed to have active at the same time, regardless of how the process became a z/OS UNIX process. The *processes-per-UID* you define to RACF is a numeric value from 3 - 32767. PROCUSERMAX is the same as the `CHILD_MAX` variable defined in the POSIX standard.

PROCUSERMAX allows you to limit user activity to optimize performance. Select PROCUSERMAX by considering:

- For conformance to standards, set PROCUSERMAX to:
  - At least 16 to conform to the POSIX standard, and
  - At least 25 to conform to the FIPS standard.
- A user with a UID of 0 is not limited by the PROCUSERMAX value because a superuser might need to be capable of logging on and using z/OS UNIX services to solve a problem.
- A low PROCUSERMAX value limits the number of concurrent processes that the user can run. A low value also limits the user's consumption of processing time, virtual storage, and other system resources.
- Some daemons run without UID 0, and might create many address spaces. In these cases, it is necessary to set the limit high enough for the daemon associated with this user ID to run all of its processes.

Though not recommended, the same OMVS UID can be given to more than one user ID. If users share a UID, you need to define a greater number for PROCUSERMAX.

The value specified for PROCUSERMAX overrides any value provided by the MAXPROCUSER parameter of BPXPRMxx. For more information, see *z/OS UNIX System Services Planning*.

PROGRAM(*program-name*)

Specifies the PROGRAM path name (z/OS UNIX shell program). This is the first program started when the TSO/E command OMVS is entered or when a batch job is started using the BPXBATCH program.

When you define a PROGRAM path name to RACF, it can contain 1 - 1023 characters. The PROGRAM path name can consist of any characters and can be entered with or without single quotation marks. The following rules apply:

- If parentheses, commas, blanks, or semicolons are to be entered as part of the path name, the character string must be enclosed in single quotation marks.
- If a single quotation mark is intended to be part of the path name, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered. The fully qualified path name should be specified. RACF does not ensure that a valid path name has been specified. If you issue the ADDUSER command as a RACF operator command and you specify the path name in lowercase, you must include the path name within single quotations.

If PROGRAM is not specified or if PROGRAM is specified as blanks, MVS gives control to the default z/OS UNIX shell program. However, the default value is not placed in the user's profile, and is not displayed when a LISTUSER command is entered.

For more information about the default z/OS UNIX shell program supplied with z/OS UNIX, see *z/OS UNIX System Services Planning* and *z/OS UNIX System Services User's Guide*.

SHMEMMAX | NOSHMEMMAX

SHMEMMAX(*shared-memory-size*)

Specifies the maximum number of bytes of shared memory that can be allocated by the user. The *shared-memory-size* value must be numeric 1 - 16777215, followed by the letter `M`, `G`, `T`, or `P`. The `M`, `G`, `T` or `P` letter indicates the multiplier to be used. The maximum value is 16383P.

Byte multiplier label	Decimal	Binary	Hexadecimal
M—megabyte	1048576	2^{20}	00000000 00100000
G—gigabyte	1073741824	2^{30}	00000000 40000000

Byte multiplier label	Decimal	Binary	Hexadecimal
T—terabyte	1099511627776	2^{40}	00000100 00000000
P—petabyte	1125899906842624	2^{50}	00040000 00000000

The following are different SHMEMMAX(*shared-memory-size*) examples:

- `SHMEMMAX(1M)` indicates a shared-memory-size of `1048576` bytes.
- `SHMEMMAX(1500M)` indicates a shared-memory-size of `1572864000` bytes.
- `SHMEMMAX(10G)` indicates a shared-memory-size of `10737418240` bytes.

The value specified for SHMEMMAX overrides any value provided by the IPCSHMMPAGES parameter of BPXPRMxx. For more information, see *z/OS UNIX System Services Planning*.

NOSHMEMMAX

Specifies that you want to delete the shared memory size from the OMVS segment of the user's profile. The value specified for IPCSHMMPAGES in BPXPRMxx now applies to the user.

THREADSMAX(*threads-per-process*)

Specifies the maximum number of `pthread_create` threads, including those running, queued, and exited but not detached, that this user can have concurrently active. The *threads-per-process* you define to RACF is a numeric value from 0 - 100000. Specifying a value of 0 prevents applications run by this user from using the `pthread_create` service.

The value specified for THREADSMAX overrides any value provided by the MAXTHREADS parameter of BPXPRMxx. For more information, see *z/OS UNIX System Services Planning*.

OPERATIONS | <u>NOOPERATIONS</u>

OPERATIONS

Specifies that the new user has authorization to do maintenance operations on all RACF-protected data sets, tape volumes, and DASD volumes except those where the access list specifically limits the OPERATIONS user to a lower access authority than the operation requires.

You establish the lower access authority for the OPERATIONS user through the PERMIT command. OPERATIONS specified on ADDUSER overrides NOOPERATIONS specified on the CONNECT command.

You must have the SPECIAL attribute to enter the OPERATIONS operand.

<u>NOOPERATIONS</u>

Specifies that the new user is not to have the OPERATIONS attribute. NOOPERATIONS is the default if you omit both OPERATIONS and NOOPERATIONS.

OPERPARM

Specifies default information used when this user establishes an extended MCS console session.

You can control access to the entire OPERPARM segment or to individual fields within the OPERPARM segment by using field-level access checking. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

For information on planning how to use OPERPARM segments, see *z/OS MVS Planning: Operations*.

Note:

1. You need not specify every suboperand in an OPERPARM segment. In general, if you omit a suboperand, the default is the same as the default in the CONSOLxx PARMLIB member, which can also be used to define consoles.

2. If you specify MSCOPE or ROUTCODE but do not specify a value for them, RACF uses MSCOPE(*ALL) and ROUTCODE(NONE) to update the corresponding fields in the user profile, and these values appear in listings of the OPERPARM segment of the user profile.
3. If you omit the other suboperands, RACF does not update the corresponding fields in the user's profile, and no value appears in listings of the OPERPARM segment of the profile.

ALTGRP(*alternate-console-group*)

Specifies the console group used in recovery. It can contain 1 - 8 characters. Valid characters are `0 - 9`, `A - Z`, # (X'7B'), $ (X'5B'), or @ (X'7C').

Restriction: Starting with z/OS Version 1 Release 8, console services ignores ALTGRP(*alternate-console-group*) when a session is established and it need not be specified.

AUTH

Specifies the authority this console has to issue operator commands.

If you omit this operand, RACF does not add this field to the user's profile. However, an extended MCS console uses AUTH(INFO) when a session is established.

MASTER

Allows this console to act as a master console, which can issue all MVS operator commands.

ALL

Allows this console to issue system control commands, input/output commands, console control commands, and informational commands.

INFO

Allows this console to issue informational commands.

CONS

Allows this console to issue console control and informational commands.

IO

Allows this console to issue input/output and informational commands.

SYS

Allows this console to issue system control commands and informational commands.

AUTO(YES | NO)

Specifies whether the extended console can receive messages that have been automated by the Message Processing Facility (MPF) in the sysplex.

If you omit this operand, RACF does not add this field to the user's profile. However, an extended MCS console uses AUTO(NO) when a session is established.

CMDSYS(*system-name* | *)

Specifies the system to which commands issued from this console are to be sent. The *system-name* value must be 1 - 8 characters. Valid characters are `A - Z`, `0 - 9`, @ (X'7C'), # (X'7B'), and $ (X'5B'). If * is specified, commands are processed on the local system where the console is attached.

If you omit this operand, RACF does not add this field to the user's profile. However, an extended MCS console uses CMDSYS(*) when a session is established.

DOM

Specifies whether this console receives delete operator message (DOM) requests.

If you omit this operand, RACF does not add this field to the user's profile. However, an extended MCS console uses DOM(NORMAL) when a session is established.

NORMAL

Specifies that the system queues all appropriate DOM requests to this console.

ALL

Specifies that all systems in the sysplex queue DOM requests to this console.

NONE

Specifies that no DOM requests are queued to this console.

HC(YES | NO)

Specifies whether this console is to receive all messages that are directed to hardcopy. Any route codes specified for a console do not apply to hardcopy messages, so this console will receive all hardcopy messages regardless of their specific route code.

If you omit this operand, RACF does not add this field to the user's profile. However, z/OS console services uses HC(NO) when a session is established.

INTIDS(YES | NO)

Specifies whether this console is to receive messages directed to console ID zero (the internal console). Such messages are usually responses to internally issued commands.

If you omit this operand, RACF does not add this field to the user's profile. However, z/OS console services will use INTIDS(NO) when a session is established.

KEY(*searching-key*)

Specifies a 1 - 8 byte character name that can be used to display information for all consoles with the specified key by using the MVS command DISPLAY CONSOLES,KEY. If specified, KEY can include `A - Z`, `0 - 9`, `#` (X'7B'), $ (X'5B'), or `@` (X'7C').

If you omit this operand, RACF does not add this field to the user's profile. However, an extended MCS console uses a KEY value of NONE when a session is established.

LEVEL

Specifies the messages that this console is to receive. The *message-level* variable can be a list of R, I, CE, E, IN, NB or ALL. If you specify ALL, you cannot specify R, I, CE, E, or IN.

If you omit this operand, RACF does not add this field to the user's profile. However, an extended MCS console uses LEVEL(ALL) when a session is established.

NB

The console receives *no* broadcast messages.

ALL

The console receives these messages: R, I, CE, E, IN.

R

The console receives messages requiring an operator reply.

I

The console receives immediate action messages.

CE

The console receives critical eventual action messages.

E

The console receives eventual action messages.

IN

The console receives informational messages.

LOGCMDRESP

Specifies if command responses are to be logged.

If you omit this operand, RACF does not add this field to the user's profile. However, an extended MCS console uses LOGCMDRESP(SYSTEM) when a session is established.

SYSTEM

Specifies that command responses are logged in the hardcopy log.

NO

Specifies that command responses are not logged.

MFORM(*message-format*)

Specifies the format in which messages are displayed at the console. Can be a combination of J, M, S, T, and X:

J

Messages are displayed with a job ID or name.

M

Message text is displayed.

S

Messages are displayed with the name of the originating system.

T

Messages are displayed with a time stamp.

X

Messages that are flagged as exempt from job name and system name formatting are ignored.

If you omit this operand, RACF does not add this field to the user's profile. However, an extended MCS console uses MFORM(M) when a session is established.

MIGID(YES | NO)

Specifies that a 1-byte migration ID is to be assigned to this console. The migration ID allows command processors that use a 1-byte console ID to direct command responses to this console.

Restriction: Starting with z/OS Version 1 Release 7, console services ignores MIGID(YES | NO) when a session is established and it need not be specified.

MONITOR(*events*)

Specifies which information should be displayed when jobs, TSO sessions, or data set status are being monitored.

If you omit this operand, RACF does not add this field to the user's profile. However, an extended MCS console uses MONITOR(JOBNAMES SESS) when a session is established. The *events* value can be a list of the following:

JOBNAMES | JOBNAMEST

Displays information about the start and end of each job. JOBNAMES omits the times of job start and job end. JOBNAMEST displays the times of job start and job end.

SESS | SESST

Displays information about the start and end of each TSO session. SESS omits the times of session start and session end. SESST displays them.

STATUS

Specifies that the information displayed when a data set is freed or unallocated should include the data set status.

MSCOPE

Specifies the systems from which this console can receive messages that are not directed to a specific console.

If you omit this operand, RACF does not add this field to the user's profile. However, an extended MCS console uses MSCOPE(*ALL) when a session is established.

If you specify MSCOPE but omit a value, RACF uses MSCOPE(*ALL) to update this field in the user's profile. *ALL appears in listings of the OPERPARM segment of the user's profile.

system-name

Is a list of one or more system names, where *system-name* can be any combination of `A - Z`, `0 - 9`, # (X'7B'), $ (X'5B'), or @ (X'7C').

*****

Is the system on which the console is currently active.

***ALL**

All systems.

ROUTCODE(ALL | NONE | *routing-codes*)

Specifies the routing codes of messages this console is to receive.

If you omit this operand, RACF does not add this field to the user's profile. However, an extended MCS console uses ROUTCODE(NONE) when a session is established.

If you specify ROUTCODE but omit a value, RACF uses ROUTCODE(NONE) to update this field in the user's profile. NONE appears in listings of the OPERPARM segment of the user's profile. The value for ROUTCODE can be one of the following:

ALL
All routing codes.

NONE
No routing codes.

routing-codes
One or more routing codes or sequences of routing codes. The routing codes can be list of *n* and *n1*:*n2*, where *n*, *n1*, and *n2* are integers 1 - 128, and *n2* is greater than *n1*.

STORAGE(*amount*)
Specifies the amount of storage in megabytes in the TSO/E user's address space that can be used for message queuing to this console. If specified, STORAGE must be a number from 1 - 2000.

If you omit this operand, RACF does not add this field to the user's profile. However, an extended MCS console uses STORAGE(1) when a session is established and a value of 0 is listed in the OPERPARM segment of the user's profile to indicate that no storage value was specified.

UD(YES | NO)
Specifies whether this console is to receive undelivered messages. If you omit this operand, RACF does not add this field to the user's profile.

Restriction: Starting with z/OS Version 1 Release 8, console services ignores UD(YES | NO) when a session is established and it need not be specified.

UNKNIDS(YES | NO)
Specifies whether this console is to receive messages directed to *unknown* console IDs. Unknown consoles are typically one-byte console IDs that the system cannot unambiguously resolve.

If you omit this operand, RACF does not add this field to the user's profile. However, z/OS console services will use UNKNIDS(NO) when a session is established.

OVM
Specifies OpenExtensions VM information for the user being defined. This data is not relevant to z/OS, but is stored in the RACF database if specified. For more information, see the RACF for z/VM publications.

FSROOT(*file-system-root*)
This data is not relevant to z/OS, but is stored in the RACF database if specified. For more information, see the RACF for z/VM publications.

HOME(*initial-directory-name*)
This data is not relevant to z/OS, but is stored in the RACF database if specified. For more information, see the RACF for z/VM publications.

PROGRAM(*program-name*)
This data is not relevant to z/OS, but is stored in the RACF database if specified. For more information, see the RACF for z/VM publications.

UID(*user-identifier*)
This data is not relevant to z/OS, but is stored in the RACF database if specified. For more information, see the RACF for z/VM publications.

OWNER(*userid or group-name*)
Specifies a RACF-defined user or group to be assigned as the owner of the RACF profile for the user being added. If you omit this operand, you are defined as the owner.

PASSWORD | <u>NOPASSWORD</u>

PASSWORD[(*password*)]
Specifies the user's initial logon password. This password is always set expired, thus requiring the user to change the password at initial logon. Note that the password syntax rules your installation defines using SETROPTS PASSWORD do not apply to this password.

If you omit PASSWORD, or enter PASSWORD with no value, no password is assigned.

NOPASSWORD

Specifies that the new user cannot supply an initial logon password when first entering the system. If you specify NOOIDCARD (or you allow this option to default), do not specify PHRASE, and if you specify NOPASSWORD or you omit the PASSWORD keyword, you define a protected user ID that cannot be used to enter the system by any means that requires a password to be specified, such as a TSO logon, CICS signon, or batch job that specifies a password on the JOB statement. Therefore, user IDs that you assign to z/OS UNIX, UNIX daemons, started procedures, applications, servers or subsystems can be protected from being revoked when an incorrect password is entered. If the user attempts to enter the system with a password, the attempt fails. Note that the protected user ID is not revoked due to the failed password attempts even if the SETROPTS PASSWORD(REVOKE) option is in effect.

Determine which user IDs you want to protect, ensuring that these user IDs will not be used in any circumstance where a password must be supplied. A protected user will have the PROTECTED attribute displayed in the output of the LISTUSER command. Protected users can be associated with started procedures defined in the STARTED class (preferred method) or in the started procedures table (ICHRIN03).

Note: Kerberos information, such as a local principal name, must not be defined for protected user IDs and these user IDs must not be used for Kerberos authentication, because Kerberos authentication failures can result in user revocation.

PHRASE('*password-phrase*')

Specifies the user's initial password phrase. The password phrase you define is a text string of up to 100 characters and must be enclosed in single quotation marks. The password phrase is always set expired, thus requiring the user to change it on initial use.

The following syntax rules apply to all password phrases. You cannot alter these syntax rules but you can specify additional syntax rules if your installation tailors the new-password-phrase exit (ICHPWX11).

Syntax rules for password phrases:

- Maximum length: 100 characters
- Minimum length:
  - 9 characters, when the encryption algorithm is KDFAES or ICHPWX11 is present and allows the new value
  - 14 characters, when ICHPWX11 is not present and the encryption algorithm is not KDFAES
- Must not contain the user ID (as sequential uppercase or sequential lowercase characters)
- Must contain at least 2 alphabetic characters (A - Z, a - z)
- Must contain at least 2 non-alphabetic characters (numerics, punctuation, or special characters)
- Must not contain more than 2 consecutive characters that are identical
- If a single quotation mark is intended to be part of the password phrase, you must use two single quotation marks together for each single quotation mark.

If the new-password-phrase exit (ICHPWX11) is present, it can reject the specified password phrase. RACF allows password phrases greater than 8 characters when the encryption algorithm is KDFAES, however, ICHPWX11 can enforce any minimum length greater than 8.

If the specified password phrase is accepted, it is made the user's current password phrase and, when SETROPTS PASSWORD(HISTORY) is in effect, it is added to the user's password phrase history.

If you omit PHRASE, no password phrase is assigned. If you enter PHRASE without a *password-phrase* value, you are prompted for a value unless your TSO session is in NOPROMPT mode.

PROXY

Specifies information which the z/OS LDAP server will use when acting as a proxy on behalf of a requester. The `R_proxyserv` (IRRSPY00) SAF callable service will attempt to retrieve this information when it is not explicitly supplied with the invocation parameters. Applications or other services which use the `R_proxyserv` callable service, such as IBM Policy Director Authorization Services for z/OS and OS/390, may instruct their invokers to define PROXY segment information.

LDAPHOST(*ldap_url*)

Specifies the URL of the LDAP server which the z/OS LDAP server will contact when acting as a proxy on behalf of a requester. An LDAP URL has a format such as `ldap://123.45.6:389` or `ldaps://123.45.6:636`, where `ldaps` indicates that an SSL connection is desired for a higher level of security. LDAP will also allow you to specify the host name portion of the URL using either the text form (BIGHOST.POK.IBM.COM) or the dotted decimal address (`123.45.6`). The port number is appended to the host name, separated by a colon `:` (X'7A').

For more information about LDAP URLs and how to enable LDAP servers for SSL connections, see *z/OS IBM Tivoli Directory Server Administration and Use for z/OS*.

The LDAP URL that you define to RACF can consist of 10 - 1023 characters. A valid URL must start with either `ldap://` or `ldaps://`. RACF will allow any characters to be entered for the remaining portion of the URL, but you should ensure that the URL conforms to TCP/IP conventions. For example, parentheses, commas, blanks, semicolons, and single quotation marks are not typically allowed in a host name. The LDAP URL can be entered with or without single quotation marks, however, in both cases, it will be translated to uppercase.

RACF does not ensure that a valid LDAP URL has been specified.

BINDDN(*bind_distinguished_name*)

Specifies the distinguished name (DN) which the z/OS LDAP server will use when acting as a proxy on behalf of a requester. This DN will be used in conjunction with the BIND password if the z/OS LDAP server needs to supply an administrator or user identity to BIND with another LDAP server. A DN is made up of attribute value pairs, separated by commas. For example:

```
cn=Ben Gray,ou=editing,o=New York Times,c=US
cn=Lucille White,ou=editing,o=New York Times,c=US
cn=Tom Brown,ou=reporting,o=New York Times,c=US
```

When you define a BIND DN to RACF, it can contain 1 - 1023 characters. The BIND DN can consist of any characters and can be entered with or without single quotation marks. The following rules apply:

- If parentheses, commas, blanks, or semicolons are to be entered as part of the BIND DN, the character string must be enclosed in single quotation marks.
- If a single quotation mark is intended to be part of the BIND DN, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered. For more information about LDAP distinguished names, see *z/OS IBM Tivoli Directory Server Administration and Use for z/OS*.

If you issue the ADDUSER command as a RACF operator command and you specify the BIND DN in lowercase, you must include the BIND DN within single quotations.

RACF does not ensure that a valid BIND DN has been specified.

BINDPW

Specifies the password which the z/OS LDAP server will use when acting as a proxy on behalf of a requester.

When you define a BIND password to RACF, it can contain 1 - 128 characters. The BIND password can consist of any characters (see Rules for exceptions) and can be entered with or without single quotation marks.

Rules:

- The BIND password cannot start with the left brace { character (X'8B').
- If parentheses, commas, blanks, or semicolons are to be entered as part of the BIND password, the character string must be enclosed in single quotation marks.
- If a single quotation mark is intended to be part of the BIND password, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

–

Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered. For more information about LDAP passwords, see *z/OS IBM Tivoli Directory Server Administration and Use for z/OS*.

If you issue the ADDUSER command as a RACF operator command and you specify the BIND password in lowercase, you must include the BIND password within single quotations.

RACF does not ensure that a valid BIND password has been specified.

Attention:

- When the command is issued from ISPF, the TSO command buffer (including possible BINDPW password data) is written to the ISPLOG data set. As a result, you should not issue this command from ISPF or you must control the ISPLOG data set carefully.
- When the command is issued as a RACF operator command, the command and the possible BINDPW password data is written to the system log. Therefore, use of ADDUSER as a RACF operator command should either be controlled or you should issue the command as a TSO command.

RESTRICTED | NORESTRICTED

RESTRICTED

Specifies that global access checking is bypassed when resource access checking is performed for the new user, and neither `ID(*)` on the access list nor the UACC will allow access. The RESTRICTED.FILESYS.ACCESS profile in the UNIXPRIV class can also be used to bypass the z/OS UNIX 'other' permission bits during file access checking for RESTRICTED users.

Note: If your installation has profiles defined in the PROGRAM class and the user ID with the RESTRICTED attribute needs to load programs covered by one or more of these profiles, the user ID or a group to which the user is connected must be put on the access list with EXECUTE or READ authority.

NORESTRICTED

Specifies that the new user does not have the RESTRICTED attribute and access checking is performed the standard way including global access checking, `ID(*)`, the UACC, and the z/OS UNIX 'other' permission bits as appropriate. NORESTRICTED is the default value if you omit both the RESTRICTED and NORESTRICTED keywords.

ROAUDIT | NOROAUDIT

ROAUDIT

Specifies that the new user has full responsibility for auditing the use of system resources.

You must have the SPECIAL attribute to enter the ROAUDIT operand.

NOROAUDIT

Specifies that the new user does not have the ROAUDIT attribute.

SECLABEL(*security-label*)

Specifies the user's default security label, where *security-label* is an installation-defined security label name that represents an association between a particular security level and zero or more security categories.

If the user does not enter a security label when entering the system, and none is assigned based on the user's port of entry, this value becomes the user's current security label.

A security label corresponds to a particular security level (such as CONFIDENTIAL) with a set of zero or more security categories (such as PAYROLL or PERSONNEL).

When no profile exists in the SECLABEL class for *security-label*, the ADDUSER command fails and the user is not added.

SECLEVEL(*security-level*)

Specifies the user's security level, where *security-level* is an installation-defined security level name that must be a member of the SECLEVEL profile in the SECDATA class. The *security-level* that you specify corresponds to the number of the minimum security level that a user must have to access the resource.

When you specify SECLEVEL and the SECDATA class is active, RACF adds security level access checking to its other authorization checking. If global access checking does not grant access, RACF compares the security level allowed in the user profile with the security level required in the resource profile. If the security level in the user profile is less than the security level in the resource profile, RACF denies the access. If the security level in the user profile is equal to or greater than the security level in the resource profile, RACF continues with other authorization checking.

Note: RACF does not perform security level checking for a started task or user that has the RACF privileged or trusted attribute. The RACF privileged or trusted attribute can be assigned to a started task through the RACF started procedures table or STARTED class, or to other users by installation-supplied RACF exits.

When the SECDATA class is not active, RACF ignores this operand. When no member of the SECLEVEL profile exists for *security-level*, you are prompted to provide a valid *security-level*.

SPECIAL | <u>NOSPECIAL</u>

SPECIAL

Specifies that the new user is allowed to issue all RACF commands with all operands except the operands that require the AUDITOR attribute. SPECIAL specified on the ADDUSER command overrides NOSPECIAL specified on the CONNECT command.

You must have the SPECIAL attribute to enter the SPECIAL operand.

<u>NOSPECIAL</u>

Specifies that the new user is not to have the SPECIAL attribute. NOSPECIAL is the default if you omit both SPECIAL and NOSPECIAL.

TSO

Specifies that when you define a TSO user to RACF, you can enter any of the following suboperands to specify default TSO logon information for that user. Each suboperand defines information that RACF stores in a field within the TSO segment of the user's profile.

You can control access to an entire TSO segment or to individual fields within the TSO segment by using field-level access checking. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

ACCTNUM(*account-number*)

Specifies the user's default TSO account number when logging on through the TSO/E logon panel. The account number you specify must be protected by a profile in the ACCTNUM general resource class, and the user must be granted READ access to the profile. Otherwise, the user cannot log on to TSO using the specified account number.

Account numbers can consist of any characters, and can be entered with or without single quotation marks. The following rules apply:

- If parentheses, commas, blanks, or semicolons are to be entered as part of the account number, the character string must be enclosed in single quotation marks. For example, if the account number is `(123)`, you must enter `ACCTNUM('(123)')`.

- If a single quotation mark is intended to be part of the account number, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

A user can change an account number, or specify an account number if one has not been specified, using the TSO/E logon panel. RACF checks the user's authorization to the specified account number. If the user is authorized to use the account number, RACF stores the account number in the TSO segment of the user's profile, and TSO/E uses it as a default value the next time the user logs on to TSO/E. Otherwise, RACF denies the use of the account number.

Note: When you define an account number on TSO, you can specify 1 - 40 characters. When you define a TSO account number to RACF, you can specify only 1 - 39 characters.

COMMAND(*command-issued-at-logon*)

Specifies the command to be run during TSO/E logon. TSO/E uses this field to prime the COMMAND field of the logon panel. The command value can contain 1 - 80 characters and consist of any characters. You can enter the value with or without single quotation marks depending on the following rules:

- If the command value contains parentheses, commas, blanks, or semicolons, enclose the character string in single quotation marks.
- If a single quotation mark is intended to be part of the command value, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered. A user can change the command value, or specify a command if one has not been specified, using the TSO/E logon panel.

DEST(*destination-id*)

Specifies the default destination to which the system routes dynamically-allocated SYSOUT data sets. The *destination-id* must be 1 - 7 alphanumeric characters, beginning with an alphabetic or national character.

HOLDCLASS(*hold-class*)

Specifies the user's default hold class. The specified value must be 1 alphanumeric character, excluding national characters.

If you specify the TSO operand on the ADDUSER command but do not specify a value for HOLDCLASS, RACF uses a default value consistent with current TSO defaults.

JOBCLASS(*job-class*)

Specifies the user's default job class. The specified value must be 1 alphanumeric character, excluding national characters.

If you specify the TSO operand on the ADDUSER command but do not specify a value for JOBCLASS, RACF uses a default value consistent with current TSO defaults.

MAXSIZE(*maximum-region-size*)

Specifies the maximum region size the user can request at logon. The *maximum-region-size* is the number of 1024-byte units of virtual storage that TSO can create for the user's private address space. The specified value must be an integer 0 - 2096128.

Note: Entering the integer '0' for this parameter results in a "non value" entry for the parameter, not a 'zero' value.

If you specify the TSO operand on the ADDUSER command but do not specify a value for MAXSIZE, or specify MAXSIZE(0), RACF uses a default value consistent with current TSO defaults.

If values are specified for both MAXSIZE and SIZE and SIZE is greater than MAXSIZE, RACF sets SIZE equal to MAXSIZE. If a value is specified for only SIZE or MAXSIZE and SIZE is greater than MAXSIZE, the operand is ignored.

MSGCLASS(*message-class*)
Specifies the user's default message class. The specified value must be 1 alphanumeric character, excluding national characters.

If you specify the TSO operand on the ADDUSER command but do not specify a value for MSGCLASS, RACF uses a default value consistent with current TSO defaults.

PROC(*logon-procedure-name*)
Specifies the name of the user's default logon procedure when logging on through the TSO/E logon panel. The name you specify must be 1 - 8 alphanumeric characters and begin with an alphabetic character. The name must also be defined as a profile in the TSOPROC general resource class, and the user must be granted READ access to the profile. Otherwise, the user cannot log on to TSO using the specified logon procedure.

A user can change a logon procedure, or specify a logon procedure if one has not been specified, using the TSO/E logon panel. TSO/E checks the user's authorization to the specified logon procedure. If the user is authorized to use the logon procedure, TSO/E uses it for this session and stores the name of the procedure in the TSO segment of the user's profile for use as the default value the next time the user logs on to TSO/E. Otherwise, TSO/E denies use of the logon procedure.

SECLABEL(*security-label*)
Specifies the user's security label if one was entered on the TSO LOGON panel. On subsequent LOGONs, it appears automatically on the panel.

Note: For more information on the relationship between the TSO security label and the user's security label, see *z/OS Security Server RACF Security Administrator's Guide*.

SIZE(*default-region-size*)
Specifies the minimum region size if the user does not request a region size at logon. The default region size is the number of 1024-byte units of virtual storage available in the user's private address space at logon. The specified value must be an integer 0 - 2096128.

Note: Entering the integer '0' for this parameter results in a "non value" entry for the parameter, not a 'zero' value.

A user can change the minimum region size, or specify the minimum region size if one has not been specified, using the TSO/E logon panel. RACF stores this value in the TSO segment of the user's profile and TSO/E uses it as a default value the next time the user logs on to TSO/E.

If values are specified for both MAXSIZE and SIZE and SIZE is greater than MAXSIZE, RACF sets SIZE equal to MAXSIZE. If a value is specified for only SIZE or MAXSIZE and SIZE is greater than MAXSIZE, the operand is ignored.

SYS(*sysout-class*)
Specifies the user's default SYSOUT class. The specified value must be 1 alphanumeric character, excluding national characters.

If you specify the TSO operand on the ADDUSER command but do not specify a value for SYS, RACF uses a default value consistent with current TSO defaults.

UNIT(*unit-name*)
Specifies the default name of a device or group of devices that a procedure uses for allocations. The specified value must be 1 - 8 alphanumeric characters.

USERDATA(*user-data*)
Specifies optional installation data defined for the user. The specified value must be 4 EBCDIC characters. Valid characters are 0 - 9 and A - F.

UACC(*access-authority*)
Specifies the default value for the universal access authority for all new resource profiles the user defines while the user's default group is the user's current connect group. The universal access authorities are ALTER, CONTROL, UPDATE, READ, and NONE. (RACF does not accept EXECUTE access authority with the ADDUSER command.) If you omit this operand or specify UACC without an access authority, the default is NONE.

This operand is group-related. If a user is subsequently connected to other groups (with the CONNECT command), the user can have a different default universal access authority in each group. Therefore, if the user specifies a different group at logon time or at batch job execution, the user's default UACC is the UACC of the specified group, not the UACC of the user's default group.

WHEN

Specifies the days of the week and the hours in the day when the user is allowed to access the system from a terminal. The day-of-week and time restrictions apply only when a user logs on to the system; that is, RACF does not force the user off the system if the end-time occurs while the user is logged on. Also, the day and time restrictions do not apply to batch jobs; the user can submit a batch job on any day and at any time.

If you omit the WHEN operand, the user can access the system at any time. If you specify the WHEN operand, you can restrict the user's access to the system to certain days of the week or to a certain time period within each day. Otherwise, you can restrict access to both certain days of the week and to a certain time period within each day.

DAYS(*day-info*)

Specifies the days of the week when a user may access the system. The *day-info* value can be any one of the following:

ANYDAY

The user can access the system on any day. If you omit DAYS, ANYDAY is the default.

WEEKDAYS

The user can access the system only on weekdays (Monday through Friday).

day ...

The user can access the system only on the days specified, where *day* can be MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, or SUNDAY, and you can specify the days in any order.

TIME(*time-info*)

Specifies the time period each day when the user can access the system. The *time-info* value can be any one of the following:

ANYTIME

Specifies that the user can access the system at any time. If you omit TIME, ANYTIME is the default.

start-time*:*end-time

Specifies that the user can access the system only during the specified time period. The format of both start-time and end-time is *hhmm*, where *hh* is the hour in 24-hour notation (00 - 23) and *mm* is the minutes (00 - 59). Note that `0000` is not a valid time value.

If start-time is greater than end-time, the interval spans midnight and extends into the following day.

If you omit DAYS and specify TIME, the time restriction applies to all seven days of the week. If you specify both DAYS and TIME, the user can access the system only during the specified time period and only on the specified days.

WORKATTR

Specifies the user-specific attributes of a unit of work. z/OS elements or features such as APPC, WLM, and z/OS UNIX might use the WORKATTR segment.

WAACCNT(*account-number*)

Specifies an account number for APPC/MVS processing.

You can specify a maximum of 255 EBCDIC characters.

Use the following rules when entering a value for this field:

- If the account number contains parentheses, commas, blanks, or semicolons, enclose the character string in single quotation marks. For example, if the account number is `(123)`, you must enter `WAACCNT('(123)')`.

- If a single quotation mark is intended to be part of the account number, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

WAADDR*n*(*address-line*)
Specifies up to four additional address lines for SYSOUT delivery. *n* can be any number 1 - 4.

For each *address-line*, you can specify a maximum of 60 EBCDIC characters. Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered.

Use the following rules when entering a value for this field:

- If the data contains parentheses, commas, blanks, or semicolons, enclose the character string in single quotation marks. For example, if the data is `(123)`, you must enter `WAADDR('(123)')`.
- If a single quotation mark is intended to be part of the data, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

WABLDG(*building*)
Specifies the building that SYSOUT information is to be delivered to.

You can specify a maximum of 60 EBCDIC characters. Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered.

Use the following rules when entering a value for this field:

- If the data contains parentheses, commas, blanks, or semicolons, enclose the character string in single quotation marks. For example, if the data is `(123)`, you must enter `WABLDG('(123)')`.
- If a single quotation mark is intended to be part of the data, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

WADEPT(*department*)
Specifies the department that SYSOUT information is to be delivered to.

You can specify a maximum of 60 EBCDIC characters. Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered.

Use the following rules when entering a value for this field:

- If the data contains parentheses, commas, blanks, or semicolons, enclose the character string in single quotation marks. For example, if the data is `(123)`, you must enter `WADEPT('(123)')`.
- If a single quotation mark is intended to be part of the data, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

WANAME(*name*)
Specifies the name of the user that SYSOUT information is to be delivered to.

You can specify a maximum of 60 EBCDIC characters. Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered.

Use the following rules when entering a value for this field:

- If the data contains parentheses, commas, blanks, or semicolons, enclose the character string in single quotation marks. For example, if the data is `(123)`, you must enter `WANAME('(123)')`.
- If a single quotation mark is intended to be part of the data, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

WAROOM(*room*)
Specifies the room that SYSOUT information is to be delivered to.

You can specify a maximum of 60 EBCDIC characters. Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered.

Use the following rules when entering a value for this field:

- If the data contains parentheses, commas, blanks, or semicolons, enclose the character string in single quotation marks. For example, if the data is `(123)`, you must enter `WAROOM('(123)')`.
- If a single quotation mark is intended to be part of the data, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

WAEMAIL(*e-mail*)

Specifies the user's fully qualified e-mail address in the format *user@domain*, such as `jasper@moes.bar.com`. Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered.

Use the following rules when entering a value for this field:

- The minimum length of the e-mail address is 3 characters and the maximum length is 246 characters.
- If the data contains parentheses, commas, blanks, or semicolons, enclose the character string in single quotation marks. For example, if the data is `joe@a.(b).com`, you must enter `WAEMAIL('joe@a.(b).com')`.
- If a single quotation mark is intended to be part of the data, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.
- To specify WAEMAIL, the RACF database must be at stage 3 of application identity mapping (AIM). For details about using the IRRIRA00 utility to advance the RACF database to AIM stage 3, see *z/OS Security Server RACF System Programmer's Guide*.
- The value that is specified must be unique. Consequently, a list of users cannot be specified on an ADDUSER command with the WAEMAIL keyword.

Examples

Example	Activity label	Description
1	*Operation*	User IA0 wants to define users PAJ5 and ESH25 to RACF and assign RESEARCH as their default group.
	Known	User IA0 has JOIN authority to group RESEARCH and the CLAUTH attribute for the USER class. User PAJ5 and ESH25 are not defined to RACF. User IA0 is currently connected to group RESEARCH. User IA0 wants to issue the command as a RACF TSO command.
	Command	`ADDUSER (PAJ5 ESH25)`
	Defaults	NAME(####################) OWNER(IA0) DFLTGRP(RESEARCH) AUTHORITY(USE) UACC(NONE) NOGRPACC NOADSP NOSPECIAL NOOPERATIONS NOCLAUTH NOAUDITOR NOOIDCARD NOROAUDIT

Example	Activity label	Description
2	*Operation*	User WJE10 wants to define user RGH01 to RACF and assign PAYROLL as the default and owning group. The password is PASS, group authority is CREATE, and universal access authority is READ. User WJE10 wants to direct the command to run under the authority of user EPC at ARMNK.
	Known	User EPC at ARMNK has JOIN authority to group PAYROLL and the CLAUTH attribute for the USER class. PAYROLL is not the default group of user EPC at ARMNK. User RGH01 is not defined to RACF on node ARMNK. The name of user RGH01 is RG Harris. User WJE10 wants to issue the command as a RACF TSO command. WJE10 and EPC at ARMNK have an already established user ID association.
	Command	`ADDUSER RGH01 DFLTGRP(PAYROLL) OWNER(PAYROLL) PASSWORD(PASS) NAME('R. G. HARRIS') AUTHORITY(CREATE) UACC(READ) AT(ARMNK.EPC)`
	Defaults	NOSPECIAL NOOPERATIONS NOCLAUTH NOOIDCARD NOAUDITOR NOROAUDIT
3	*Operation*	User RACFMIN wants to define user PIZ30 to RACF with a security category of NEWEMPLOYEE and a security level of NOSECRETS. User PIZ30 is to be allowed to use the system only on weekdays between the hours of 8:00 A.M. and 6:00 P.M.
	Known	User RACFMIN has the SPECIAL attribute. NEWEMPLOYEE has been defined to RACF as a valid category, and NOSECRETS has been defined as a valid security level. The new user's name is John Doe. User RACFMIN wants to issue the command as a RACF TSO command.
	Command	`ADDUSER PIZ30 NAME('JOHN DOE') ADDCATEGORY(NEWEMPLOYEE) SECLEVEL(NOSECRETS) WHEN(DAYS(WEEKDAYS)TIME(0800:1800))`
	Defaults	OWNER(RACFMIN) NOGRPACC NOSPECIAL NOOPERATIONS NOAUDITOR NOADSP AUTHORITY(USE) NOROAUDIT
4	*Operation*	User TTU01 wants to define user PIZ33 to RACF. User PIZ33 will be the AUDITOR for the installation, and will have class authority to terminals and tape volumes. User PIZ33 will not be required to enter a password, but will be identified through an OIDCARD.
	Known	User TTU01 has the SPECIAL attribute. User TTU01 is connected to group RESEARCH. User PIZ33 is not defined to RACF. User TTU01 wants to issue the command as a RACF TSO command.
	Command	Entered in the TSO foreground: `ADDUSER PIZ33 NOPASSWORD OIDCARD CLAUTH(TAPEVOL TERMINAL) AUDITOR` User TTU01 is prompted to enter the OIDCARD for PIZ33.
	Defaults	NAME(####################) OWNER(TTU01) DFLTGRP(RESEARCH) AUTHORITY(USE) UACC(NONE) NOGRPACC NOADSP NOSPECIAL NOOPERATIONS NOROAUDIT

Example	Activity label	Description
5	*Operation*	User TTU5 wants to define user RADMIN to RACF. User RADMIN will be a member of, and be owned by, the SYSINV group and have a model name of `RADMIN.RACF.ACCESS`.
	Known	User TTU5 has at least JOIN authority to group SYSINV and the CLAUTH attribute for the USER class. USER TTU5 wants to issue the command as a RACF TSO command.
	Command	`ADDUSER RADMIN DFLTGRP(SYSINV) MODEL(RACF.ACCESS) NAME('RACF ADMINISTRATOR') AUTHORITY(JOIN) ADSP UACC(NONE) OWNER(SYSINV)`
	Defaults	NOGRPACC, NOSPECIAL, NOOPERATIONS, NOAUDITOR NOROAUDIT
6	*Operation*	User KLEWIS wants to define user TBURNS to RACF and assign TSOTEST as the default group and TSOADMN as the owner of the user profile for TBURNS. The user will be allowed to use TSO and will be assigned the following TSO logon information: • Account number 98765T • Logon procedure TSPROC3 • Default job class Z • Default message class Q • Default hold class X • SYSOUT class W • Default region size of 2500 • Maximum region size of 15000.
	Known	• User KLEWIS has the SPECIAL attribute. • 98765T has been defined to RACF as a profile in the ACCTNUM general resource class, and user TBURNS has been given READ access to this profile. • TSPROC3 has been defined to RACF as a profile in the TSOPROC general resource class, and user TBURNS has been given READ access to this profile. • User TBURNS is not defined to RACF. • User TBURNS's name is T. F. Burns. • User KLEWIS wants to issue the command as a RACF TSO command.
	Command	`ADDUSER TBURNS DFLTGRP(TSOTEST) OWNER(TSOADMN) NAME('T.F. BURNS') TSO(ACCTNUM(98765T) PROC(TSPROC3) JOBCLASS(Z) MSGCLASS(Q) HOLDCLASS(X) SYS(W) SIZE(2500) MAXSIZE(15000))`
	Defaults	TSO(NODEST) AUTHORITY(USE) UACC(NONE) NOGRPACC NOADSP NOSPECIAL NOOPERATIONS NOCLAUTH NOAUDITOR NOOIDCARD NOROAUDIT

Example	Activity label	Description
7	*Operation*	User JSMITH wants to define user WJONES to RACF and assign SYS05 as the default group and DFPADMN as the owner of the user profile for WJONES. User WJONES is assigned the following default information to be used by DFP when the user creates a new DFP-managed data set: • Data class DFP4DATA • Management class DFP4MGMT • Storage class DFP4STOR • Data application identifier DFP4APPL.
	Known	• User JSMITH has the SPECIAL attribute. • DFP4MGMT has been defined to RACF as a profile in the MGMTCLAS general resource class, and user WJONES has been given READ access to this profile. • DFP4STOR has been defined to RACF as a profile in the STORCLAS general resource class, and user WJONES has been given READ access to this profile. • User WJONES is not defined to RACF. • User WJONES's name is W. E. Jones. • User JSMITH wants to issue the command as a RACF TSO command.
	Command	`ADDUSER WJONES DFLTGRP(SYS05) OWNER(DFPADMN) NAME('W.E. JONES') DFP(DATACLAS(DFP4DATA) MGMTCLAS(DFP4MGMT) STORCLAS(DFP4STOR) DATAAPPL(DFP4APPL))`
	Defaults	AUTHORITY(USE) UACC(NONE) NOGRPACC NOADSP NOSPECIAL NOOPERATIONS NOCLAUTH NOAUDITOR NOOIDCARD NOROAUDIT
8	*Operation*	The system administrator wants to define user DAF0 to RACF with her default group set to RESEARCH, her primary language set to American English (ENU) and her secondary language set to German (DEU).
	Known	The user's name is D. M. Brown. The profile owner is IBMUSER. The system administrator has the SPECIAL attribute. User DAF0 will have JOIN authority to group RESEARCH. The system administrator wants to issue the command as a RACF TSO command.
	Command	`ADDUSER DAF0 DFLTGRP(RESEARCH) NAME('D. M. BROWN') LANGUAGE( PRIMARY(ENU) SECONDARY(DEU)) OWNER(IBMUSER) AUTHORITY(JOIN)`
	Defaults	UACC(NONE) NOGRPACC NOADSP NOSPECIAL NOOPERATIONS NOCLAUTH NOAUDITOR NOOIDCARD NOROAUDIT
9	*Operation*	A user with SPECIAL authority requests the addition of a new z/OS UNIX user.
	Known	The user profile will be owned by the z/OS UNIX administrator's user ID, SYSADM, and will be a member of the existing group SYSOM which is associated with a GID. The user wants to issue the command as a RACF TSO command.
	Command	`ADDUSER CSMITH DFLTGRP(SYSOM) OWNER(SYSADM) NAME('C.J. SMITH') OMVS(UID(147483647) HOME(/u/CSMITH) PROGRAM(/bin/sh))`

Example	Activity label	Description
10	*Operation*	A user with SPECIAL authority requests the addition of a new DCE user.
	Known	The user profile is owned by the system administrator's user ID, SYSADM, and is a member of the existing group SYSOM which is associated with a GID. This DCE user has been assigned a DCE UUID of `004386ea-ebb6-1ec3-bcae-10005ac90feb` and a DCE principal name of `charlie`. This z/OS UNIX DCE user is a principal of the `/.../elvis.memphis.ibm.com` DCE cell. The UUID for the `/.../elvis.memphis.ibm.com` DCE cell is `003456ab-ecb7-7de3-ebda-95531ed63dae`.

	Command	`ADDUSER CSMITH DFLTGRP(SYSOM) OWNER(SYSADM) NAME('C.J. SMITH')`
		`OMVS(UID(27) HOME(/u/csmith) PROGRAM(/bin/sh))`
		`DCE(UUID(004386ea-ebb6-1ec3-bcae-10005ac90feb) +`
		`     DCENAME(charlie) HOMECELL(/.../elvis.memphis.ibm.com) +`
		`     HOMEUUID(003456ab-ecb7-7de3-ebda-95531ed63dae))`

	Defaults	DCE(AUTOLOGIN(NO)) NOROAUDIT
11	*Operation*	Lotus Notes user RACFADM with SPECIAL or UPDATE authority requests the addition of a new user with Lotus Notes and NDS information.
	Known	The user profile is owned by RACFADM and belongs to RACFADM's current connect group SYSOM.

	Command	`ADDUSER PCUSER1 LNOTES(SNAME('NEW-GUY 1'))`
		`NDS(UNAME(DIRADMIN))`

	Defaults	DFLTGRP(SYSOM) OWNER(RACFADM) NOROAUDIT
12	*Operation*	User RACFADM with SPECIAL or UPDATE authority requests the addition of a new z/OS UNIX user. The user specifies AUTOUID so that RACF will automatically assign an unused UID to the new user.
	Known	The user profile is owned by RACFADM and belongs to RACFADM's current connect group SYSOM. The BPX.NEXT.USER profile in the FACILITY class has been set up to allow automatic UID assignment.

	Command	`ADDUSER UNIXUSR OMVS(AUTOUID HOME('/u/unixusr')`
		`CPUTIMEMAX(5000) ASSIZEMAX(40000000))`

	Defaults	DFLTGRP(SYSOM) OWNER(RACFADM) NOROAUDIT
13	*Operation*	User RACFADM with SPECIAL or UPDATE authority requests the addition of a new z/OS UNIX superuser.
	Known	The user profile is owned by RACFADM and belongs to RACFADM's current connect group SYSOM. Shared UIDs are being controlled, and at least one superuser already exists, so SHARED must be specified.

	Command	`ADDUSER SUPERGUY OMVS(UID(0) SHARED HOME('/')`
		`PROGRAM('/bin/sh')) NOPASSWORD`

	Defaults	DFLTGRP(SYSOM) OWNER(RACFADM) NOROAUDIT

Example	Activity label	Description
14	*Operation*	User RACFADM with SPECIAL authority adds the user ID PUBLIC and assigns it restricted access. User IDs RACFU00 and USER004 are added, but are not assigned any restrictions. In this example, the PUBLIC user ID does not have access to RACFU00's data sets because it has RESTRICTED access.
	Known	User RACFADM has SPECIAL authority.

	Command	`ADDUSER PUBLIC RESTRICTED`
		`ADDUSER RACFU00 NORESTRICTED`
		`ADDUSER USER004`
		`ADDSD 'RACFU00.*' UACC(READ)`

	Defaults	USER004 has NORESTRICTED access by default. NOROAUDIT
15	*Operation*	A user with SPECIAL authority requests the addition of a z/OS Integrated Security Services Network Authentication Service account within the local realm for a user whose RACF user profile is RONTOMS. MAXTKTLFE is not specified, so the value specified on the definition of the local realm KERBDFLT in the REALM class is used. Note that the user's RACF password must be changed before the definition of the z/OS Network Authentication Service account is complete.
	Known	User RONTOMS wants to define his z/OS Integrated Security Services Network Authentication Service information.
	Command	`ADDUSER RONTOMS KERB(KERBNAME('KerberizedUser'))`
16	*Operation*	User RACFADMN issues a command to add a new user MRSERVER with an EIM segment and LDAP profile that is related to an LDAPBIND class for the specified user to use with EIM.
	Known	eimdomainALookup is a profile in the LDAPBIND class that defines the EIM LDAP values required for EIM processing
	Command	`ADDUSER MRSERVER EIM(LDAPPROF(eimdomainALookup))`
17	*Operation*	User SECADM wants to define a new user ANDREW and add custom field data for multiple fields.
	Known	User SECADM has the SPECIAL attribute. Custom fields called EMPSER, ADDRESS, PHONE, CODE, and ACTIVE are already defined with attributes that allow the custom data values specified in the command example. The systems programer has already rebuilt the dynamic parse table using the IRRDPI00 UPDATE command.

	Command	`ADDUSER ANDREW CSDATA(EMPSER(256400)`
		`   ADDRESS('14 Main Street, Anywhere, IL 01234')`
		`   PHONE(555-555-5555)`
		`   CODE(FC01B2D8)`
		`   ACTIVE(NO))`

ALTDSD (Alter data set profile)

Purpose

Use the ALTDSD command to:

- Modify an existing discrete or generic data set profile.

- Protect a single volume of either a multivolume tape data set or a multivolume, non-VSAM DASD data set. (At least one volume must already be RACF-protected.)
- Remove RACF-protection from either a single volume of a multivolume tape data set or a single volume of a multivolume, non-VSAM DASD data set. (You cannot delete the last volume from the profile.)

Changes made to discrete profiles take effect after the ALTDSD command is processed. Changes made to generic profiles do not take effect until one or more of the following steps is taken:

- The user of the data set issues the LISTDSD command:

  ```
  LISTDSD DA(data-set-protected-by-the-profile) GENERIC
  ```

  Note: Use the data set name, not the profile name.
- The security administrator issues the SETROPTS command:

  ```
  SETROPTS GENERIC(DATASET) REFRESH
  ```

  See SETROPTS command for authorization requirements.
- The user of the data set logs off and logs on again.

Note: For more information, refer to *z/OS Security Server RACF Security Administrator's Guide*.

Issuing options

The following table identifies the eligible options for issuing the ALTDSD command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	Yes	Yes	Yes	Yes

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

You must be logged on to the console to issue this command as a RACF operator command.

Related commands

- To create a data set profile, see “ADDSD (Add data set profile)” on page 31.
- To delete a data set profile, see “DELDSD (Delete data set profile)” on page 178.
- To list a data set profile, see “LISTDSD (List data set profile)” on page 192.
- To permit or deny access to a data set profile, see “PERMIT (Maintain resource access lists)” on page 237.
- To obtain a list of data set profiles, see “SEARCH (Search RACF database)” on page 541.

Authorization required

When issuing this command as a RACF operator command, you might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

To use the ALTDSD command, you must have sufficient authority over the profile. RACF makes the following checks until one of these conditions is met:

- You have the SPECIAL attribute.

- The data set profile is within the scope of a group in which you have the group-SPECIAL attribute.
- You are the owner of the profile.
- The high-level qualifier of the profile name (or the qualifier supplied by the RACF naming conventions table or by a command installation exit) is your user ID.
- To assign a security label, you must have the SPECIAL attribute or have READ access to the security label profile. However, the security administrator can limit the ability to assign security labels only to users with the SPECIAL attribute.
- To access the DFP or TME segment, field-level access checking is required.
- For a discrete profile, you have ALTER authority.[3]

To use the GLOBALAUDIT operand, you must have the AUDITOR attribute, or the data set profile must be within the scope of a group in which you have the group-AUDITOR attribute.

If you have the AUDITOR attribute or the data set profile is within the scope of a group in which you have the group-AUDITOR attribute, but you do not satisfy one of the preceding checks, you can specify only the GLOBALAUDIT operand.

To specify the AT keyword, you must have READ authority to the DIRECT.*node* resource in the RRSFDATA class and a user ID association must be established between the specified *node.userid* pair(s).

To specify the ONLYAT keyword you must have the SPECIAL attribute, the *userid* specified on the ONLYAT keyword must have the SPECIAL attribute, and a user ID association must be established between the specified *node.userid* pair(s) if the user IDs are not identical.

To assign a security category to a profile, or to delete a category from a profile, you must have the SPECIAL attribute, or the category must be in your user profile.

To assign a security level to a profile, you must have the SPECIAL attribute, or, in your own profile, a security level that is equal to, or greater than, the security level you are assigning.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the ALTDSD command is:

[*subsystem-prefix*]{ALTDSD | ALD}
(***profile-name*** [/*password*] . . .)
[ADDCATEGORY(*category-name* ...) | DELCATEGORY [({*category-name* ... | *})]]
[ADDVOL(*volume-serial*) | DELVOL(*volume-serial* | ALTVOL(*old-volume-serial new-volume-serial*)]
[AT([*node*].*userid* ...) | ONLYAT([*node*].*userid* ...)]
[AUDIT(NONE | *access-attempt*[(*audit-access-level*)] ...)]

[3] More information about ALTER authority and how to limit it can be found in Limiting ALTER access authority in discrete profiles in *z/OS Security Server RACF Security Administrator's Guide*.

```
[ CSDATA(
      [ custom-field-name(custom-field-value) | NOcustom-field-name ] ...
   )
   | NOCSDATA ]

[ DATA('installation-defined-data') | NODATA ]

[ DFP(
      [RESOWNER(userid or group-name) | NORESOWNER]
      [DATAKEY(CKDS key label) | NODATAKEY]
      )
      | NODFP ]

[ ERASE | NOERASE ]

[ GENERIC | SET | NOSET ]

[ GLOBALAUDIT(access-attempt[(audit-access-level)] ...) ]

[ LEVEL(nn) ]

[ NOTIFY(userid) | NONOTIFY ]

[ OWNER(userid or group-name) ]

[ RETPD(nnnnn) ]

[ SECLABEL(seclabel-name) | NOSECLABEL ]

[ SECLEVEL(seclevel-name) | NOSECLEVEL ]

[ TME(
      [ ROLES(role-access-specification ...)
            | ADDROLES(role-access-specification ...)
            | DELROLES(role-access-specification ...)
            | NOROLES ]
            )
      | NOTME ]
```

[UACC(*access-authority*)]
[UNIT(*type*)]
[VOLUME(*volume-serial*)]
[WARNING | NOWARNING]

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, "RACF operator commands," on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

profile-name

Specifies the name of a discrete or generic data set profile. If you specify more than one profile name, the list of names must be enclosed in parentheses.

This operand is required and must be the first operand following ALTDSD.

Note:

1. Because RACF uses the RACF database and not the system catalog, you cannot use alias data set names.
2. If you specify a generic profile name, RACF ignores these operands:
   - ADDVOL | DELVOL | ALTVOL
   - SET | NOSET
   - UNIT
   - VOLUME

/password

Specifies the data set password if you are altering the profile for a password-protected data set. This operand applies only if you are using the ADDVOL and SET operands for a volume of a multivolume password-protected data set. The WRITE level password must then be specified.

If the command is executing in the foreground and you omit the password for a password-protected data set, RACF uses the logon password. You are prompted if the password you enter or the logon password is incorrect.

If the command is executing in a batch job and you either omit the password for a password-protected data set or supply an incorrect password, the operator is prompted.

You can use this operand only for tape data sets and non-VSAM DASD data sets. If you specify a generic profile, RACF ignores this operand.

ADDCATEGORY | DELCATEGORY

ADDCATEGORY(*category-name ...*)

Specifies one or more names of installation-defined security categories. *category-name* must be defined as a member of the CATEGORY profile in the SECDATA class. For information on defining security categories, see *z/OS Security Server RACF Security Administrator's Guide*.

Specifying ADDCATEGORY on the ALTDSD command causes RACF to add any category names you specify to any list of required categories that already exists in the data set profile. All users previously allowed to access the data set can continue to do so only if their profiles also include the additional category names.

When the SECDATA class is active and you specify ADDCATEGORY, RACF performs security category checking in addition to its other authorization checking. If a user requests access to a data set, RACF compares the list of security categories in the user profile with the list of security categories in the data set profile. If RACF finds any security category in the data set profile that is not in the user's profile, RACF denies access to the data set. If the user's profile contains all the required security categories, RACF continues with other authorization checking.

Note: RACF does not perform security category checking for a started task or user that has the RACF trusted or privileged attribute. The RACF trusted or privileged attribute can be assigned to a started task through the RACF started procedures table or STARTED class, or to other users by installation-supplied RACF exits.

DELCATEGORY[(*category-name ...* | *)]

Specifies one or more names of installation-defined security categories you want to delete from the data set profile. Specifying an asterisk (*) deletes all categories; RACF no longer performs security category checking for the data set profile.

Specifying DELCATEGORY by itself causes RACF to delete from the profile only undefined category names (those category names that were once known to RACF but that the installation has since deleted from the CATEGORY profile.)

ADDVOL | DELVOL | ALTVOL

ADDVOL(*volume-serial*)

Specifies that you want to RACF-protect the portion of the data set residing on this volume. At least one other portion of the data set on a different volume must already have been RACF-protected. You can use this operand only for tape data sets and non-VSAM data sets.

The DASD volume must be online unless you also specify NOSET. If it is not online and you omit NOSET, the ALTDSD command processor will, if you have TSO MOUNT authority, request that the volume be mounted.

RACF ignores this operand if you specify a generic profile name.

Note: The maximum number of volume serials for a tape data set with an entry in the TVTOC is 42.

DELVOL(*volume-serial*)

Specifies that you want to remove RACF-protection from the portion of the data set residing on this volume. If no other portions of this data set on another volume are RACF-protected, the command terminates. (Use the DELDSD command to delete the profile from RACF.) You can use this operand only for tape data sets and non-VSAM DASD data sets.

The DASD volume must be online unless you also specify NOSET. If it is not online and you omit NOSET, the ALTDSD command processor requests that the volume be mounted.

RACF ignores this operand if you specify a generic profile name.

ALTVOL(*old-volume-serial new-volume-serial*)

Specifies that you want to change the volume serial number in the data set profile. You can specify this operand for both VSAM and non-VSAM DASD data sets, but you cannot specify it for tape data sets. If you specify ALTVOL for a tape data set, the command fails.

When you specify ALTVOL, RACF ignores the SET and NOSET operands and modifies the data set profile, but it does not process the RACF indicator.

RACF ignores this operand if you specify a generic profile name.

To specify ALTVOL, you must have the SPECIAL attribute, or the data set profile must be within the scope of a group in which you have the group-SPECIAL attribute, or the high-level qualifier of the data set name (or the qualifier supplied by a command installation exit routine) must be your user ID.

AT | ONLYAT

The AT and ONLYAT keywords are only valid when the command is issued as a RACF TSO command.

AT ([*node*].*userid ...*)

Specifies that the command is to be directed to the node specified by *node*, where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed to the local node.

ONLYAT ([*node*].*userid ...*)

Specifies that the command is to be directed only to the node specified by *node* where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed only to the local node.

AUDIT(*access-attempt*[(*audit-access-level*)] ...| NONE)

Specifies which access attempts and access levels the user wants logged to the SMF data set.

access-attempt

Specifies which new access attempts the user wants logged to the SMF data set. The following options are available:

ALL

Specifies that you want to log both authorized accesses and detected unauthorized access attempts.

FAILURES

Specifies that you want to log detected unauthorized access attempts.

NONE

Specifies that you do not want any logging to be done.

SUCCESS

Specifies that you want to log authorized accesses.

If you specify AUDIT without a value, RACF ignores it.

audit-access-level

Specifies which access levels the user wants logged to the SMF data set. The levels you can specify are:

ALTER

Logs ALTER access-level attempts only.

CONTROL

Logs access attempts at the CONTROL and ALTER levels.

READ

Logs access attempts at any level. READ is the default value if you omit *audit-access-level*.

UPDATE

Logs access attempts at the UPDATE, CONTROL, and ALTER levels.

You cannot audit access attempts at the EXECUTE level.

CSDATA | NOCSDATA

CSDATA

Specifies information to add, change, or remove a custom field for this data set.

custom-field-name ...* | NO*custom-field-name ...

***custom-field-name*(*custom-field-value*) ...**

Specifies the name and value of a custom field for this data set. You can specify values for multiple custom fields with a single ALTDSD command.

Usage for each custom field is defined using the CFDEF operand of the RDEFINE command for resource profiles in the CFIELD class. Contact your security administrator to see how custom fields are used at your installation. For more information about custom fields, see *z/OS Security Server RACF Security Administrator's Guide*.

Rules:

- You must use the same *custom-field-name* as defined by the CFIELD profile named DATASET.CSDATA.*custom-field-name*. (The CFIELD profile is defined using the CFDEF operand of the RDEFINE command.)
- You must specify a *custom-field-value* that is valid for the attributes of this custom field. (The attributes, such as data type, are defined in the CFDEF segment of the CFIELD profile.)

NO*custom-field-name ...*

Removes the custom field information for this data set. You can remove values for multiple custom fields with a single ALTDSD command.

When you append the prefix **NO** to the name of the custom field, you delete the value for that custom field from the data sets profile. For example, if your installation has defined a custom field named ADDRESS and you want to remove the ADDRESS field from the profile of the user SHANNON, you might issue the following command:

Example:

```
ALTDSD SHANNON CSDATA(NOADDRESS)
```

NOCSDATA

Deletes the CSDATA segment from the data set profile.

DATA | NODATA

DATA('*installation-defined-data*')

Specifies up to 255 characters of installation-defined data to be stored in the data set profile and must be enclosed in single quotation marks. It can also contain double-byte character set (DBCS) data.

Use the LISTDSD command to list this information.

NODATA

Specifies that the ALTDSD command is to delete any installation-defined data in the data set profile.

DFP | NODFP

DFP

Specifies that for an SMS-managed data set, you can change the following information:

You can control access to the entire DFP segment or to individual fields within the DFP segment by using field-level access checking. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

RESOWNER(*userid or group-name*) | NORESOWNER

Specifies the user ID or group name of the actual owner of the data sets protected by the profile specified in *profile-name-1*. The name specified for RESOWNER must be a RACF-defined user or group. (The data set resource owner, or RESOWNER, is distinguished from the OWNER, which represents the user or group that owns the data set profile).

If NORESOWNER is specified, the user or group represented by the high level qualifier of the data set profile is assigned as the owner of data sets protected by the profile when SMS needs to determine the RESOWNER.

DATAKEY(CKDS key label) | NODATAKEY

Specifies the CKDS key label that SMS will associate with a data set protected by the profile specified in the profile-name-1 at the time of allocation. The label name cannot exceed 64 characters. The first character must be an alphabetic character or a national character (#, @, or $). Subsequent characters can be a period character (.) or any alphanumeric or national character.

If NODATAKEY is specified, no CKDS key label will be associated with a data set protected by the profile specified in profile-name-1 at the time of allocation.

NODFP

Specifies that RACF should delete the DFP segment from the data set profile.

ERASE | NOERASE

ERASE

Specifies that when SETROPTS ERASE is active, data management is to physically erase the contents of deleted data sets and scratched or released DASD extents. Erasing the data set means overwriting its contents with binary zeroes so that it cannot be read.

Restrictions: The ERASE operand is ignored when any of the following conditions exist:

- When the data set is a *tape* data set and your installation did not activate the TAPEAUTHDSN option in the DEVSUPxx member of SYS1.PARMLIB. See Erasing scratched or released data (ERASE option) in *z/OS Security Server RACF Security Administrator's Guide* for more information.
- When SETROPTS NOERASE is active for your installation. (User and data set profile definitions are overridden.)

NOERASE

Specifies that data management is not to physically erase the contents of deleted data sets and scratched or released DASD extents.

Restrictions: Setting NOERASE has no effect and does not prevent a scratched data set from being erased for either one of the following conditions:

- SETROPTS ERASE(ALL) is in effect.
- SETROPTS ERASE(SECLEVEL(*security-level*)) is in effect *and* the scratched data set has security level that is equal or higher than the *security-level* specified with SETROPTS.

GENERIC | SET | NOSET

If you do not specify GENERIC, SET, or NOSET, the default value is SET.

GENERIC

Specifies that RACF is to treat the profile name as a generic name, even if it does not contain any generic characters.

SET | NOSET

Specifies whether the data set is to be RACF-indicated. RACF ignores SET and NOSET if you do not use the ADDVOL or DELVOL operand or specify a generic profile name.

SET

Specifies that:

- The data set on this volume is to be RACF-indicated if you also specify the ADDVOL operand. If the indicator is already on, the command fails.
- The RACF-indicator for the data set on this volume is to be set off if you also specify the DELVOL operand. If the indicator is already off, the command fails.

For a DASD data set, the volume indicated in the ADDVOL or DELVOL operand must be online.

NOSET

Specifies that RACF is not to change the RACF indicator for the data set.

The volume indicated in the ADDVOL or DELVOL operand does not have to be online.

To use NOSET, you must have the SPECIAL attribute, or the data set profile must be within the scope of a group in which you have the group-SPECIAL attribute, or the high-level qualifier of the data set name (or the qualifier supplied by a command installation exit) must be your user ID. If you are not authorized, RACF ignores the NOSET and ADDVOL or DELVOL operands.

GLOBALAUDIT(*access-attempt*[(*audit-access-level*)] *...*)

Specifies which access attempts and access levels the user who has the AUDITOR attribute wants logged to the SMF data set.

access-attempt

Specifies which access attempts the user who has the AUDITOR attribute wants logged to the SMF data set. The following options are available:

ALL

Specifies that you want to log both authorized accesses and detected unauthorized access attempts.

FAILURES

Specifies that you want to log detected unauthorized access attempts.

NONE

Specifies that you do not want any logging to be done.

SUCCESS

Specifies that you want to log authorized accesses.

If you specify AUDIT without a value, RACF ignores it.

audit-access-level

Specifies which access levels the user who has the AUDITOR attribute wants logged to the SMF data set. The levels you can specify are:

ALTER

Logs ALTER access-level attempts only.

CONTROL

Logs access attempts at the CONTROL and ALTER levels.

READ

Logs access attempts at any level. READ is the default value if you omit *audit-access-level*.

UPDATE

Logs access attempts at the UPDATE, CONTROL, and ALTER levels.

You cannot audit access attempts at the EXECUTE level.

To use the GLOBALAUDIT operand, you must have the AUDITOR attribute, or the profile must be within the scope of a group in which you have the group-AUDITOR attribute.

Note: Regardless of the value specified in GLOBALAUDIT, RACF always logs all access attempts specified on the AUDIT operand.

LEVEL(*nn*)

Specifies a new level indicator, where *nn* is an integer 0 - 99.

Your installation assigns the meaning of the value.

RACF includes it in all records that log data set accesses and in the LISTDSD command display.

NOTIFY | NONOTIFY

NOTIFY[(*userid*)]

Specifies the user ID of a user to be notified whenever RACF uses this profile to deny access to a data set. If you specify NOTIFY without specifying a user ID, RACF takes your user ID as the default; you are notified whenever the profile denies access to a data set.

A user who is to receive NOTIFY messages should log on frequently, both to take action in response to the unauthorized access attempts the messages describe and to clear the messages from the SYS1.BRODCAST data set. (When the profile also includes WARNING, RACF might have granted access to the data set to the user identified in the message.)

Note: The user ID specified on the NOTIFY operand is not notified when the profile disallows creation or deletion of a data set. NOTIFY is only used for resource access checking, not for resource creation or deletion.

NONOTIFY
Specifies that no user is to be notified when RACF uses this profile to deny access to a data set.

OWNER(*userid or group-name*)
Specifies a RACF-defined user or group to be the new owner of the data set profile. If you specify a user ID as the owner of a group data set profile, the specified user must have at least USE authority in the group to which the data set profile belongs.

To change the owner of a profile, you must be the current owner of the profile or have the SPECIAL attribute, or the profile must be within the scope of a group in which you have the group-SPECIAL attribute.

Note: The user specified as the owner does not automatically have access to the data set. Use the PERMIT command to add the owner to the access list as desired.

RETPD(*nnnnn*)
Specifies the RACF security retention period for a tape data set. The security retention period is the number of days that must elapse before a tape data set profile expires. (Note that, even though the data set profile expires, RACF-protection for data sets protected by the profile is still in effect. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

The number you specify must be 1 to 5 digits in the range of 0 through 65533 or, to indicate a data set that never expires, 99999.

Using RETPD to change the RACF security retention period for a data set means that the RACF security retention period and the data set retention period specified by the EXPDT/RETPD parameters on the JCL DD statement are longer be the same.

When the TAPEVOL class is active, RACF checks the RACF security retention period before it allows a data set to be overwritten. RACF adds the number of days in the retention period to the creation date for the data set. If the result is less than the current date, RACF continues to protect the data set.

When the TAPEVOL class is not active, RACF ignores the RETPD operand.

Specifying this operand for a DASD data set does not cause an error, but it has no meaning because RACF ignores the operand during authorization checking.

SECLABEL | NOSECLABEL

SECLABEL(*seclabel-name*)
Specifies an installation-defined security label for this profile. A security label corresponds to a particular security level (such as CONFIDENTIAL) with a set of zero or more security categories (such as PAYROLL or PERSONNEL).

RACF stores the name of the security label you specify in the data set profile if you are authorized to use that SECLABEL.

If you are not authorized to the SECLABEL or if the name you had specified is not defined as a SECLABEL profile in the SECLABEL class, the data set profile is not updated.

Note: If the SECLABEL class is active and the security label is specified in this profile, any security levels and categories in the profile are ignored.

NOSECLABEL
removes the security label, if one had been specified, from the profile.

SECLEVEL | NOSECLEVEL

SECLEVEL(*seclevel-name*)

Specifies the name of an installation-defined security level. This name corresponds to the number that is the minimum security level that a user must have to access the data set. The *seclevel-name* must be a member of the SECLEVEL profile in the SECDATA class.

When you specify SECLEVEL and the SECDATA class is active, RACF adds security level access checking to its other authorization checking. If global access checking does not grant access, RACF compares the security level allowed in the user profile with the security level required in the data set profile. If the security level in the user profile is less than the security level in the data set profile, RACF denies the access. If the security level in the user profile is equal to or greater than the security level in the data set profile, RACF continues with other authorization checking.

Note: RACF does not perform security level checking for a started task or user that has the RACF privileged or trusted attribute. The RACF privileged or trusted attribute can be assigned to a started task through the RACF started procedures table or STARTED class, or to other users by installation-supplied RACF exits.

If the SECDATA class is not active, RACF stores the name you specify in the data set profile. When the SECDATA class is activated and the name you specified is defined as a SECLEVEL profile, RACF can perform security level access checking for the data set profile. If the name you specify is not defined as a SECLEVEL profile and the SECDATA class is active, you are prompted to provide a valid security level name.

NOSECLEVEL

Specifies that the ALTDSD command is to delete the security level name from the profile. RACF no longer performs security level access checking for the data set.

TME | NOTME

TME

Specifies that information for the Tivoli Security Management Application is to be added, changed, or deleted.

Note: The TME segment fields are intended to be updated only by the Tivoli Security Management Application, which manages updates, permissions, and cross references. A security administrator should only directly update Tivoli Security Management fields on an exception basis.

ROLES(*role-access-specification ...*)

Specifies a list of roles and associated access levels related to this profile.

One or more *role-access-specification* values can be specified, each separated by blanks. Each value should contain no imbedded blanks and should have the following format:

```
role-name:authority[:conditional-class:conditional-profile]
```

where *role-name* is a discrete general resource profile defined in the ROLE class. The *authority* is the access authority (NONE, EXECUTE, READ, UPDATE, CONTROL, or ALTER) with which groups in the role definition should be permitted to the resource.

The *conditional-class* is a class name (APPCPORT, CONSOLE, JESINPUT, PROGRAM, TERMINAL, or SYSID) for conditional access permission, and is followed by the *conditional-profile* value, a resource profile defined in the conditional class.

ADDROLES(*role-access-specification ...*)

Specifies that specific roles and access levels are to be added to the current list.

DELROLES(*role-access-specification ...*)

Specifies that specific roles from the current list of roles are to be removed.

NOROLES

Specifies that the entire list of roles be removed.

NOTME

Specifies that RACF delete the TME segment from the profile.

UACC(*access-authority*)

Specifies the universal access authority to be associated with the data sets. The universal access authorities are ALTER, CONTROL, READ, UPDATE, EXECUTE, and NONE. If you specify CONTROL for a tape data set or a non-VSAM DASD data set, RACF treats the access authority as UPDATE. If you specify EXECUTE for a tape data set or a DASD data set not used as a program library, RACF treats the access authority as NONE.

If a user accessing a data set has the RESTRICTED attribute, RACF treats the universal access authority (UACC) as NONE for that access attempt.

If you enter UACC without a value, RACF retains the old universal access authority for the data sets.

UNIT(*type*)

Specifies the unit type to be added to the data set profile on which a non-VSAM data set resides. You can specify an installation-defined unit name, a generic device type, or a specific device address. RACF ignores this operand if you specify a generic profile name.

VOLUME(*volume-serial*)

Specifies the volume on which the tape data set, the non-VSAM DASD data set, or the catalog for the VSAM data set resides.

If you specify VOLUME and *volume-serial* does not appear in the profile for the data set, the command fails. If you omit VOLUME and the data set name appears more than once in the RACF database, the command fails. If you omit VOLUME and the data set name appears only once in the RACF database, no volume serial checking is performed and processing continues.

RACF ignores this operand if you specify a generic profile name.

WARNING | NOWARNING

WARNING

Specifies that even if access authority is insufficient, RACF is to issue a warning message and allow access to the resource. RACF also records the access attempt in the SMF record if logging is specified in the profile.

When SETROPTS MLACTIVE(FAILURES) is in effect: A user or task can access a data set that is in WARNING mode and has no security label even when MLACTIVE(FAILURES) is in effect and the class requires security labels. The user or task receives a warning message and gains access.

NOWARNING

Specifies that if access authority is insufficient, RACF is to deny the user access to the resource and not issue a warning message.

Examples

Example	Activity label	Description
1	*Operation*	User AEH0 owns data set profile PAYROLL.DEPT2.DATA and wants to assign ownership of the data set to group PAYROLL. Only users with categories of FINANCIAL and PERSONNEL and a security level of PERSONAL are to be able to access the data set.
	Known	Data set PAYROLL.DEPT2.DATA is RACF-defined with a discrete profile. FINANCIAL and PERSONNEL are valid categories of access; PERSONAL is a valid security level name. USER AEH0 wants to issue the command as a RACF TSO command.
	Command	`ALTDSD 'PAYROLL.DEPT2.DATA' OWNER(PAYROLL) ADDCATEGORY(FINANCIAL PERSONNEL) SECLEVEL(PERSONAL)`
	Defaults	None.
2	*Operation*	User WRH0 wants to change the universal access authority to NONE for data set RESEARCH.PROJ02.DATA and wants to have all accesses to the data set logged on SMF records. User ADMIN02 is to be notified when RACF uses this profile to deny access to the data set. The data set is to be erased when it is deleted (scratched).
	Known	User WRH0 has ALTER access to data set profile RESEARCH.PROJ02.DATA. User WRH0 is logged onto group RESEARCH. USER WRH0 wants to issue the command as a RACF TSO command. User ADMIN02 is a RACF-defined user. Data set RESEARCH.PROJ02.DATA is RACF-defined with a generic profile. The SETROPTS ERASE option has been specified for the installation.
	Command	`ALTDSD 'RESEARCH.PROJ02.DATA' UACC(NONE) AUDIT(ALL(READ)) GENERIC NOTIFY(ADMIN02) ERASE`
	Defaults	None.
3	*Operation*	User CD0 wants to remove RACF-protection from volume 222222 of the multivolume data set CD0.PROJ2.DATA.
	Known	CD0.PROJ2.DATA is a non-VSAM data set that resides on volumes 111111 and 222222 and is defined to RACF with a discrete profile. Volume 222222 is online. User CDO's TSO profile specifies PREFIX (CDO). User CD0 wants to issue the command as a RACF operator command, and the RACF subsystem prefix is `@`.
	Command	`@ALTDSD PROJ2.DATA DELVOL(222222)`
	Default	None.
4	*Operation*	User RVD02 wants to have all successful accesses to data set PAYROLL.ACCOUNT on volume SYS003 to be logged to the SMF data set.
	Known	User RVD02 has the AUDITOR attribute. User RVD02 wants to issue the command as a RACF TSO command.
	Command	`ALTDSD 'PAYROLL.ACCOUNT' GLOBALAUDIT(SUCCESS(READ)) VOLUME(SYS003)`
	Defaults	None.

Example	Activity label	Description
5	*Operation*	User SJR1 wants to modify the installation-defined information associated with the tape data set SYSINV.ADMIN.DATA. The RACF security retention period is to be 360 days.
	Known	User SJR1 has ALTER authority to the data set profile. User SJR1 wants to issue the command as a RACF TSO command. Tape data set protection is active.
	Command	`ALTDSD 'SYSINV.ADMIN.DATA' DATA('LIST OF REVOKED RACF USERIDS') RETPD(360)`
	Defaults	None.
6	*Operation*	User ADM1 wants to log all unauthorized access attempts and all successful updates to data sets protected by a generic profile (SALES.ABC.*).
	Known	User ADM1 has the SPECIAL attribute. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`ALTDSD 'SALES.ABC.*' AUDIT (FAILURES(READ) SUCCESS (UPDATE))`
	Defaults	None.
7	*Operation*	User ADM1 owns the DFP-managed data set RESEARCH.TEST.DATA3 and wants to assign user ADM6 as the data set resource owner. User ADM1 wants to direct the command to run at node CLCON under the authority of user DROLLO and prohibit the command from being automatically directed to other nodes.
	Known	Data set RESEARCH.TEST.DATA3 is RACF-defined with a discrete profile. Users ADM1 and DROLLO at CLCON have the SPECIAL attribute, and ADM6 is defined to RACF on node CLCON. User ADM1 wants to issue the command as a RACF TSO command. Users ADM1 and DROLLO at CLCON have an already established user ID association.
	Command	`ALTDSD 'RESEARCH.TEST.DATA3' DFP(RESOWNER(ADM6)) ONLYAT(CLCON.DROLLO)`
	Results	The command is only processed on the node CLCON and not automatically directed to any other nodes in the RRSF configuration.

ALTGROUP (Alter group profile)

Purpose

Use the ALTGROUP command to change:

- The superior group of a group
- The owner of a group
- The terminal indicator for a group
- A model profile name for a group
- The installation-defined data associated with a group
- The default segment information for a group (for example, DFP or OMVS)

Issuing options

The following table identifies the eligible options for issuing the ALTGROUP command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	Yes	Yes	Yes	Yes

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

You must be logged on to the console to issue this command as a RACF operator command.

Related commands

- To create a group profile, see “ADDGROUP (Add group profile)” on page 23.
- To delete a group profile, see “DELGROUP (Delete group profile)” on page 182.
- To connect a user to a group, see “CONNECT (Connect user to group)” on page 171.
- To list information for a group profile, see “LISTGRP (List group profile)” on page 204.
- To remove a user from a group, see “REMOVE (Remove user from group)” on page 506.
- To obtain a list of group profiles, see “SEARCH (Search RACF database)” on page 541.

Authorization required

When issuing this command as a RACF operator command, you might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

To change the superior group of a group, you must have at least one of the following authorizations:

- You must have the SPECIAL attribute
- All the following group profiles must be within the scope of a group in which you have the group-SPECIAL attribute:
  - The group whose superior group you are changing
  - The current superior group
  - The new superior group
- You must be the owner of, or have JOIN authority in, both the current and the new superior groups.

Note: You can have JOIN authority in one group and be the owner of or have the group-SPECIAL attribute in the other group.

If you have any of the following authorizations, you can specify any operand except as otherwise listed:

- The SPECIAL attribute
- The group profile is within the scope of a group in which you have the group-SPECIAL attribute
- You are the current owner of the group.

To add, delete, or alter segments, such as DFP or OMVS, in a group's profile, you must have at least one of the following authorizations:

- You must have the SPECIAL attribute.
- Your installation must permit you to do so through field-level access checking.

For information on field-level access checking, see *z/OS Security Server RACF Security Administrator's Guide*.

To specify the AT keyword, you must have READ authority to the DIRECT.*node* resource in the RRSFDATA class and a user ID association must be established between the specified *node.userid* pair(s).

To specify the ONLYAT keyword you must have the SPECIAL attribute, the *userid* specified on the ONLYAT keyword must have the SPECIAL attribute, and a user ID association must be established between the specified *node.userid* pair(s) if the user IDs are not identical.

To specify the SHARED keyword, you must have the SPECIAL attribute or at least READ authority to the SHARED.IDS resource in the UNIXPRIV class.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the ALTGROUP command is:

```
[subsystem-prefix]{ALTGROUP | ALG}

    (group-name ...)

    [ AT([node].userid ...) | ONLYAT([node].userid ...) ]

    [ CSDATA(
        [ custom-field-name(custom-field-value) | NOcustom-field-name ] ...
)
    | NOCSDATA ]

    [ DATA('installation-defined-data') | NODATA ]

    [ DFP(
        [ DATAAPPL(application-name) | NODATAAPPL ]
        [ DATACLAS(data-class-name) | NODATACLAS ]
        [ MGMTCLAS(management-class-name) | NOMGMTCLAS ]
        [ STORCLAS(storage-class-name) | NOSTORCLAS ]
        )
    | NODFP ]

    [ MODEL(dsname) | NOMODEL ]

    [ OMVS(
        [ AUTOGID
            | GID (group-identifier) [SHARED]
            | NOGID ]
          )
      | NOOMVS ]

    [ OVM(
        [ GID(group-identifier) | NOGID ]
          )
      | NOOVM ]
```

```
[ OWNER(userid or group-name) ]

[ SUPGROUP(group-name) ]

[ TERMUACC | NOTERMUACC ]

[ TME(
      [ ROLES(profile-name ...)
            | ADDROLES(profile-name ...)
            | DELROLES(profile-name ...)
            | NOROLES ]
      )
   | NOTME ]
```

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

group-name

Specifies the name of the group whose definition you want to change. If you specify more than one group name, the list of names must be enclosed in parentheses.

This operand is required and must be the first operand following ALTGROUP.

AT | ONLYAT

The AT and ONLYAT keywords are only valid when the command is issued as a RACF TSO command.

AT ([*node*].*userid* ...)

Specifies that the command is to be directed to the node specified by *node*, where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed to the local node.

ONLYAT ([*node*].*userid* ...)

Specifies that the command is to be directed only to the node specified by *node* where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed only to the local node.

CSDATA | NOCSDATA

CSDATA

Specifies information to add, change, or remove a custom field for this group.

custom-field-name ...* | NO*custom-field-name ...

Specifies the name and value of a custom field for this group.

You can define multiple custom field values with a single ALTGROUP command.

***custom-field-name*(*custom-field-value*) ...**

Specifies the name and value of a custom field for this group. You can specify values for multiple custom fields with a single ALTGROUP command.

Usage for each custom field is defined using the CFDEF operand of the RDEFINE command for resource profiles in the CFIELD class. Contact your security administrator to see how custom fields are used at your installation. For more information about custom fields, see *z/OS Security Server RACF Security Administrator's Guide*.

Rules:

- You must use the same *custom-field-name* as defined by the CFIELD profile named GROUP.CSDATA.*custom-field-name*. (The CFIELD profile is defined using the CFDEF operand of the RDEFINE command.)
- You must specify a *custom-field-value* that is valid for the attributes of this custom field. (The attributes, such as data type, are defined in the CFDEF segment of the CFIELD profile.)

NO*custom-field-name ...*

Removes the custom field information for this group. You can remove values for multiple custom fields with a single ALTGROUP command.

When you append the prefix **NO** to the name of the custom field, you delete the value for that custom field from the group's profile. For example, if your installation has defined a custom field named COMPADDR and you want to remove the COMPADDR field from the profile of the group ABCSUPLY, you might issue the following command:

Example:

```
ALTGROUP ABCSUPLY CSDATA(NOCOMPADDR)
```

NOCSDATA

Deletes the CSDATA segment from the group profile.

DATA | NODATA

DATA('*installation-defined-data*')

Specifies up to 255 characters of installation-defined data to be stored in the group profile and must be enclosed in single quotation marks. It can also contain double-byte character set (DBCS) data.

Use the LISTGRP command to list this information.

NODATA

Specifies that the ALTGROUP command is to delete any installation-defined data in the group profile.

DFP | NODFP

DFP

Specifies that when you change the profile of a group, you can enter any of the following suboperands to add, change, or delete default values for the DFP data application, data class, management class, and storage class. DFP uses this information to determine data management and DASD storage characteristics when a user creates a new data set for a group.

DATAAPPL | NODATAAPPL

DATAAPPL(*application-name*)

Specifies the name of a DFP data application. The name you specify can contain up to 8 alphanumeric characters.

NODATAAPPL

Specifies that you want to delete the DFP data application name from the DFP segment of the group's profile.

DATACLAS | NODATACLAS

DATACLAS(*data-class-name*)

Specifies the default data class. The class name you specify can contain up to 8 alphanumeric characters.

A data class can specify some or all of the physical data set attributes associated with a new data set. During new data set allocation, data management uses the value you specify as a default unless it is preempted by a higher priority default, or overridden in some other way (for example, by JCL).

Note: The value you specify must be a valid data class name defined for use on your system. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

For information on defining DFP data classes, see *z/OS DFSMSdfp Storage Administration*.

NODATACLAS

Specifies that you want to delete the default data class name from the DFP segment of the group's profile.

MGMTCLAS | NOMGMTCLAS

MGMTCLAS(*management-class-name*)

Specifies the default management class. The class name you specify can contain up to 8 alphanumeric characters.

A management class contains a collection of management policies that apply to data sets. Data management uses the value you specify as a default unless it is preempted by a higher priority default, or overridden in some other way (for example, by JCL).

Note: The value you specify must be defined as a profile in the MGMTCLAS general resource class, and the group must be granted at least READ access to the profile. Otherwise, RACF does not allow the group access to the specified MGMTCLAS. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

For information on defining DFP management classes, see *z/OS DFSMSdfp Storage Administration*.

NOMGMTCLAS

Specifies that you want to delete the default management class name from the DFP segment of the group's profile.

STORCLAS | NOSTORCLAS

STORCLAS(*storage-class-name*)

Specifies the default storage class. The class name you specify can contain up to 8 alphanumeric characters.

A storage class specifies the service level (performance and availability) for data sets managed by the Storage Management Subsystem (SMS). During new data set allocation, data management uses the value you specify as a default unless it is preempted by a higher priority default, or overridden in some other way (for example, by JCL).

Note: The value you specify must be defined as a profile in the STORCLAS general resource class, and the group must be granted at least READ access to the profile. Otherwise, RACF does not allow the group access to the specified STORCLAS. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

For information on defining DFP storage classes, see *z/OS DFSMSdfp Storage Administration*.

NOSTORCLAS

Specifies that you want to delete the default storage class name from the DFP segment of the group's profile.

NODFP

Specifies that RACF should delete the DFP segment from the group's profile.

MODEL | NOMODEL

MODEL(*dsname*)

Specifies the name of a data set profile that RACF is to use as a model when new data set profiles are created that have *group-name* as the high-level qualifier. For this operand to be effective, the MODEL(GROUP) option on the SETROPTS command must be active. If the ALTGROUP command cannot find the *dsname* profile, it issues a warning message and places the profile name in the group entry.

RACF always prefixes *dsname* with the group name when it accesses the profile.

For information about automatic profile modeling, refer to *z/OS Security Server RACF Security Administrator's Guide*.

NOMODEL

Specifies that the ALTGROUP command is to delete the model name in the group profile.

OMVS | NOOMVS

OMVS

Specifies z/OS UNIX System Services information for the group profile being changed.

AUTOGID | GID | NOGID

Specifies whether RACF is to automatically assign an unused GID value to the group, if a specific GID value is to be assigned or if the group identifier from the OMVS segment of the group's profile is to be deleted.

AUTOGID

Specifies that RACF is to automatically assign an unused GID value to the group. The GID value is derived from information obtained from the BPX.NEXT.USER profile in the FACILITY class. For more information on setting up BPX.NEXT.USER, see *z/OS Security Server RACF Security Administrator's Guide*.

If you are using RRSF automatic command direction for the GROUP class, the command sent to other nodes contains an explicit assignment of the GID value which was derived by RACF on the local node.

Rules:

- AUTOGID cannot be specified if more than one group is entered.
- The AUTOGID keyword is mutually exclusive with the SHARED keyword.
- If both GID and AUTOGID are specified, AUTOGID is ignored.
- If both NOGID and AUTOGID are specified, AUTOGID is ignored.
- Field-level access checking for the GID field applies when using AUTOGID.
- AUTOGID cannot be used to reassign a GID value if one already exists for the group. If AUTOGID is specified, but the group already has a GID assigned, one of two things happen.
  - If the preexisting GID is unique to this group, this value is identified in informational message IRR52177I, and the value remains unchanged. If RRSF automatic command direction is in effect for the GROUP class, then the outbound ALTGROUP command is altered to contain the preexisting GID value in the OMVS GID keyword.
  - If the preexisting GID is not unique to this group, error message IRR52178I is issued, and the command fails. See IRR52178I for information on changing the group's existing GID value.

GID(*group-identifier*) [SHARED]

GID(*group-identifier*)

Specifies the group identifier. The GID is a numeric value from 0 - 2 147 483 647.

When a GID is assigned to a group, all users connected to that group who have a user identifier (UID) in their user profile can use functions such as the TSO/E command, OMVS, and can access z/OS UNIX files based on the GID and UID values assigned.

Note:

1. If the security administrator has defined the SHARED.IDS profile in the UNIXPRIV class, the GID must be unique. Use the SHARED keyword in addition to GID to assign a value that is already in use.
2. If SHARED.IDS is not defined, RACF does not require the GID to be unique. The same value can be assigned to multiple groups, but this is not recommended because individual group control would be lost. However, if you want a set of groups to have exactly the same access to z/OS UNIX resources, you might decide to assign the same GID to more than one group.
3. RACF allows you to define and connect a user to more than 300 groups (which is the same as the NGROUPS_MAX variable defined in the POSIX standard), but when a process is created or z/OS UNIX group information is requested, only up to the first 300 z/OS UNIX groups are associated with the process or user.

   The first 300 z/OS UNIX groups that have GIDs to which a user is connected are used by z/OS UNIX. LISTUSER displays the groups in the order that RACF examines them when determining which of the user's groups are z/OS UNIX groups.

   See *z/OS UNIX System Services Planning* for information on NGROUPS_MAX.

SHARED

If the security administrator has chosen to control the use of shared GIDs, this keyword must be used in addition to the GID keyword to specify the group identifier if it is already in use by at least one other group. The administrator controls shared GIDs by defining the SHARED.IDS profile in the UNIXPRIV class.

Rules:

- If the SHARED.IDS profile is not defined, SHARED is ignored.
- If SHARED is specified in the absence of GID, it is ignored.
- If the SHARED.IDS profile is defined and SHARED is specified, but the value specified with GID is not currently in use, SHARED is ignored and UNIXPRIV authority is not required.
- Field- level access checking for the GID field applies when using SHARED.
- The SHARED keyword is mutually exclusive with the AUTOGID keyword.

NOGID

Specifies that you want to delete the group identifier from the OMVS segment of the group's profile.

NOOMVS

Specifies that RACF delete the OMVS segment from the group's profile.

OVM | NOOVM

OVM

Specifies OpenExtensions VM information for the group profile being changed. This data is not relevant to z/OS, but is stored in the RACF database if specified. For more information, see the RACF for z/VM publications.

GID | NOGID

GID(*group-identifier*)

This data is not relevant to z/OS, but is stored in the RACF database if specified. For more information, see the RACF for z/VM publications.

NOGID

This data is not relevant to z/OS, but is stored in the RACF database if specified. For more information, see the RACF for z/VM publications.

NOOVM

This data is not relevant to z/OS, but is stored in the RACF database if specified. For more information, see the RACF for z/VM publications.

OWNER(*userid or group-name*)

Specifies a RACF-defined user or group you want to be the new owner of the group.

To change the owner of a group, you must be the current owner of the group, or have the SPECIAL attribute, or have the group-SPECIAL attribute in the group owning the profile.

If you specify a group name, then OWNER and SUPGROUP must specify the same group name.

SUPGROUP(*group-name*)

Specifies the name of the RACF-defined group you want to make the new superior group for the group profile you are changing.

The new superior group must not be the same as the current one, and it must not have any level of subgroup relationship to the group you are changing.

To change a superior group, you must have the SPECIAL attribute, the group profile must be within the scope of a group in which you have the group-SPECIAL attribute, or you must have JOIN authority in, or be the owner of, both the current and new superior groups. Note that you can have JOIN authority in one group and be the owner of or have the group-SPECIAL attribute in the other group.

If owner is a group name, OWNER and SUPGROUP must specify the same group name.

TERMUACC | NOTERMUACC

TERMUACC

Specifies that during terminal authorization checking, RACF is to allow the use of the universal access authority for a terminal when it checks whether a user in the group is authorized to access a terminal.

NOTERMUACC

Specifies that the group or a user connected to the group must be authorized (using the PERMIT command with at least READ authority) to access a terminal.

TME | NOTME

TME

Specifies that information for the Tivoli Security Management Application is to be added, changed, or deleted.

Note: The TME segment fields are intended to be updated only by the Tivoli Security Management Application, which manages updates, permissions, and cross references. A security administrator should only directly update Tivoli Security Management fields on an exception basis.

ROLES | ADDROLES | DELROLES | NOROLES

ROLES(*profile-name*)

Specifies a list of roles that reference this group.

The *profile-name* value should be the name of a defined role, which is a discrete general resource profile in the ROLE class.

ADDROLES(*profile-name*)

Specifies a list of roles that reference this group.

The *profile-name* value should be the name of a defined role, which is a discrete general resource profile in the ROLE class.

DELROLES(*profile-name*)

Specifies that specific roles from the current list of roles are to be removed.

The *profile-name* value should be the name of a defined role, which is a discrete general resource profile in the ROLE class.

NOROLES

Specifies that the entire list of roles be removed.

NOTME

Specifies that RACF delete the TME segment from the group profile.

Examples

Example	Activity label	Description
1	*Operation*	User WJB10 wants to change the superior group and owning group for PROJECTA from RESEARCH to PAYROLL. Users connected to group PROJECTA are authorized access to terminals according to the universal access authority of the terminal.
	Known	User WJB10 has JOIN authority in RESEARCH and is the owner of PAYROLL. PROJECTA is a subgroup of RESEARCH. User WJB10 wants to issue the command as a RACF TSO command.
	Command	`ALTGROUP PROJECTA SUPGROUP(PAYROLL) OWNER(PAYROLL) TERMUACC`
	Defaults	None.
2	*Operation*	User MULES wants to change the superior group for PROJECTB from SYS1 to RESEARCH and assign RESEARCH as the new owner.
	Known	User MULES has the SPECIAL attribute. PROJECTB is a subgroup of SYS1. User MULES wants to issue the command as a RACF operator command, and the RACF subsystem prefix is `@`.
	Command	`@ALTGROUP PROJECTB SUPGROUP(RESEARCH) OWNER(RESEARCH)`
	Defaults	None.
3	*Operation*	User SJR2 wants to change the installation-defined information associated with the RSC1 group and delete the model name. User SJR2 wants to direct the command to run under the authority of user ANW01.
	Known	User SJR2 is the owner of group RSC1. User SJR2 wants to issue the command as a RACF TSO command. SJR2 and ANW01 have an already established user ID association. User ANW01 is the owner of group RSC1.
	Command	`ALTGROUP RSC1 DATA('RESOURCE USAGE ADMINISTRATION') NOMODEL AT(.ANW01)`
	Defaults	Command direction defaults to the local node.

Example	Activity label	Description
4	*Operation*	User BILLC wants to make the following changes to the profile for group PROJECT6. • Change the default DFP management class to MCLASS7 • Change the default DFP storage class to SCLASS3 • Change the default DFP data class to DCLASS15 • Delete the default DFP data application.
	Known	• User BILLC has the SPECIAL attribute. • Group PROJECT6 has been defined to RACF, and PROJECT6's group profile contains a DFP segment. • MCLASS7 has been defined to RACF as a profile in the MGMTCLAS general resource class, and group PROJECT6 has been given READ access to this profile. • SCLASS3 has been defined to RACF as a profile in the STORCLAS general resource class, and group PROJECT6 has been given READ access to this profile. • User BILLC wants to issue the command as a RACF TSO command.
	Command	`ALTGROUP PROJECT6 DFP(MGMTCLAS(MCLASS7) STORCLAS(SCLASS3) DATACLAS(DCLASS15) NODATAAPPL))`
	Defaults	None.

ALTUSER (Alter user profile)

Purpose

Use the ALTUSER command to change the information in a user's profile, including the user's system-wide attributes and authorities. The user profile consists of a BASE segment and, optionally, other segments such as a TSO segment or a DFP segment. You can use this command to change information in any segment of the user's profile.

When you change a user's level of authority in a group (using the AUTHORITY operand), RACF updates the appropriate group profile. When you change a user's default universal access authority for a group (using the UACC operand), RACF changes the appropriate connect profile. For all other changes, RACF changes the user's profile.

Note: If the user is currently logged on, changes to the attributes (except for OWNER and AUTHORITY) do not take effect until the next time the user logs on, even though the LISTUSER command shows the new values.

Attention:

- When the ALTUSER command is issued from ISPF, the TSO command buffer (including password and password phrase data) is written to the ISPLOG data set. As a result, you should not issue this command from ISPF or you must control the ISPLOG data set carefully.
- If the ALTUSER command is issued as a RACF operator command, the command and all data (including password and password phrase data) is written to the system log. Therefore, use of ALTUSER as a RACF operator command should either be controlled or you should issue the command as a TSO command.

Note that you cannot:

- Use the ALTUSER command to change a user ID association; you must use the RACLINK command.
- Use the ALTUSER command for profiles in the DIGTCERT class.

- Use the ALTUSER command for user IDs that have mixed-case characters, such as `irrcerta`, `irrsitec`, and `irrmulti` (which are associated with digital certificates).

Issuing options

The following table identifies the eligible options for issuing the ALTUSER command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	Yes	Yes	Yes	Yes

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, "RACF operator commands," on page 21.

You must be logged on to the console to issue this command as a RACF operator command.

Related commands

- To add a user profile, see "ADDUSER (Add user profile)" on page 45.
- To delete a user profile, see "DELUSER (Delete user profile)" on page 185.
- To display information from a user profile, see "LISTUSER (List user profile)" on page 213.
- To administer user ID associations, see "RACLINK (Administer user ID associations)" on page 364.
- To obtain a list of user profiles, see "SEARCH (Search RACF database)" on page 541.

Authorization required

When issuing this command as a RACF operator command, you might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

The level of authority required depends on which of the user's attributes you want to change.

- If you have the SPECIAL attribute, you can use all the operands except UAUDIT/NOUAUDIT.
- To specify the AT keyword, you must have READ authority to the DIRECT.*node* resource in the RRSFDATA class and a user ID association must be established between the specified *node.userid* pair(s).
- To specify the ONLYAT keyword you must have the SPECIAL attribute, the *userid* specified on the ONLYAT keyword must have the SPECIAL attribute, and a user ID association must be established between the specified *node.userid* pair(s) if the user IDs are not identical.
- If the owner of the user profile is within the scope of a group in which you have the group-SPECIAL attribute, you can use all of the operands except SPECIAL/NOSPECIAL, AUDITOR/NOAUDITOR, ROAUDIT/NOROAUDIT, OPERATIONS/NOOPERATIONS, NOEXPIRED and UAUDIT/NOUAUDIT.
- If you are the owner of the user's profile, you can use any of the following operands for user-related attributes:

  ADSP | NOADSP
  DATA | NODATA
  DFLTGRP
  EXPIRED
  GRPACC | NOGRPACC
  MFA | NOMFA

MODEL | NOMODEL
NAME
OIDCARD | NOOIDCARD
OWNER
PASSWORD | NOPASSWORD
PHRASE | NOPHRASE
RESTRICTED | NORESTRICTED
RESUME | NORESUME
REVOKE | NOREVOKE
WHEN

- Users can change their own name field (using the NAME operand), default group (using the DFLTGRP operand), or model data set profile name (using the MODEL operand).
- You can use the GROUP, AUTHORITY, and UACC operands for group-related user attributes if you have JOIN or CONNECT authority, if the group profile is within the scope of a group in which you have the group-SPECIAL attribute, or if you are the owner of the specified group.
- To specify the AUDITOR/NOAUDITOR, ROAUDIT/NOROAUDIT, SPECIAL/NOSPECIAL, and OPERATIONS/NOOPERATIONS operands as system-wide user attributes, you must have the SPECIAL attribute.
- To specify the UAUDIT/NOUAUDIT operand, either you must have the AUDITOR attribute, or the user profile must be within the scope of a group in which you have the group-AUDITOR attribute.
- You can specify the CLAUTH and NOCLAUTH operands if you are the owner of the user's profile and have the CLAUTH attribute for the class to be added or deleted.
- To assign a security category to a profile, or to delete a category from a profile, one of the following must be true:
  - If the user profile is within the scope of a group in which you have the group-SPECIAL attribute, or if you are the owner of the specified user, the category you are adding or deleting must be in your user profile.
  - You have the SPECIAL attribute.
- To assign a security level to a profile, or to delete a security level from a profile, one of the following must be true:
  - If the user profile is within the scope of a group in which you have the group-SPECIAL attribute, or if you are the owner of the specified user, the security level in your user profile must be equal to or greater than the security level you are assigning or deleting.
  - You have the SPECIAL attribute.
- To change information within a segment other than the base segment, you must have one of the following:
  - The SPECIAL attribute
  - At least UPDATE authority to the desired field within the segment through field-level access control.

  For information on field-level access checking, see *z/OS Security Server RACF Security Administrator's Guide*.
- To reset passwords and password phrases or to resume user IDs, you must have at least one of the following authorizations:
  - You have the SPECIAL attribute.
  - You have group-SPECIAL authority over the user profile.
  - You are the OWNER of the user profile.
  - You have sufficient access to the IRR.PASSWORD.RESET resource in the FACILITY class.
  - You have sufficient access to an appropriate resource in the FACILITY class (IRR.PWRESET.OWNER.*owner* or IRR.PWRESET.TREE.*owner*), and *both* of the following conditions are also true:

    - The other user does not have the SPECIAL, OPERATIONS, AUDITOR, PROTECTED, or ROAUDIT attribute.
    - You are not excluded from altering the user by the IRR.PWRESET.EXCLUDE.*excluded-user* resource in the FACILITY class.

    For more information about the IRR.PWRESET profiles, see *z/OS Security Server RACF Security Administrator's Guide*.

  When your reset and resume authority is through your access to the IRR.PASSWORD.RESET resource, the IRR.PWRESET.OWNER.*owner* resource, or the IRR.PWRESET.TREE.*owner* resource, the following requirements apply:

  - If you have READ access, you can:
    - Use the PASSWORD operand to reset a password (to an expired password) for a user who does not have the SPECIAL, OPERATIONS, AUDITOR, PROTECTED, or ROAUDIT attribute.

      Note: You cannot use the PASSWORD operand to add a password for a user who does not have one.
    - Use the PHRASE operand to reset a password phrase (to an expired password phrase) for a user with an assigned password phrase who does not have the SPECIAL, OPERATIONS, AUDITOR, PROTECTED, or ROAUDIT attribute. **Note:** You cannot use the PHRASE operand to *add* a password phrase for a user who does not have one.
    - Use the RESUME operand, without specifying a date, for a user who does not have the SPECIAL, OPERATIONS, AUDITOR, PROTECTED, or ROAUDIT attribute.
  - If you have UPDATE access, you can:
    - Use the PASSWORD, PHRASE, and RESUME operands as noted for READ access.
    - Use the NOEXPIRED operand (with PASSWORD or PHRASE) for a user who does not have the SPECIAL, OPERATIONS, AUDITOR, PROTECTED, or ROAUDIT attribute.
  - If you have CONTROL access, you can:
    - Use the PASSWORD, PHRASE, RESUME, and NOEXPIRED operands as noted for READ and UPDATE access.
    - Reset the password or password phrase within the minimum change interval for a user who does not have the SPECIAL, OPERATIONS, AUDITOR, PROTECTED, or ROAUDIT attribute.

- To specify the SHARED keyword, you must have the SPECIAL attribute or at least READ authority to the SHARED.IDS resource in the UNIXPRIV class.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the ALTUSER command is:

[*subsystem-prefix*]{ALTUSER | ALU}
(***userid ...***)
[ADDCATEGORY(*category-name ...*) | DELCATEGORY [(*category-name ...* | ⁎)]
[ADSP | NOADSP]
[AT([*node*].*userid ...*) | ONLYAT([*node*].*userid ...*)]
[AUDITOR | NOAUDITOR]

```
[ AUTHORITY(group-authority) ]

[ CICS(
      [ OPCLASS(operator-class ...)
            | ADDOPCLASS(operator-class ...)
            | DELOPCLASS(operator-class ...)
            | NOOPCLASS ]
      [ OPIDENT(operator-id) |  NOOPIDENT ]
      [ OPPRTY(operator-priority) | NOOPPRTY ]
      [ RSLKEY(rslkey ... | 0 | 99) | NORSLKEY ]
      [ TIMEOUT(timeout-value) | NOTIMEOUT ]
      [ TSLKEY(tslkey ... | 0 | 1 | 99) | NOTSLKEY ]
      [ XRFSOFF(FORCE | NOFORCE) | NOXRFSOFF ]
         )
   | NOCICS ]

[ {CLAUTH | NOCLAUTH} (class-name ...) ]

[ CSDATA(
      [ custom-field-name(custom-field-value) | NOcustom-field-name ] ...
   )
   | NOCSDATA ]

[ DATA('installation-defined-data') | NODATA ]

[ DCE(
      [ AUTOLOGIN(YES | NO) | NOAUTOLOGIN ]
      [ DCENAME(user-principal-name) | NODCENAME ]
      [ HOMECELL(dce-cell-name) | NOHOMECELL ]
      [ HOMEUUID(home-cell-UUID) | NOHOMEUUID ]
      [ UUID(universal-unique-identifier) | NOUUID ]
      )
   | NODCE ]

[ DFLTGRP(group-name) ]

[ DFP(
      [ DATAAPPL(application-name) | NODATAAPPL ]
      [ DATACLAS(data-class-name)  | NODATACLAS ]
      [ MGMTCLAS(management-class-name) | NOMGMTCLAS ]
      [ STORCLAS(storage-class-name) | NOSTORCLAS ]
      )
   | NODFP ]

[ EIM(
      [ LDAPPROF(ldapbind_profile) | NOLDAPPROF ]
         )
   | NOEIM ]
   [ EXPIRED | NOEXPIRED ]

   [ GROUP(group-name) ]

   [ GRPACC | NOGRPACC ]

   [ KERB(
         [ ENCRYPT (
               [ DES | NODES ]
               [ DES3 | NODES3 ]
               [ DESD | NODESD ]
               [ AES128 | NOAES128 ]
               [ AES256 | NOAES256 ]
               [ AES128SHA2 | NOAES128SHA2 ]
               [ AES256SHA2 | NOAES256SHA2 ]
               )
            | NOENCRYPT ]
         [ KERBNAME(kerberos-principal-name) | NOKERBNAME ]
         [ MAXTKTLFE(max-ticket-life) | NOMAXTKTLFE ]
         )
      | NOKERB ]

[ LANGUAGE(
         [ PRIMARY(language) | NOPRIMARY ]
         [ SECONDARY(language) | NOSECONDARY ]
         )
      | NOLANGUAGE ]

   [ LNOTES(
         [ SNAME(short-name) | NOSNAME ]
         )
      | NOLNOTES ]

[ MFA(
         [ PWFALLBACK|NOPWFALLBACK ]
         [ FACTOR(factor-name) | DELFACTOR(factor-name) ]
         [ ACTIVE|NOACTIVE ]
         [ TAGS(tag-name:tag-value ...)
               | DELTAGS(tag-name ...)
               | NOTAGS ]
         [ ADDPOLICY(policy-name ...)
               | DELPOLICY(policy-name ... | *) ]
         )
      | NOMFA ]

   [ MODEL(dsname) | NOMODEL ]

   [ NAME(user-name) ]
[ NDS(
      [ UNAME(user-name) | NOUNAME ]
      )
   | NONDS ]
```

```
[ NETVIEW(
      [ CONSNAME(console-name | NOCONSNAME ]
      [ CTL(GENERAL | GLOBAL | SPECIFIC) | NOCTL ]
      [ DOMAINS(domain-name ...)
            | ADDDOMAINS(domain-name ...)
            | DELDOMAINS(domain-name ...)
            | NODOMAINS ]
      [ IC('command | command-list') | NOIC ]
      [ MSGRECVR( YES | NO) | NOMSGRECVR ]
      [ NGMFADMN( YES | NO) | NONGMFADMN ]
      [ NGMFVSPN(view-span) | NONGMFVSPN ]
      [ OPCLASS(class ...)
         | ADDOPCLASS(class ...)
         | DELOPCLASS(class ...)
         | NOOPCLASS ]
         )
   | NONETVIEW ]
```

```
[ OIDCARD | NOOIDCARD ]
```

```
[ OMVS(
      [ ASSIZEMAX(address-space-size) | NOASSIZEMAX ]
      [ AUTOUID | UID(user-identifier) [ SHARED ] | NOUID ]
      [ CPUTIMEMAX(cpu-time) | NOCPUTIMEMAX ]
      [ FILEPROCMAX(files-per-process) | NOFILEPROCMAX ]
      [ HOME(directory-pathname) | NOHOME ]
      [ MEMLIMIT(nonshared-memory-size) | NOMEMLIMIT ]
      [ MMAPAREAMAX(memory-map-size) | NOMMAPAREAMAX ]
      [ PROCUSERMAX(processes-per-UID) | NOPROCUSERMAX ]
      [ PROGRAM(program-name) | NOPROGRAM ]
      [ SHMEMMAX(shared-memory-size) | NOSHMEMMAX ]
      [ THREADSMAX(threads-per-process) | NOTHREADSMAX ]
      )
   | NOOMVS ]
```

```
[ OPERATIONS | NOOPERATIONS ]
[ OPERPARM(
      [ ALTGRP(alternate-console-group) | NOALTGRP ]
      [ AUTH(operator-authority) | NOAUTH ]
      [ AUTO( YES | NO ) | NOAUTO ]
      [ CMDSYS(system-name) | NOCMDSYS ]
      [ DOM( NORMAL | ALL | NONE ) | NODOM ]
      [ HC( YES | NO ) | NOHC ]
      [ INTIDS( YES | NO ) | NOINTIDS ]
      [ KEY(searching-key) | NOKEY ]
      [ LEVEL(message-level) | NOLEVEL ]
      [ LOGCMDRESP( SYSTEM | NO ) | NOLOGCMDRESP ]
      [ MFORM(message-format) | NOMFORM ]
      [ MIGID( YES | NO ) | NOMIGID ]
      [ MONITOR(event) | NOMONITOR ]
      [ MSCOPE(system-name ... | * | *ALL)
            | ADDMSCOPE(system-name ...)
            | DELMSCOPE(system-name ...)
            | NOMSCOPE ]
      [ ROUTCODE(ALL | NONE | routing-codes) | NOROUTCODE ]
      [ STORAGE(amount) | NOSTORAGE ]
      [ UD( YES | NO ) | NOUD ]
      [ UNKNIDS( YES | NO ) | NOUNKNIDS ]
      )
   | NOOPERPARM ]
```

```
[ OVM(
      [ FSROOT(file-system-root) | NOFSROOT ]
      [ HOME(initial-directory-name) | NOHOME ]
      [ PROGRAM(program-name) | NOPROGRAM ]
      [ UID(user-identifier) | NOUID ]
      )
   | NOOVM ]
```

```
[ OWNER(userid or group-name) ]
```

```
[ PASSWORD(password) | NOPASSWORD ]
```

```
[ PHRASE('password-phrase') | NOPHRASE ]
```

```
[ PWCLEAN | PWCONVERT ]
```

```
[ PROXY [ (
      [ LDAPHOST(ldap_url) | NOLDAPHOST ]
      [ BINDDN(bind_distinguished_name) | NOBINDDN ]
      [ BINDPW(bind_password) | NOBINDPW) ]
   | NOPROXY ]
```

```
[ RESTRICTED | NORESTRICTED ]
```

```
[ RESUME [(date)] | NORESUME ]
[ REVOKE [(date)] | NOREVOKE ]

[ ROAUDIT | NOROAUDIT ]

[ SECLABEL(seclabel-name) | NOSECLABEL ]

[ SECLEVEL(seclevel-name) | NOSECLEVEL ]

[ SPECIAL | NOSPECIAL ]

[ TSO(
      [ ACCTNUM(account-number) | NOACCTNUM ]
      [ COMMAND(cmd-issued-at-logon) | NOCOMMAND ]
      [ DEST(destination-id) | NODEST ]
      [ HOLDCLASS(hold-class) | NOHOLDCLASS ]
      [ JOBCLASS(job-class) | NOJOBCLASS ]
      [ MAXSIZE(maximum-region-size) | NOMAXSIZE ]
      [ [ MSGCLASS(message-class) | NOMSGCLASS ]
      [ PROC(logon-procedure-name) | NOPROC ]
      [ SECLABEL(seclabel-name) | NOSECLABEL ]
      [ SIZE(default-region-size) | NOSIZE ]
      [ SYS(sysout-class) | NOSYS ]
      [ UNIT(unit-name) | NOUNIT ]
      [ USERDATA(user-data) | NOUSERDATA ]
      )
   | NOTSO ]

[ UACC(access-authority) ]

[ UAUDIT | NOUAUDIT ]

[ WHEN(
      [ DAYS(day-info) ]
      [ TIME(time-info) ]
   ) ]

[ WORKATTR(
      [ WAACCNT(account-number) | NOWAACCNT ]
      [ WAADDR1(address-line-1) | NOWAADDR1 ]
      [ WAADDR2(address-line-2) | NOWAADDR2 ]
      [ WAADDR3(address-line-3) | NOWAADDR3 ]
      [ WAADDR4(address-line-4) | NOWAADDR4 ]
      [ WABLDG(building) | NOWABLDG ]
      [ WADEPT(department) | NOWADEPT ]
      [ WANAME(name) | NOWANAME ]
      [ WAROOM(room) | NOWAROOM ]
      [ WAEMAIL(e-mail) | NOWAEMAIL ]
      )
   | NOWORKATTR ]
```

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

userid

Specifies the RACF-defined user or users whose profile you want to change. If you specify more than one user ID, the list must be enclosed in parentheses.

This operand is required and must be the first operand following ALTUSER.

ADDCATEGORY | DELCATEGORY

ADDCATEGORY(*category-name*)

Specifies one or more names of installation-defined security categories. The names you specify must be defined as members of the CATEGORY profile in the SECDATA class. For information on defining security categories, see *z/OS Security Server RACF Security Administrator's Guide*.

When the SECDATA class is active and you specify ADDCATEGORY, RACF performs security category checking in addition to its other authorization checking. If a user requests access to a data set, RACF compares the list of security categories in the user profile with the list of security categories in the data set profile. If RACF finds any security category in the data set profile that is not in the user's profile, RACF denies access to the data set. If the user's profile contains all the required security categories, RACF continues with other authorization checking.

Note: RACF does not perform security category checking for a started task or user that has the RACF privileged or trusted attribute. The RACF privileged or trusted attribute can be assigned to a started task through the RACF started procedures table or STARTED class, or to other users by installation-supplied RACF exits.

DELCATEGORY[(*category-name*... |*)]

Specifies one or more names of the installation-defined security categories you want to delete from the user profile. Specifying an asterisk (*) deletes all categories; the user no longer has access to any resources protected by security category checking.

Specifying DELCATEGORY without *category-name* causes RACF to delete only undefined category names (those names that once were valid names but that the installation has since deleted from the CATEGORY profile).

ADSP | NOADSP

ADSP

Assigns the ADSP attribute to the user. This means that all permanent tape and DASD data sets the user creates are automatically RACF-protected by discrete profiles. ADSP specified on the ALTUSER command overrides NOADSP specified on the CONNECT command.

The ADSP attribute has no effect (even if assigned to a user) if SETROPTS NOADSP is in effect.

NOADSP

Specifies that the user no longer has the ADSP attribute.

AT | ONLYAT

The AT and ONLYAT keywords are only valid when the command is issued as a RACF TSO command.

AT ([*node*].*userid* ...)

Specifies that the command is to be directed to the node specified by *node*, where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed to the local node.

ONLYAT ([*node*].*userid* ...)

Specifies that the command is to be directed only to the node specified by *node* where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed only to the local node.

AUDITOR | NOAUDITOR

AUDITOR

Specifies that the user is to have full responsibility for auditing the use of system resources. An AUDITOR user can control the logging of detected accesses to any RACF-protected resources during RACF authorization checking and accesses to the RACF database.

You must have the SPECIAL attribute to enter the AUDITOR operand.

NOAUDITOR

Specifies that the user no longer has the AUDITOR attribute.

You must have the SPECIAL attribute to enter the NOAUDITOR operand.

AUTHORITY(*group-authority*)

Specifies the new level of authority the user is to have in the group specified in the GROUP operand. The valid group authority values are USE, CREATE, CONNECT, and JOIN, as described in "Group authorities" on page 14. If you specify AUTHORITY without *group-authority*, RACF ignores the operand and the existing group authority remains unchanged.

CICS | NOCICS

Adds, alters, or deletes CICS operator information for a CICS terminal user.

If you are adding a CICS segment to a user profile, omitting a suboperand is equivalent to omitting the suboperand on the ADDUSER command. If you are changing an existing CICS segment in a user profile, omitting a suboperand leaves the existing value for that suboperand unchanged.

You can control access to the entire CICS segment or to individual fields within the CICS segment by using field-level access checking. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

OPCLASS | ADDOPCLASS | DELOPCLASS | NOOPCLASS

Where *operator-class1*, *operator-class2* are numbers in the range 1 - 24, defined as two digits. These numbers represent classes assigned to this operator to which BMS (basic mapping support) messages are routed.

OPCLASS(*operator-class ...*)

Specifies the list of classes assigned to this operator to which BMS messages are routed.

ADDOPCLASS(*operator-class ...*)

Adds to the list of classes assigned to this operator to which BMS messages are routed.

DELOPCLASS(*operator-class ...*)

Deletes only the specified classes from the list of classes assigned to this operator to which BMS messages are routed.

NOOPCLASS

Deletes all operator classes from this profile and returns the user to the CICS defaults for this field. This field no longer appears in LISTUSER output.

OPIDENT | NOOPIDENT

OPIDENT(*operator-id*)

Specifies a 1 - 3 character identification of the operator for use by BMS.

Operator identifiers can consist of any characters, and can be entered with or without single quotation marks. The following rules apply:

- If parentheses, commas, blanks, or semicolons are to be entered as part of the operator identifier, the character string must be enclosed in single quotation marks. For example, if the operator identifier is `(1)`, you must enter `OPIDENT('(1)')`.
- If a single quotation mark is intended to be part of the operator identifier, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

NOOPIDENT

Deletes the operator identification and returns the user to the CICS default for this field. The OPIDENT field defaults to blanks in the RACF user profile, and blanks appear for the field in LISTUSER output.

OPPRTY | NOOPPRTY

OPPRTY(*operator-priority*)

Specifies a number in the range 0 - 255 that represents the priority of the operator.

NOOPPRTY

Deletes the operator priority and returns the user to the CICS default for this field.

This field defaults to zeros in the RACF user profile, and zeros appear for the field in LISTUSER output.

RSLKEY | NORSLKEY

RSLKEY(*rslkey* ... | 0 | 99)

Specifies the complete list of resource security level (RSL) keys assigned to the user. The RSL keys are used by CICS on distributed platforms. Each CICS resource has one RSL key assigned to it; in order for a user to access a resource, the user must have the same RSL key as the RSL key assigned to the resource.

RSLKEY does not add or delete keys. It only replaces existing keys. Use NORSLKEY to delete keys.

- RSLKEY(*rslkey* ...) specifies a list of one or more numbers in the range of 1 - 24 which represent the resource security level (RSL) keys assigned to the user.
- If RSLKEY(0) is specified, no RSL keys are assigned to the user.
- If RSLKEY(99) is specified, all RSL keys are assigned to the user (1 - 24, inclusive).
- Keys 0 and 99 are mutually exclusive and cannot be specified with any other keys.
- If RSLKEY is specified with no key numbers, RSLKEY(0) is defaulted.

NORSLKEY

Specifies that you want to remove the RSL key list from the user's RACF user profile. CICS will treat it as RSLKEY(0).

TIMEOUT | NOTIMEOUT

TIMEOUT(*timeout-value*)

Specifies the time, in hours and minutes, that the operator is allowed to be idle before being signed off. The value for TIMEOUT can be entered in the form *m*, *mm*, *hmm*, or *hhmm*, where the value for *m* or *mm* is 00 - 59, or 00 - 60 if *h* or *hh* is not specified or is specified as `0` or `00`. The value for *h* or *hh* must be 00 - 99.

If this suboperand is omitted, there is no change to this field.

NOTIMEOUT

Deletes the timeout value and returns the user to the CICS default for this field.

This field defaults to zeros in the RACF user profile, and zeros appear for the field in LISTUSER output.

TSLKEY | NOTSLKEY

TSLKEY(*tslkey* ... | 0 | 1 | 99)

Specifies the complete list of transaction security level (TSL) keys assigned to the user. The TSL keys are used by CICS on distributed platforms. Each CICS transaction has one TSL key assigned to it; in order for a user to run a transaction, the user must have the same TSL key as the TSL key assigned to the transaction.

TSLKEY does not add or delete keys. It only replaces existing keys. Use NOTSLKEY to delete keys.

- TSLKEY(*tslkey* ...) specifies a list of one or more values of 1 - 64 which represent the transaction security level (TSL) keys assigned to the user.
- If TSLKEY(0) is specified, no TSL keys are assigned to the user.
- If TSLKEY(99) is specified, all TSL keys are assigned to the user (1 - 64, inclusive).
- Keys 0 and 99 are mutually exclusive and cannot be specified with any other keys.
- If TSLKEY is specified with no key numbers, TSLKEY(1) is defaulted.

NOTSLKEY

Specifies that you want to remove the TSL key list from the user's RACF user profile. CICS will treat it as TSLKEY(1).

XRFSOFF | NOXRFSOFF

XRFSOFF(FORCE | NOFORCE)

Specifies that the user is to be signed off by CICS when an XRF takeover occurs.

NOXRFSOFF

Returns the user to the CICS default for this field.

This field defaults to NOFORCE in the RACF user profile, and NOFORCE appears in LISTUSER output.

NOCICS

Deletes the CICS segment from a user profile. No CICS information appears in LISTUSER output.

CLAUTH | NOCLAUTH

CLAUTH(*class-name* ...)

Specifies the classes in which the user is allowed to define profiles to RACF for protection, in addition to the classes previously allowed for the user. Classes you can specify are USER, and any resource class defined in the class descriptor table. RACF adds the class names you specify to the class names previously specified for this user.

To enter the CLAUTH operand, you must have the SPECIAL attribute, or the user's profile must be within the scope of a group in which you have the group-SPECIAL attribute and have the CLAUTH attribute, or you must be the owner of the user's profile and have the CLAUTH attribute for the class to be added.

Note: The CLAUTH attribute has no meaning for the FILE and DIRECTORY classes.

NOCLAUTH(*class-name* ...)

Specifies that the user is not allowed to define profiles to RACF for the classes that you specify. Classes you can specify are USER and any resource class name defined in the user profile. RACF deletes the class names you specify from the class names previously allowed for this user.

To enter the NOCLAUTH operand specifying a class in the class descriptor table, you must have the SPECIAL attribute, or the user's profile must be within the scope of a group in which you have the group-SPECIAL attribute and have the CLAUTH attribute, or you must be the owner of the user's profile and have the CLAUTH attribute for the class to be deleted.

To enter the NOCLAUTH operand specifying a class that is not in the class descriptor table you must have the SPECIAL attribute.

If you do not have sufficient authority for a specified class, RACF ignores the CLAUTH or NOCLAUTH specification for the class and continues processing with the next class name specified.

CSDATA | NOCSDATA

CSDATA

Specifies information to add, change, or remove a custom field for this user.

custom-field-name ...* | NO*custom-field-name ...

***custom-field-name*(*custom-field-value*) ...**

Specifies the name and value of a custom field for this user. You can specify values for multiple custom fields with a single ALTDSD command.

Usage for each custom field is defined using the CFDEF operand of the RDEFINE command for resource profiles in the CFIELD class. Contact your security administrator to see how custom fields are used at your installation. For more information about custom fields, see *z/OS Security Server RACF Security Administrator's Guide*.

Rules:

- You must use the same *custom-field-name* as defined by the CFIELD profile named USER.CSDATA.*custom-field-name*. (The CFIELD profile is defined using the CFDEF operand of the RDEFINE command.)
- You must specify a *custom-field-value* that is valid for the attributes of this custom field. (The attributes, such as data type, are defined in the CFDEF segment of the CFIELD profile.)

NO*custom-field-name ...*

Removes the custom field information for this user. You can remove values for multiple custom fields with a single ALTUSER command.

When you append the prefix **NO** to the name of the custom field, you delete the value for that custom field from the user's profile. For example, if your installation has defined a custom field named ADDRESS and you want to remove the ADDRESS field from the profile of the user SHANNON, you might issue the following command:

Example:

```
ALTUSER SHANNON CSDATA(NOADDRESS)
```

NOCSDATA

Deletes the CSDATA segment from the user profile.

DATA | NODATA

DATA('*installation-defined-data*')

Specifies up to 255 characters of installation-defined data to be stored in the user's profile and must be enclosed in single quotation marks. It can also contain double-byte character set (DBCS) data. Note that only 254 characters of data are available for installation exits. If your installation has exits that examine this data, you should specify a maximum of 254 characters.

Use the LISTUSER command to list this information.

NODATA

Specifies that the ALTUSER command is to delete the installation-defined data in the user's profile.

DCE | NODCE

DCE

Adds or modifies the DCE segment in the user profile of the specified z/OS DCE user or Distributed File Service (DFS) Server Message Block (SMB) user. You can enter any of the following suboperands to specify information for that user. Each suboperand defines information that RACF stores in a field within the DCE segment of the user's profile.

You can control access to an entire DCE segment or to individual fields within the DCE segment by using field level access checking.

AUTOLOGIN(YES | NO) | NOAUTOLOGIN

Specifies whether z/OS UNIX DCE is to log this user into z/OS UNIX DCE automatically. If AUTOLOGIN(NO) or NOAUTOLOGIN is specified, z/OS UNIX DCE does *not* attempt to login this user to z/OS UNIX DCE automatically. If AUTOLOGIN is not specified, AUTOLOGIN(NO) is the default.

DCENAME | NODCENAME

DCENAME(*user-principal-name*)

Specifies the DCE principal name defined for this RACF user in the DCE registry.

The DCENAME you define to RACF can contain 1 - 1023 characters and can consist of any character. You can enter the name with or without single quotation marks, depending on the following:

- If parentheses, commas, blanks, or semicolons are entered as part of the name, the character string must be enclosed in single quotation marks.
- If a single quotation mark is intended to be part of the character string, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered. RACF does not ensure that a valid DCENAME has been specified.

The DCENAME assigned to a user must be the same as the DCE principal name defined to the DCE registry.

If DCENAME is not specified, the LISTUSER command does not display a DCENAME for this user.

Note: RACF does not enforce the uniqueness of each DCENAME. The DCENAME specified must match the user's DCE principal name that is defined to the DCE registry. If the DCENAME entered does not correspond to the DCE principal name entered in the DCE registry for this user, z/OS UNIX DCE cannot correctly associate the identity of the DCE principal with the correct RACF user ID.

NODCENAME

Specifies that you want to delete the DCE principal name from the DCE segment of the user's profile.

If NODCENAME is specified, the LISTUSER command does not display a DCENAME for this user.

HOMECELL | NOHOMECELL

HOMECELL(*dce-cell-name*)

Specifies the DCE cell name defined for this RACF user.

The HOMECELL you define to RACF can contain 1 - 1023 characters and can consist of any character. You can enter the name with or without single quotation marks, depending on the following:

- If parentheses, commas, blanks, or semicolons are entered as part of the cell name, the character string must be enclosed in single quotation marks.

- If a single quotation mark is intended to be part of the cell name, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered. The fully qualified path name should be specified. RACF does not ensure that a valid DCE cell name has been specified.

The HOMECELL assigned to a user *must* be the same as the DCE cell name that this user has been defined to.

If the HOMECELL is not specified, z/OS UNIX DCE single signon to DCE support assumes that the HOMECELL for this user is the same cell where this MVS system is defined.

RACF checks that the prefix of the HOMECELL name entered has a prefix of either `/.../` or `/.:/`.

The notation `/.../` indicates that the HOMECELL name is a global domain name service (DNS) cell name or X.500 global name.

The notation `/.:/` indicates that the HOMECELL name is a cell relative CDS (cell directory service) name. When determining the naming conventions used within your DCE cell, you should contact your DCE cell administrator.

NOHOMECELL
Specifies that you want to delete the cell information from the DCE segment of the user profile.

If NOHOMECELL is specified, the LISTUSER command does not display the HOMECELL for this user.

HOMEUUID | NOHOMEUUID

HOMEUUID(*home-cell-UUID*)
Specifies the DCE universal unique identifier (UUID) for the cell that this user is defined to. The UUID is a 36-character string that consists of numeric and hexadecimal characters. This string must have the delimiter character (-) in positions 9, 14, 19, and 24. The general format for the UUID string is *xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx*, in which *x* represents a valid numeric or hexadecimal character.

Be careful when assigning UUIDs. The UUID *cannot* be randomly assigned. The HOMEUUID is the DCE UUID of the cell that this RACF user is defined to. If HOMEUUID is not specified, the LISTUSER command displays NONE for the HOMEUUID field.

Note: The HOMEUUID specified *must* match the UUID of the DCE cell to which this principal (specified by the DCENAME operand) is defined.

NOHOMEUUID
Specifies that you want to delete the home cell unique universal identifier from the DCE segment of the user's profile.

If NOHOMEUUID is specified, LISTUSER for that user ID shows NONE for the HOMEUUID field.

UUID | NOUUID

UUID(*universal-unique-identifier*)
Specifies the DCE universal unique identifier (UUID) of the DCE principal defined in DCENAME. The UUID is a 36-character string that consists of numeric and hexadecimal characters. This string must have the delimiter character (-) in positions 9, 14, 19, and 24. The general format for the UUID string is *xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx*, in which *x* represents a valid numeric or hexadecimal character.

Be careful when assigning UUIDs. The UUID *cannot* be randomly assigned.

The DCE UUID assigned to a user *must* be the same as the DCE UUID assigned when defining this RACF user to the DCE registry as a DCE principal.

If UUID is not specified, the user cannot become a z/OS DCE user and a LISTUSER command for that user ID shows NONE for the UUID.

Note: RACF does not enforce the uniqueness of each UUID entered. The UUID specified must match the UUID in the DCE registry for the principal (specified by the DCENAME operand) that is being cross-linked with this RACF user ID.

NOUUID
Specifies that you want to delete the DCE unique universal identifier from the DCE segment of the user's profile.

If NOUUID is specified, LISTUSER for that user ID shows NONE for the UUID field.

NODCE
Specifies that RACF should delete the DCE segment from the user's profile.

DFLTGRP(*group-name*)
Specifies the name of a RACF-defined group to be used as the new default group for the user. The user must already be connected to this new group with at least USE authority. The user remains connected to the previous default group.

DFP | NODFP

DFP
Specifies that when you change the profile of a user, you can enter any of the following suboperands to add, change, or delete default values for the DFP data application, data class, management class, and storage class. DFP uses this information to determine data management and DASD storage characteristics when a user creates a new data set.

You can control access to the entire DFP segment or to individual fields within the DFP segment by using field-level access checking. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

DATAAPPL | NODATAAPPL

DATAAPPL(*application-name*)
Specifies the name of a DFP data application. The name you specify can contain up to 8 alphanumeric characters.

NODATAAPPL
Specifies that you want to delete the DFP data application name from the DFP segment of the user's profile.

DATACLAS | NODATACLAS

DATACLAS(*data-class-name*)
Specifies the default data class. The class name you specify can contain up to 8 alphanumeric characters.

A data class can specify some or all of the physical data set attributes associated with a new data set. During new data set allocation, data management uses the value you specify as a default unless it is preempted by a higher priority default, or overridden in some other way (for example, by JCL).

The value you specify must be a valid data class name defined for use on your system. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

For information on defining DFP data classes, see *z/OS DFSMSdfp Storage Administration*.

NODATACLAS
Specifies that you want to delete the default data class name from the DFP segment of the user's profile.

MGMTCLAS | NOMGMTCLAS

MGMTCLAS(*management-class-name*)
Specifies the default management class. The class name you specify can contain up to 8 alphanumeric characters.

A management class contains a collection of management policies that apply to data sets. Data management uses the value you specify as a default unless it is preempted by a higher priority default, or overridden in some other way (for example, by JCL).

The value you specify must be defined as a profile in the MGMTCLAS general resource class, and the user must be granted at least READ access to the profile. Otherwise, RACF does not allow the user access to the specified MGMTCLAS. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

For information on defining DFP management classes, see *z/OS DFSMSdfp Storage Administration*.

NOMGMTCLAS
Specifies that you want to delete the default management class name from the DFP segment of the user's profile.

STORCLAS | NOSTORCLAS

STORCLAS(*storage-class-name*)
Specifies the default storage class. The class name you specify can contain up to 8 alphanumeric characters.

A storage class specifies the service level (performance and availability) for data sets managed by the storage management subsystem (SMS). During new data set allocation, data management uses the value you specify as a default unless it is preempted by a higher priority default, or overridden in some other way (for example, by JCL).

The value you specify must be defined as a profile in the STORCLAS general resource class, and the user must be granted at least READ access to the profile. Otherwise, RACF does not allow the user access to the specified STORCLAS. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

For information on defining DFP storage classes, see *z/OS DFSMSdfp Storage Administration*.

NOSTORCLAS
Specifies that you want to delete the default storage class name from the DFP segment of the user's profile.

NODFP
Specifies that RACF should delete the DFP segment from the user's profile.

EIM | NOEIM
Specifies or deletes the bind information required to establish a connection with the EIM domain.

EIM
Specifies the EIM segment for the user's profile.

LDAPPROF(*ldapbind_profile*)
Specifies the name of a profile in the LDAPBIND class. The profile in the LDAPBIND class contains the name of an EIM domain and the bind information required to establish a connection with the EIM domain. The EIM services attempt to retrieve this information when it is not explicitly supplied through invocation parameters. Applications or other services that use the EIM services may instruct their callers to define a profile in the LDAPBIND class or the IRR.PROXY.DEFAULTS profile in the FACILITY class.

The *ldapbind_profile* specifies the name of a profile in the LDAPBIND class containing the EIM domain and the LDAP bind information. The *ldapbind_profile* name may be 1 - 246 characters long. It is not a case-sensitive name.

NOLDAPPROF
Deletes the LDAPBIND profile name from the EIM segment in the user's profile.

NOEIM
Deletes the EIM segment from the user's profile

EXPIRED | NOEXPIRED

EXPIRED

Specifies that the new password or password phrase (specified with the PASSWORD or PHRASE keyword) or the new password defaulted by the PASSWORD keyword is marked as expired. Specifying the EXPIRED keyword requires the user to change their new password or password phrase at the next logon or job start.

When EXPIRED is specified with the PHRASE keyword, the password phrase you specify is subject to the basic RACF rules for password phrase syntax and to any rules set by the installation through the new-password-phrase exit (ICHPWX11), if present.

When EXPIRED is specified with the PASSWORD keyword, the password you specify is *not* subject to the password syntax rules set by the installation through the SETROPTS PASSWORD command. However, the password is checked by the new-password exit (ICHPWX01), if present.

When EXPIRED is specified without PASSWORD and PHRASE, the existing password and password phrase, if they exist, are to be marked as expired.

NOEXPIRED

Specifies that the password specified by the PASSWORD keyword or the password phrase specified by the PHRASE keyword need not be changed at the next logon. The NOEXPIRED keyword is only valid when specified with the PASSWORD or PHRASE keyword. NOEXPIRED does *not* indicate that the password or password phrase never expires. If you want to set a password or password phrase that never expires, use the NOINTERVAL keyword on the PASSWORD command.

When NOEXPIRED is specified, the password or password phrase value you supply is subject to certain rules. Those rules include the basic RACF rules for password phrase syntax and any password syntax rules set by the installation through the SETROPTS PASSWORD(RULEn) command. In addition, the new-password exit (ICHPWX01), if present, is called to check passwords. The new-password-phrase exit (ICHPWX11), if present, is called to check password phrases and perform additional validation.

To specify NOEXPIRED, you must either have the SPECIAL attribute (at the system level), or you must have UPDATE access to either the IRR.PASSWORD.RESET resource or the appropriate IRR.PWRESET resource in the FACILITY class. Being the owner of the USER profile or having the group-SPECIAL attribute is not sufficient when NOEXPIRED is specified.

GROUP(*group-name*)

Specifies the group to which changes to the group-related user attributes UACC and AUTHORITY are to be made. The user must be connected to the specified group.

If you omit GROUP, the changes apply to the user's default group. If you omit GROUP and specify DFLTGRP, however, the changes still apply to the user's previous default group.

GRPACC | NOGRPACC

GRPACC

Specifies that any group data sets protected by DATASET profiles defined by this user are automatically accessible to other users in the group. The group whose name is used as the high-level qualifier of the data set name (or the qualifier supplied by a command installation exit) has UPDATE access authority in the new profile. GRPACC specified on the ALTUSER command overrides NOGRPACC specified on the CONNECT command.

NOGRPACC

Specifies that the user no longer has the GRPACC attribute.

KERB | NOKERB

KERB

Specifies z/OS Integrated Security Services Network Authentication Service information for a user defined to RACF. Each subkeyword defines information that RACF stores in a field within the KERB segment of the user's profile.

Note: The RACF user password must be changed to be non-expired in order to complete the definition of the z/OS Network Authentication Service principal. The user cannot use any z/OS Network Authentication Service function until the definition is complete.

Note: ICSF must be available when passwords are changed for users who have KERB segments or keys cannot be generated.

ENCRYPT | NOENCRYPT

ENCRYPT

Specifies which keys the user (the z/OS Network Authentication Service principal) is allowed to use.

DES | NODES

Whether DES encrypted keys can be used.

DES3 | NODES3

Whether DES3 encrypted keys can be used.

DESD | NODESD

Whether DESD encrypted keys can be used.

AES128 | NOAES128

Whether AES128 encrypted keys can be used.

AES256 | NOAES256

Whether AES256 encrypted keys can be used.

AES128SHA2 | NOAES128SHA2

AES128 SHA2 encryption keys can be used.

AES256SHA2 | NOAES256SHA2

AES256 SHA2 encryption keys can be used.

When a principal's password changes, a key of each allowed type is generated and stored in the principal's user profile. The use of each key is based on the *z/OS Network Authentication Service* configuration.

Important: When you enable the use of a new key type, be sure that the principal's password is changed to ensure that a key of the new type is generated and stored in the principal's user profile.

See *z/OS Integrated Security Services Network Authentication Service Administration* for information about how *z/OS Network Authentication Service* uses keys and how to customize environment variables related to keys.

NOENCRYPT

Specifies that there is no restriction on which generated keys the principal can use, and resets the KERB ENCRYPT values to the default settings.

See *z/OS Integrated Security Services Network Authentication Service Administration* for information about how *z/OS Network Authentication Service* uses keys and how to customize environment variables related to keys.

KERBNAME | NOKERBNAME

KERBNAME(*kerberos-principal-name*)

Specifies the z/OS user ID's local *kerberos-principal-name*.

The value specified for the local *kerberos-principal-name* must be unique. Consequently, a list of users cannot be specified on an ALTUSER command with the KERBNAME keyword.

The *kerberos-principal-name* you define to RACF can consist of any character except the `@` (X'7C') character. You can enter the name with or without single quotation marks, depending on the following:

- If parentheses, commas, blanks, or semicolons are entered as part of the name, the name must be enclosed in single quotation marks.

- If a single quotation mark is intended to be part of the name and the entire character string is enclosed in single quotation marks, you must use two single quotation marks together to represent each single quotation mark within the string.
- If the first character of the name is a single quotation mark, you must enter the string within single quotation marks, with two single quotation marks entered for that single quotation mark.

Guideline: Avoid using EBCDIC variant characters to prevent problems with different code pages.

Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered. However, RACF does not ensure that a valid *kerberos-principal-name* has been specified.

A local *kerberos-principal-name* must *not* be qualified with a realm name when specified with the KERBNAME keyword. However, RACF verifies that the local principal name, when fully qualified with the name of the local realm:

```
/.../local_realm_name/principal_name
```

does not exceed 240 characters. For example,

- If the local realm name is

  ```
  X
  ```

  fully qualified local principal names are prefixed with

  ```
  /.../X/
  ```

  and are limited to a maximum of 233 characters.
- If the local realm name is

  ```
  KERB390.ENDICOTT.IBM.COM
  ```

  fully qualified local principal names are prefixed with

  ```
  /.../KERB390.ENDICOTT.IBM.COM/
  ```

  and are limited to a maximum of 210 characters.

This length verification requires that the REALM profile for the local realm KERBDFLT be defined and contain the name of the local realm, prior to the specification of local *z/OS Network Authentication Service* user principals. Otherwise, *z/OS Network Authentication Service* users will not be defined.

Note: Because of the relationship between realm names and local *kerberos-principal-names*, in which the length of a fully qualified name cannot exceed 240 characters, caution and planning must go into renaming the local realm because the combined length is only checked by RACF when a local *kerberos-principal-name* is added or altered. Renaming the realm should be avoided as a result.

NOKERBNAME
Deletes the *kerberos-principal-name*. This invalidates the z/OS user ID's *z/OS Network Authentication Service* account.

MAXTKTLFE | NOMAXTKTLFE

MAXTKTLFE(*max-ticket-life*)
Specifies the *max-ticket-life* in seconds. The value for MAXTKTLFE must be 1 - 2 147 483 647. Note that 0 is not a valid value.

If MAXTKTLFE is specified on the definition of a local *z/OS Network Authentication Service* principal, the *z/OS Network Authentication Service* takes the most restrictive of the value defined for the local principal and the value specified on the definition of the local realm (the KERBDFLT profile in the REALM class). Consequently, if the realm *max-ticket-life* is 24 hours, a principal cannot get a ticket with a longer lifetime even if the *max-ticket-life* is set to 48 hours. If this field is not specified for a local principal, or if NOMAXTKTLFE has been specified, the maximum lifetime for tickets created by this principal is determined from the definition of the local *z/OS Network Authentication Service* realm.

NOMAXTKTLFE

Deletes the *max-ticket-life* value for this local *z/OS Network Authentication Service* principal.

NOKERB

Deletes the user's KERB segment. This user is no longer considered a principal by the *z/OS Network Authentication Service*.

LANGUAGE | NOLANGUAGE

Specifies to add, alter, or delete the user's preferred national languages.

Specify LANGUAGE if this user is to have languages other than the ones established or defaulted by the LANGUAGE operand on the SETROPTS command, or the ones previously specified with the ADDUSER command.

LANGUAGE(PRIMARY(*language*) SECONDARY(*language*))

Specifies the user's preferred national languages. Specify this operand if the user is to have languages other than the system-wide defaults (established by the LANGUAGE operand on the SETROPTS command).

- If this profile is for a TSO/E user who will establish an extended MCS console session, the languages you specify should be one of the languages specified on the LANGUAGE LANGCODE statements in the MMSLSTxx PARMLIB member. See your MVS system programmer for this information.

  For more information on TSO/E national language support, see *z/OS TSO/E Customization*.
- If this profile is for a CICS user, see your CICS administrator for the languages supported by CICS on your system.

  For more information, visit CICS Transaction Server for z/OS (www.ibm.com/docs/en/cics-ts).

PRIMARY | NOPRIMARY

PRIMARY(*language*)

Specifies the user's new primary language.

NOPRIMARY

Deletes any primary language information from the user's profile and returns the user to the installation's default primary language.

SECONDARY | NOSECONDARY

SECONDARY(*language*)

Specifies the language to which the user's secondary language is to be changed.

NOSECONDARY

Deletes any secondary language information from the user's profile and returns the user to the installation's default secondary language.

Note:

1. For the primary and secondary languages, specify either the installation-defined name of a currently active language (a maximum of 24 characters) or one of the language codes (three characters in length) for a language installed on your system.
2. The language name can be a quoted or unquoted string.
3. The same language can be specified for with both PRIMARY and SECONDARY parameters.
4. If the MVS message service is not active, the PRIMARY and SECONDARY values must be a 3-character language code.

NOLANGUAGE

Deletes the user's preferred national languages from the profile and returns that user to the installation defaults. LANGUAGE information no longer appears in LISTUSER output.

LNOTES | NOLNOTES

LNOTES

Specifies Lotus Notes for z/OS information for the user profile being changed.

SNAME | NOSNAME

SNAME(*short-name*)

Specifies the Lotus Notes for z/OS *short-name* of the user being changed. The name should match the one stored in the Lotus Notes address book for this user, but this is not verified by the command.

The *short-name* you define to RACF can contain 1 - 64 characters. You can specify the following characters: uppercase and lowercase alphabetic characters (`A - Z`, and `a - z`), `0 - 9`, & (X'50'), - (X'60'), `.` (X'4B'), _ (X'6D'), and blanks (X'40').

If the *short-name* you specify contains any blanks, it must be enclosed in single quotation marks. The *short-name* is stripped of leading and trailing blanks.

The value specified for the *short-name* must be unique. Consequently, a list of users might not be specified on an ALTUSER command with the SNAME keyword.

NOSNAME

Specifies that you want to delete the *short-name* from the LNOTES segment of the user's profile.

NOLNOTES

Specifies that you want to delete the LNOTES segment from the user's profile.

MFA | NOMFA

MFA

Specifies multi-factor authentication information for the user profile being changed. Information is stored in the base segment of the user's profile. MFA can not be specified for a PROTECTED user.

The MFADEF class must be active before a user can logon with IBM MFA.

See *z/OS Security Server RACF Security Administrator's Guide*.

PWFALLBACK|NOPWFALLBACK

PWFALLBACK

When IBM MFA is unavailable or is unable to determine the validity of an ACTIVE factor, this user can logon to the system using any existing RACF authenticators such as their password, password phrase or PassTicket.

NOPWFALLBACK

When IBM MFA is unavailable or is unable to determine the validity of an ACTIVE factor, this user will not be able to logon to the system with any existing RACF authenticators. NOPWFALLBACK is the default.

FACTOR|DELFACTOR

FACTOR(*factor-name*)

Specifies an authentication factor for a user. If the user is not already registered to the factor, the factor will be added to the user. The specified factor must be defined in an MFADEF class profile named FACTOR.<factorName>. Other ALTUSER keywords such as ACTIVE and TAGS are specific to this specified factor.

Factor-name is a 1 - 20 character identifier. The characters can be alphabetic, numeric, or national.

A user is limited to 10 total factors. Only one factor may be specified in a single ALTUSER command.

DELFACTOR(*factor-name*)
Deletes the specified factor from the list of authentication factors registered to this user.

Factor-name is a 1 - 20 character identifier. The characters can be alphabetic, numeric, or national.

ACTIVE|NOACTIVE

ACTIVE
The user is required to authenticate to IBM MFA with the specified factor to logon to the system when the MFADEF class is active.

NOACTIVE
The user is not required to authenticate to IBM MFA with the specified factor to logon to the system. NOACTIVE is the default.

TAGS|DELTAGS|NOTAGS

TAGS(*tag-name:tag-value...*)
Specifies tags and values for the specified factor.

The *tag-name* and *tag-value* pairs are factor specific and are defined by IBM MFA. ALTUSER calls IBM MFA to validate tag-names and tag-values. IBM MFA must be available for RACF to process the TAGS keyword. IBM MFA may reject a *tag-name* or *tag-value* during ALTUSER processing. IBM MFA may utilize these values during logon processing to authenticate a user. Refer to *IBM Z® Multi-Function Authentication User's Guide* for documentation of each factor's configuration data parameters.

When the *tag-name* is not already present in the TAGS for the specified factor the *tag-name* is added. When the *tag-name* is already present for the specified factor, it is replaced with the new *tag-value*.

The *tag-name* is a 1 - 20 character case insensitive identifier and can consist of alphabetic or numeric characters. A factor is limited to 20 total tags.

The *tag-value* can be 1 - 1024 characters and can consist of any character. If the *tag-value* you specify contains any blanks, the *tag-name:tag-value* pair must be enclosed in quotation marks.

DELTAGS(*tag-name ...*)
Deletes specific tags for the specified factor.

The *tag-name* is a 1 - 20 character identifier and can consist of alphabetic or numeric characters.

The *tag-name* is ignored when it does not already exist for a specified factor.

NOTAGS
Removes all tags for the specified factor.

ADDPOLICY | DELPOLICY

ADDPOLICY(*policy-name ...*)
Adds to the user's list of MFA authentication policies where *policy-name* is the name of an MFA policy profile defined in the MFADEF class. *Policy-name* is specified as only the unique name portion of the policy profile after the initial "POLICY." qualifier.

A policy name must be between 1 and 20 characters.

Each user is limited to a maximum of 10 policy names.

DELPOLICY(*policy-name ... | **)
Deletes the specified policies from the user's list of MFA policies.

Specifying the * character deletes all existing policies.

NOMFA

Specifies that RACF delete all MFA fields from the user's profile. The user is no longer required to provide additional authentication factors when logging on.

MODEL | NOMODEL

MODEL(*dsname*)

Specifies the name of a data set that RACF is to use as a model when new data set profiles are created that have *userid* as the high-level qualifier. For this operand to be effective, the MODEL(USER) option (specified on the SETROPTS command) must be active. If the ALTUSER command cannot find the *dsname* profile, it issues a warning message but places the model name in the user ID entry.

Note that RACF always prefixes *dsname* with the user ID.

For information about automatic profile modeling, refer to *z/OS Security Server RACF Security Administrator's Guide*.

NOMODEL

Deletes the model profile name in the user's profile.

NAME(*user-name*)

Specifies the user name to be associated with the user ID. You can use a maximum of 20 alphanumeric or non-alphanumeric characters. If the name you specify contains any blanks, it must be enclosed in single quotation marks.

Names longer than 20 characters are truncated to 20 characters when you enclose the name in quotation marks. However, if you specify a name longer than 20 characters *without* enclosing the name in quotation marks, you receive an error from the TSO parse routine.

If you omit the NAME operand, RACF uses a default of twenty # (X'7B') characters ('### ...'). Note, however, that the corresponding entry in a LISTUSER output is the word `UNKNOWN`.

NDS | NONDS

NDS

Specifies Novell Directory Services for OS/390 information for the user profile being changed.

UNAME | NOUNAME

UNAME(*user-name*)

Specifies the Novell Directory Services for OS/390 *user-name* of the user being changed. The *user-name* value should match the name stored in the Novell Directory Services for OS/390 directory for this user, but this is not verified by the command.

The *user-name* you define to RACF can contain 1 - 246 characters. However, the *user-name* cannot contain the following characters: `*` (X'5C'), + (X'4E'), `|` (X'4F'), = (X'7E'), `,` (X'6B'), " (X'7F'), `` ` `` (X'79'), / (X'61'), `:` (X'7A'), `;` (X'5E'), ¢ (X'4A'), and brackets `[` and `]` (X'AD' and X'BD').

If the *user-name* you specify contains any parentheses or blanks, it must be enclosed in single quotation marks. The *user-name* is stripped of leading and trailing blanks. If a single quotation mark is intended to be part of the *user-name*, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

The value specified for the *user-name* must be unique. Consequently, a list of users cannot be specified on an ALTUSER command with the UNAME keyword.

NOUNAME

Specifies that you want to delete the *user-name* from the NDS segment of the user's profile.

NONDS

Specifies that RACF delete the NDS segment from the user's profile.

NETVIEW | NONETVIEW

NETVIEW

Specifies that this is a NetView operator that can enter any of the following suboperands to add, update, or delete the information in the NETVIEW segment.

You can control access to the entire NETVIEW segment or to individual fields within the NETVIEW segment by using field-level access checking. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

CONSNAME | NOCONSNAME

CONSNAME(*console-name*)

Specifies the default MCS console name identifier used for this operator. This default console name is used when the operator does not specify a console name using the NetView GETCONID command.

The *console-name* value is a 1 - 8 character identifier whose validity is checked by MVS processing when the operator tries to use it. See *z/OS MVS Planning: Operations* for information on valid values for a particular release.

NOCONSNAME

Deletes any default MCS console name previously specified for this operator.

CTL | NOCTL

CTL (GENERAL | GLOBAL | SPECIFIC)

Specifies whether a security check is performed for this NetView operator when they try to use a span or try to do a cross-domain logon.

GENERAL

Specifies that a security done should be done as for SPECIFIC, and, in addition, that the operator is allowed to access devices that are not part of any span.

GLOBAL

Specifies that no security check is done.

SPECIFIC

Specifies that a security check is performed through RACROUTE REQUEST=AUTH whenever this operator attempts to use a span. It also specifies that any cross-domain logon must be to a domain listed in the operator's NETVIEW segment with the DOMAINS keyword.

CTL(SPECIFIC) is the default.

NOCTL

NOCTL has the same effect as specifying CTL(SPECIFIC).

DOMAINS | NODOMAINS | ADDDOMAINS | DELDOMAINS

DOMAINS(*domain-name ...*)

Specifies the complete list of identifiers of NetView programs in another NetView domain where this operator can start a cross-domain session. The NetView program identifiers are coded on the NCCFID definition statement for the other domains, and represent the name given to that NetView program on the APPL statement.

Domain-name is a 1 - 5 character identifier. The characters can be alphabetic, numeric, or national.

ADDDOMAINS(*domain-name ...*)

Adds identifiers of NetView programs in another NetView domain where this operator can start a cross-domain session. The NetView program identifiers are coded on the NCCFID definition statement for the other domains, and represent the name given to that NetView program on the APPL statement.

The *domain-name* value is a 1 - 5 character identifier. The characters can be alphabetic, numeric, or national.

DELDOMAINS(*domain-name ...*)

Deletes specific identifiers of NetView programs in another NetView domain where this operator can start a cross-domain session. The NetView program identifiers are coded on the NCCFID definition statement for the other domains, and represent the name given to that NetView program on the APPL statement.

The *domain-name* value is a 1 - 5 character identifier. The characters can be alphabetic, numeric, or national.

NODOMAINS

Specifies that the operator cannot start any cross-domain sessions.

IC | NOIC

IC('*command* | *command-list*')

Specifies the command or command list (up to 255 characters) to be processed when the operator logs on to NetView.

If the command or command list you specify contains any commas, blanks, or other special characters that TSO/E requires to be quoted, it must be enclosed in single quotation marks.

NOIC

Deletes the command or command list to be processed at logon time for this operator. No command or command list is automatically processed when this operator logs on.

MSGRECVR | NOMSGRECVR

MSGRECVR (YES | NO)

Specifies whether this operator can receive unsolicited messages that are not routed to a specific NetView operator.

YES

Specifies that the operator is to receive the messages.

NO

Specifies that the operator is not to receive the messages.

NOMSGRECVR

NOMSGRECVR has the same effect as specifying MSGRECVR(NO).

NGMFADMN | NONGMFADMN

NGMFADMN (YES | NO)

Specifies whether a NetView operator has administrator authority to the NetView Graphic Monitor Facility (NGMF).

YES

Specifies that the operator does have the authority.

NO

Specifies that the operator does not have the authority.

NONGMFADMN

NONGFMADMN has the same effect as specifying NGFMADMN(NO).

NGMFVSPN | NONGMFVSPN

NGMFVSPN (*view-span*)

Reserved for future use by the NetView Graphic Monitor Facility

NONGMFVSPN

Reserved for future use by the NetView Graphic Monitor Facility

OPCLASS | NOOPCLASS | ADDOPCLASS | DELOPCLASS

OPCLASS(*class ...*)

Specifies the complete list of NetView scope classes for which the operator has authority.

The *class* value is a number 1 - 2040 that specifies a NetView scope class.

ADDOPCLASS(*class ...*)

Adds specific NetView scope classes to the operator's current list of classes.

The *class* value is a number 1 - 2040 that specifies a NetView scope class.

DELOPCLASS(*class ...*)

Deletes specific NetView scope classes from the operator's current list of classes.

The *class* value is a number 1 - 2040 that specifies a NetView scope class.

NOOPCLASS

Specifies that the operator is in no scope classes.

NONETVIEW

Specifies that RACF should delete the NETVIEW segment from the user's profile.

OIDCARD | NOOIDCARD

OIDCARD

Specifies that the user must supply an operator identification card when logging onto the system. If you specify the OIDCARD operand, the system prompts you to enter the user's new operator identification card as part of the processing of the ALTUSER command. If you specify the OIDCARD operand in a job executing in the background or when you cannot be prompted in the foreground, the ALTUSER command fails.

NOOIDCARD

Specifies that the user is not required to supply an operator identification card.

If NOPASSWORD is specified or the user ID already has the NOPASSWORD attribute, and NOPHRASE is specified or the user ID already does not have a password phrase, specifying NOOIDCARD causes this user ID to become a protected user ID. Protected user IDs cannot be used to enter the system by any means that requires a password to be specified, such as TSO logon. If the user attempts to enter the system with a password, the attempt fails.

Protected user IDs can be used for the user IDs associated with the started tasks in ICHRIN03 or the STARTED class.

OMVS | NOOMVS

OMVS

Specifies z/OS UNIX information for the user profile being changed.

You can control access to the entire OMVS segment or to individual fields within the OMVS segment by using field-level access checking.

ASSIZEMAX | NOASSIZEMAX

ASSIZEMAX(*address-space-size*)

Specifies the RLIMIT_AS hard limit (maximum) resource value that processes receive when they are dubbed a process. The *address-space-size* you define to RACF is a numeric value from 10485760 - 2 147 483 647. ASSIZEMAX indicates the address space region size in bytes. The soft limit (current) resource value is obtained from MVS. If the soft limit value from MVS is greater than the address space size, the soft limit is used.

The value specified for ASSIZEMAX is also used when processes are initiated by a daemon process using an exec after `setuid()`. In this case, both the RLIMIT_AS hard limit and soft limit are set to the *address-space-size* value.

The value specified for ASSIZEMAX overrides any value provided by the MAXASSIZE parameter of BPXPRMxx. For more information, see *z/OS UNIX System Services Planning*.

NOASSIZEMAX

Specifies that you want to delete the address space size from the OMVS segment of the user's profile. The value specified for MAXASSIZE in BPXPRMxx now applies to the user.

AUTOUID | UID | NOUID

Specifies whether RACF is to automatically assign an unused UID value to the user, if a specific UID value is to be assigned or if the user identifier from the OMVS segment of the user's profile is to be deleted.

AUTOUID

Specifies that RACF is to automatically assign an unused UID value to the user. The UID value is derived from information obtained from the BPX.NEXT.USER profile in the FACILITY class. For more information on setting up BPX.NEXT.USER, see *z/OS Security Server RACF Security Administrator's Guide*.

If you are using RRSF automatic command direction for the USER class, the command sent to other nodes will contain an explicit assignment of the UID value which was derived by RACF on the local node.

Rules:

- AUTOUID cannot be specified if more than one user ID is entered.
- The AUTOUID keyword is mutually exclusive with the SHARED keyword.
- If both UID and AUTOUID are specified, AUTOUID is ignored.
- If both NOUID and AUTOUID are specified, AUTOUID is ignored.
- Field-level access checking for the UID field applies when using AUTOUID.
- AUTOUID cannot be used to reassign a UID value when one already exists for the user. If AUTOUID is specified, but the user already has a UID assigned, one of two things will happen.
  - If the preexisting UID is unique to this user, this value will be identified in informational message IRR52177I, and the value remains unchanged. If RRSF automatic command direction is in effect for the USER class, then the outbound ALTUSER command will be altered to contain the preexisting UID value in the OMVS UID keyword.
  - If the preexisting UID is not unique to this user, error message IRR52178I will be issued, and the command will fail. See IRR52178I for information on changing the user's existing UID value.

UID(*user-identifier*) [SHARED]

UID(*user-identifier*)

Specifies the user identifier. The UID is a numeric value from 0 - 2 147 483 647.

When assigning a UID to a user, you should make sure that the user's default group has a GID. A user who has a UID and a current connect group that has a GID can use functions such as the TSO/E OMVS command and can access z/OS UNIX files based on the UID and GID values assigned.

Care should be taken in assigning 0 as the user identifier. UID 0 is considered a superuser. The superuser passes all z/OS UNIX security checks. Assigning a UID to a user ID that appears in the RACF started procedures table (ICHRIN03) should also be done with care. RACF defined started tasks that have the trusted or privileged attribute are considered superusers even if their UID is a value other than 0.

If the UID is not specified, the user is unable to become a z/OS UNIX user and a LISTUSER for that user ID shows NONE for the UID.

Note:

1. If the security administrator has defined the SHARED.IDS profile in the UNIXPRIV class, the UID value must be unique. Use the SHARED keyword in addition to UID to assign a value that is already in use.
2. If SHARED.IDS is not defined, RACF does not require the UID to be unique. The same value can be assigned to multiple users but this is not recommended because

individual user control would be lost. However, if you want a set of users to have exactly the same access to z/OS UNIX resources, you might decide to assign the same UID to more than one user.

3. The maximum number of user IDs that can share a UID or groups that can share a GID is 132 at 8 characters. More user IDs or groups are available using less than 8 characters. If the limit is met, you can combine user ID functions (for started tasks or daemons) to use physically less user IDs sharing the same UID. You may also use SUPERUSER granularity functionality to reduce the need for SUPERUSER (using UID 0) for as many user IDs as possible.

SHARED

If the security administrator has chosen to control the use of shared UIDs, this keyword must be used in addition to the UID keyword to specify the user identifier if it is already in use by at least one other user. The administrator controls shared UIDs by defining the SHARED.IDS profile in the UNIXPRIV class.

Rules:

- If the SHARED.IDS profile is not defined, SHARED is ignored.
- If SHARED is specified in the absence of UID, it is ignored.
- If the SHARED.IDS profile is defined and SHARED is specified, but the value specified with UID is not currently in use, SHARED is ignored and UNIXPRIV authority is not required.
- Field-level access checking for the UID field applies when using SHARED.
- The SHARED keyword is mutually exclusive with the AUTOUID keyword.

NOUID

Specifies that you want to delete the user identifier from the OMVS segment of the user's profile.

If NOUID is specified, the user is unable to become a z/OS UNIX System Services user and a LISTUSER for that user ID shows NONE for the UID.

CPUTIMEMAX | NOCPUTIMEMAX

CPUTIMEMAX(*cpu-time*)

Specifies the RLIMIT_CPU hard limit (maximum) resource value that the user's z/OS UNIX processes receive when they are dubbed a process. The *cpu-time* you define to RACF is a numeric value from 7 - 2 147 483 647. RLIMIT_CPU indicates the *cpu-time* that a process is allowed to use, in seconds. The soft limit (current) is obtained from MVS. If the soft limit (current) resource value from MVS is greater than the *cpu-time* value, the soft limit is used.

The value specified for CPUTIMEMAX is also used when processes are initiated by a daemon process using an exec after `setuid()`. In this case, both the RLIMIT_CPU hard and soft limits are set to the *cpu-time* value.

For processes running in, or forked from TSO or BATCH, the *cpu-time* value has no effect. For processes created by the rlogin command or other daemons, *cpu-time* is the time limit for the address space.

The value specified for CPUTIMEMAX overrides any value provided by the MAXCPUTIME parameter of BPXPRMxx. For more information, see *z/OS UNIX System Services Planning*.

NOCPUTIMEMAX

Specifies that you want to delete the CPU time from the OMVS segment of the user's profile. The value specified for MAXCPUTIME in BPXPRMxx now applies to the user.

FILEPROCMAX | NOFILEPROCMAX

FILEPROCMAX(*files-per-process*)

Specifies the maximum number of files the user is allowed to have concurrently active or open. The *files-per-process* you define to RACF is a numeric value from 3 and 524287. FILEPROCMAX is the same as the OPEN_MAX variable defined in the POSIX standard.

FILEPROCMAX lets you limit the amount of system resources available to a user process. Select FILEPROCMAX by considering:

- For conformance to standards, set FILEPROCMAX to:
  - At least 16 to conform to the POSIX standard
  - At least 25 to conform to the FIPS standard
- The commonly recommended value is 256.
- A process can change its own value for the number of files it has active or open using the `setrlimt()` function. Only processes with appropriate privileges can increase their limits.
- The minimum value of 3 supports the standard files for a process: standard input, standard output, and standard error.
- The value needs to be larger than 3 to support z/OS UNIX shell users. If the value is too small, the z/OS UNIX shells might issue the message `File descriptor not available`.

The value specified for FILEPROCMAX overrides any value provided by the MAXFILEPROC parameter of BPXPRMxx. For more information, see *z/OS UNIX System Services Planning*.

NOFILEPROCMAX

Specifies that you want to delete the files per process from the OMVS segment of the user's profile. The value specified for MAXFILEPROC in BPXPRMxx now applies to the user.

HOME | NOHOME

HOME(*directory-pathname*)

Specifies the z/OS UNIX directory path name. This is the current working directory for the user's process when the user enters the TSO/E command OMVS.

When you define a directory path name to RACF, it can contain 1 - 1023 characters. The directory path name can consist of any characters and can be entered with or without single quotation marks. The following rules apply:

- If parentheses, commas, blanks, or semicolons are to be entered as part of the path name, the character string must be enclosed in single quotation marks.
- If a single quotation mark is intended to be part of the path name, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered. The fully qualified path name should be specified. RACF does not ensure that a valid path name has been specified. If you issue the ALTUSER command as a RACF operator command and you specify the path name in lowercase, you must include the path name within single quotations.

NOHOME

Specifies that you want to delete the initial directory path name from the OMVS segment of the user's profile.

If no value is specified for HOME in the OMVS segment, MVS sets the working directory for the user to / (the root directory).

MEMLIMIT | NOMEMLIMIT

MEMLIMIT(*nonshared-memory-size*)

Specifies the maximum number of bytes of nonshared memory that can be allocated by the user. The *nonshared-memory-size* value must be numeric 0 - 16777215, followed by the letter M, G, T, or P. The M, G, T or P letter indicates the multiplier to be used. The maximum value is 16383P.

Byte multiplier label	Decimal	Binary	Hexadecimal
M—megabyte	1048576	2^{20}	00000000 00100000
G—gigabyte	1073741824	2^{30}	00000000 40000000
T—terabyte	1099511627776	2^{40}	00000100 00000000
P—petabyte	1125899906842624	2^{50}	00040000 00000000

The following are different MEMLIMIT(*nonshared-memory-size*) examples:

- `MEMLIMIT(1M)` indicates a nonshared-memory-size of 1048576 bytes.
- `MEMLIMIT(1500M)` indicates a nonshared-memory-size of 1572864000 bytes.
- `MEMLIMIT(10G)` indicates a nonshared-memory-size of 10737418240 bytes.

For more extensive information, see *z/OS UNIX System Services Planning*.

NOMEMLIMIT

Specifies that you want to delete the nonshared memory size from the OMVS segment of the user's profile.

MMAPAREAMAX | NOMMAPAREAMAX

MMAPAREAMAX(*memory-map-size*)

Specifies the maximum amount of data space storage, in pages, that can be allocated by this user for memory mappings of z/OS UNIX files. Storage is not allocated until memory mappings are active. The value of *memory-map-size* must be 1 - 16777216.

Use of memory map services consumes a significant amount of system memory. For each page (4KB) that is memory mapped, 96 bytes of ESQA are consumed when a file is not shared with any other users. When a file is shared by multiple users, each user after the first causes 32 bytes of ESQA to be consumed for each shared page. The ESQA storage is consumed when the `mmap()` function is invoked by the application program.

The value specified for MMAPAREAMAX overrides any value provided by the MAXMMAPAREA parameter of BPXPRMxx. For more information, see *z/OS UNIX System Services Planning*.

NOMMAPAREAMAX

Specifies that you want to delete the memory map size from the OMVS segment of the user's profile. The value specified for MAXMMAPAREA in BPXPRMxx now applies to the user.

PROCUSERMAX | NOPROCUSERMAX

PROCUSERMAX(*processes-per-UID*)

Specifies the maximum number of processes this user is allowed to have active at the same time, regardless of how the process became a z/OS UNIX process. The *processes-per-UID* you define to RACF is a numeric value from 3 and 32767. PROCUSERMAX is the same as the CHILD_MAX variable defined in the POSIX standard.

PROCUSERMAX allows you to limit user activity to optimize performance. Select PROCUSERMAX by considering:

- For conformance to standards, set PROCUSERMAX to:
  - At least 16 to conform to the POSIX standard
  - At least 25 to conform to the FIPS standard
- A user with a UID of 0 is not limited by the PROCUSERMAX value because a superuser might need to be capable of logging on and using z/OS UNIX services to solve a problem.
- A low PROCUSERMAX value limits the number of concurrent processes that the user can run. A low value also limits the user's consumption of processing time, virtual storage, and other system resources.
- Some daemons run without UID 0, and can create many address spaces. In these cases, it is necessary to set the limit high enough for the daemon associated with this user ID to run all of its processes.

Though not recommended, the same OMVS UID can be given to more than one user ID. If users share a UID, you need to define a greater number for PROCUSERMAX.

The value specified for PROCUSERMAX overrides any value provided by the MAXPROCUSER parameter of BPXPRMxx. For more information, see *z/OS UNIX System Services Planning*.

NOPROCUSERMAX
Specifies that you want to delete the processes per UID from the OMVS segment of the user's profile. The value specified for MAXPROCUSER in BPXPRMxx now applies to the user.

SHMEMMAX | NOSHMEMMAX

SHMEMMAX(*shared-memory-size*)
Specifies the maximum number of bytes of shared memory that can be allocated by the user. The *shared-memory-size* value must be numeric 1 - 16777215, followed by the letter M, G, T, or P. The M, G, T, or P letter indicates the multiplier to be used. The maximum value is 16383P.

Byte multiplier label	Decimal	Binary	Hexadecimal
M—megabyte	1048576	2^{20}	00000000 00100000
G—gigabyte	1073741824	2^{30}	00000000 40000000
T—terabyte	1099511627776	2^{40}	00000100 00000000
P—petabyte	1125899906842624	2^{50}	00040000 00000000

The following are different SHMEMMAX(*shared-memory-size*) examples:

- SHMEMMAX(1M) indicates a shared-memory-size of 1048576 bytes.
- SHMEMMAX(1500M) indicates a shared-memory-size of 1572864000 bytes.
- SHMEMMAX(10G) indicates a shared-memory-size of 10737418240 bytes.

The value specified for SHMEMMAX overrides any value provided by the IPCSHMMPAGES parameter of BPXPRMxx. For more information, see *z/OS UNIX System Services Planning*.

NOSHMEMMAX
Specifies that you want to delete the shared memory size from the OMVS segment of the user's profile. The value specified for IPCSHMMPAGES in BPXPRMxx now applies to the user.

THREADSMAX | NOTHREADSMAX

THREADSMAX(*threads-per-process*)

Specifies the maximum number of threads, including those running, queued, and exited but not detached, that this user can have concurrently active. The *threads-per-process* you define to RACF is a numeric value from 0 - 100000. Specifying a value of 0 prevents applications run by this user from using the `pthread_create` service.

The value specified for THREADSMAX overrides any value provided by the MAXTHREADS parameter of BPXPRMxx. For more information, see *z/OS UNIX System Services Planning*.

NOTHREADSMAX

Specifies that you want to delete the threads per process from the OMVS segment of the user's profile. The value specified for MAXTHREADS in BPXPRMxx now applies to the user.

PROGRAM | NOPROGRAM

PROGRAM(*program-name*)

Specifies the PROGRAM path name (z/OS UNIX shell program). This is the first program started when the TSO/E command OMVS is entered or when a batch job is started using the BPXBATCH program.

When you define a PROGRAM path name to RACF, it can contain 1 - 1023 characters. The PROGRAM path name can consist of any characters and can be entered with or without single quotation marks. The following rules apply:

- If parentheses, commas, blanks, or semicolons are to be entered as part of the path name, the character string must be enclosed in single quotation marks.
- If a single quotation mark is intended to be part of the path name, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered. The fully qualified path name should be specified. RACF does not ensure that a valid path name has been specified. If you issue the ALTUSER command as a RACF operator command and you specify the path name in lowercase, you must include the path name within single quotations.

NOPROGRAM

Specifies that you want to delete the z/OS UNIX System Services program path name from the OMVS segment of the user's profile.

If no value is specified for PROGRAM in the OMVS segment, MVS gives control to the default z/OS UNIX shell program when the user issues the TSO/E command OMVS or starts a batch job using the BPXBATCH program.

For more information about the default z/OS UNIX shell program supplied with z/OS UNIX System Services, see *z/OS UNIX System Services Planning* and *z/OS UNIX System Services User's Guide*.

NOOMVS

Specifies that RACF delete the OMVS segment from the user's profile.

OPERATIONS | NOOPERATIONS

OPERATIONS

Specifies that the user is to have authorization to do maintenance operations on all RACF-protected DASD data sets, tape volumes, and DASD volumes except those where the access list specifically limits the OPERATIONS user to an access authority that is less than the operation requires.

You establish the lower access authority for the OPERATIONS user with the PERMIT command. OPERATIONS on the ALTUSER command overrides NOOPERATIONS on the CONNECT command.

You must have the SPECIAL attribute to use the OPERATIONS operand.

NOOPERATIONS

Specifies that the user is not to have the OPERATIONS attribute.

You must have the SPECIAL attribute to use the NOOPERATIONS operand.

OPERPARM | NOOPERPARM

OPERPARM

Specifies default information used when this user establishes an extended MCS console session.

You can control access to the entire OPERPARM segment or to individual fields within the OPERPARM segment by using field-level access checking. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

For information on planning how to use OPERPARM segments, see *z/OS MVS Planning: Operations*.

Note:

1. You need not specify every suboperand in an OPERPARM segment. In general, if you omit a suboperand, the default is the same as the default in the CONSOLxx PARMLIB member, which can also be used to define consoles.
2. If you specify MSCOPE or ROUTCODE but do not specify a value for them, RACF uses MSCOPE(*ALL) and ROUTCODE(NONE) to update the corresponding fields in the user profile. These values appear in listings of the OPERPARM segment of the user profile.
3. If you omit the other suboperands, RACF does not update the corresponding fields in the user's profile, and no value appears in listings of the OPERPARM segment of the profile.

ALTGRP | NOALTGRP

ALTGRP(*alternate-console-group*)

Specifies the console group used in recovery. The variable *alternate-console-group* can contain 1 - 8 characters. Valid characters are `0 - 9`, `A - Z`, `#` (X'7B'), $ (X'5B'), or `@` (X'7C').

Restriction: Starting with z/OS Version 1 Release 8, console services ignores ALTGRP(*alternate-console-group*) when a session is established and it need not be specified.

NOALTGRP

Deletes alternate console group information from this profile.

AUTH | NOAUTH

AUTH

Specifies this console's authority to issue operator commands.

If you omit this operand, RACF does not alter this field in the user's profile. If this field has not been added to the user's profile, an extended MCS console uses AUTH(INFO) when a session is established.

The console can have the following authorities:

MASTER

Allows this console to act as a master console, which can issue all MVS operator commands. This authority can only be specified by itself.

ALL

Allows this console to issue system control commands, input/output commands, console control commands, and informational commands. This authority can only be specified by itself.

INFO

Allows this console to issue informational commands. This authority can only be specified by itself.

CONS
Allows this console to issue console control and informational commands.

IO
Allows this console to issue input/output and informational commands.

SYS
Allows this console to issue system control commands and informational commands.

NOAUTH
Deletes the user's operator authorities from the profile. Console operator authority no longer appears in profile listings. However, AUTH(INFO) is used when an extended MCS console session is established.

AUTO | NOAUTO

AUTO(YES | NO)
Specifies whether the extended console can receive messages that have been automated by the Message Processing Facility (MPF) in the sysplex.

NOAUTO
Deletes this field from the user's profile. No AUTO information appears in profile listings. However, AUTO(NO) is used when an extended MCS console session is established.

CMDSYS | NOCMDSYS

CMDSYS(*system-name* | *)
Specifies the system to which commands from this console are to be sent.

If you omit this operand, RACF does not alter this field in the user's profile. If this field has not been added to the user's profile, an extended MCS console uses CMDSYS(*) when a session is established. The *system-name* value must be 1 - 8 characters. Valid characters are `A - Z`, `0 - 9`, @ (X'7C'), # (X'7B'), and $ (X'5B'). If (*) is specified, commands are processed on the local system where the console is attached.

NOCMDSYS
Deletes any system-names from this profile. No CMDSYS information appears in profile listings. However, CMDSYS(*) is used when an extended MCS console session is established.

DOM | NODOM

DOM(NORMAL | ALL | NONE)
Specifies which delete operator message (DOM) requests this console can receive.

If you omit this operand, RACF does not alter this field in the user's profile. If this field has not been added to the user's profile, an extended MCS console uses DOM(NORMAL) when a session is established.

NORMAL
The system queues all appropriate DOM requests to this console.

ALL
All systems in the sysplex queue DOM requests to this console.

NONE
No DOM requests are queued to this console.

NODOM
Deletes this field from the user's profile. DOM information no longer appears in profile listings. However, DOM(NORMAL) is used when an extended MCS console session is established.

HC | NOHC

HC(YES | NO)
Specifies whether this console is to receive all messages that are directed to hardcopy. Any route codes specified for a console do not apply to hardcopy messages, so this console receives all hardcopy messages regardless of their specific route code.

NOHC
Deletes this field from the user's profile. z/OS console services uses HC(NO) when a session is established.

INTIDS | NOINTIDS

INTIDS(YES | NO)
Specifies whether this console is to receive messages directed to console ID zero (the internal console). Such messages are usually responses to internally issued commands.

NOINTIDS
Deletes this field from the user's profile. z/OS console services uses INTIDS(NO) when a session is established.

KEY | NOKEY

KEY(*searching-key*)
Specifies a 1 - 8 character name that can be used to display information for all consoles with the specified key by using the MVS command DISPLAY CONSOLES,KEY. If specified, KEY can include `A - Z`, `0 - 9`, # (X'7B'), $ (X'5B'), or @ (X'7C').

If you omit this operand, RACF does not alter this field in the user's profile. If this field has not been added to the user's profile, an extended MCS console uses a KEY value of NONE when a session is established.

NOKEY
Deletes search key information from the user's profile. Search key information no longer appears in profile listings. However, a KEY value of NONE is used when an extended MCS console session is established.

LEVEL | NOLEVEL

LEVEL(*message-level*)
Specifies the messages that this console is to receive.

If you omit this operand, RACF does not alter this field in the user's profile. If this field has not been added to the user's profile, an extended MCS console uses LEVEL(ALL) when a session is established.

The *message-level* variable can be a list of R, I, CE, E, IN, NB or ALL. If you specify ALL, you cannot specify R, I, CE, E, or IN.

NB
The console receives *no* broadcast messages.

ALL
The console receives these messages: R, I, CE, E, IN.

R
The console receives messages requiring an operator reply.

I
The console receives immediate action messages.

CE
The console receives critical eventual action messages.

E
The console receives eventual action messages.

IN
The console receives informational messages.

NOLEVEL

Deletes any defined message levels for this console from the profile. Message information no longer appears in profile listings. However, LEVEL(ALL) is used when an extended MCS console session is established.

LOGCMDRESP | NOLOGCMDRESP

LOGCMDRESP(SYSTEM | NO)

Specifies if command responses are to be logged.

If you omit this operand, RACF does not alter this field in the user's profile. If this field has not been added to the user's profile, an extended MCS console uses LOGCMDRESP(SYSTEM) when a session is established.

SYSTEM

Specifies that command responses are logged in the hardcopy log.

NO

Specifies that command responses are not logged.

NOLOGCMDRESP

Deletes the value for LOGCMDRESP from the profile. Command response logging information no longer appears in profile listings. However, LOGCMDRESP(SYSTEM) is used when an extended MCS console session is established.

MFORM | NOMFORM

MFORM(*message-format*)

Specifies the format in which messages are displayed at the console.

If you omit this operand, RACF does not alter this field in the user's profile. If this field has not been added to the user's profile, an extended MCS console uses MFORM(M) when a session is established.

The *message-format* variable can be a combination of T, S, J, M, and X:

J

Messages are displayed with a job ID or name.

M

The message text is displayed.

S

Messages are displayed with the name of the originating system.

T

Messages are displayed with a time stamp.

X

Messages that are flagged as exempt from job name and system name formatting are ignored.

NOMFORM

Deletes the values for MFORM from the profile and causes message text to be displayed (MFORM(M)) when an extended MCS console session is established.

MIGID | NOMIGID

MIGID(YES | NO)

Specifies whether a 1-byte migration ID is to be assigned to this console or not. The migration ID allows command processors that use a 1-byte console ID to direct command responses to this console.

Restriction: Starting with z/OS Version 1 Release 7, console services ignores MIGID(YES | NO) when a session is established and it need not be specified.

NOMIGID

Deletes this segment from the profile. Migration identification information no longer appears in profile listings. However, MIGID(NO) is assigned when an extended MCS console session is established.

MONITOR | NOMONITOR

MONITOR(*events*)

Specifies which information should be displayed when monitoring jobs, TSO sessions, or data set status.

If you omit this operand, RACF does not alter this field in the user's profile. If this field has not been added to the user's profile, an extended MCS console uses MONITOR(JOBNAMES SESS) when a session is established. The variable *events* can be a list of the following:

JOBNAMES | JOBNAMEST

Displays information about the start and end of each job. JOBNAMES omits the times of job start and job end. JOBNAMEST displays the times of job start and job end.

SESS | SESST

Displays information about the start and end of each TSO session. SESS omits the times of session start and session end. SESST displays the times of session start and session end.

STATUS

Specifies that the information displayed when a data set is freed or unallocated should include the data set status.

NOMONITOR

Deletes job monitor information from the user's profile. Information from this field no longer appears in profile listings. However, MONITOR(JOBNAMES SESS) is used when an extended MCS console session is established.

MSCOPE | ADDMSCOPE | DELMSCOPE | NOMSCOPE

MSCOPE(*system-name ...* | * | *ALL)

Specifies the systems from which this console can receive messages that are not directed to a specific console.

If you omit this operand, RACF does not alter this field in the user's profile. If this field has not been added to the user's profile, an extended MCS console uses MSCOPE(*ALL) when a session is established. If you specify MSCOPE but omit a value, RACF uses MSCOPE(*ALL) as the default to update this field in the user's profile. *ALL appears in listings of the OPERPARM segment of the user's profile.

system-name ...

Is a list of one or more system names, where a system name can be any combination of `A - Z`, `0 - 9`, # (X'7B'), $ (X'5B'), or @ (X'7C').

*****

Is the system on which the console is currently active.

***ALL**

Means all systems.

ADDMSCOPE(*system-name ...*)

Adds the specified system names to the existing list of systems from which this console can receive messages that are not directed to a specific console.

DELMSCOPE(*system-name ...*)

Deletes the specified system names from the existing list of systems from which this console can receive messages that are not directed to a specific console.

NOMSCOPE

Deletes any system name information from the user's profile. Message reception information no longer appears in profile listings. However, MSCOPE(*ALL) is used when an extended MCS console session is established.

ROUTCODE | NOROUTCODE

ROUTCODE(ALL | NONE | *routing-codes*)

Specifies the routing codes of messages this operator is to receive.

If you omit this operand, RACF does not alter this field in the user's profile. If this field has not been added to the user's profile, an extended MCS console uses ROUTCODE(NONE) when a session is established. If you specify ROUTCODE but omit a value, RACF uses ROUTCODE(NONE) to update this field in the user's profile. NONE appears in listings of the OPERPARM segment of the user's profile.

The routing code information can be one of the following:

ALL

Means all routing codes.

NONE

Means no routing codes.

routing-codes

Specifies one or more routing codes or sequences of routing codes. The routing codes can be a list of *n* and *n1*:*n2*, where *n*, *n1*, and *n2* are integers 1 - 128, and *n1*:*n2* represents a range of routing codes from *n1* (low) to *n2* (high).

NOROUTCODE

Deletes routing code information from the user's profile. Routing code information no longer appears in profile listings. However, ROUTCODE(NONE) is used when an extended MCS console session is established.

STORAGE | NOSTORAGE

STORAGE(*amount*)

Specifies the amount of storage in the TSO/E user's address space that can be used for message queuing to this console.

If you omit this operand, RACF does not alter this field in the user's profile. If this field has not been added to the user's profile, an extended MCS console uses STORAGE(1) when a session is established. A value of 0 appears in listings of the user's profile to indicate that no value was specified. The variable *amount* must be a value from 1 - 2000.

NOSTORAGE

Deletes this field from the profile. A value of `0` appears in listings of the user's profile to indicate that no value was specified. However, STORAGE(1) is used when an extended MCS console session is established.

UD | NOUD

UD(YES | NO)

Specifies whether this console is to receive undelivered messages. If you do not specify this operand, RACF does not alter the user's profile.

Restriction: Starting with z/OS Version 1 Release 8, console services ignores UD(YES | NO) when a session is established and it need not be specified.

NOUD

Deletes the field from the profile. Undelivered message information no longer appears in profile listings. However, UD(NO) is used when an extended MCS console session is established.

UNKNIDS | NOUNKNIDS

UNKNIDS(YES | NO)

Specifies whether this console is to receive messages directed to *unknown* console IDs. Unknown consoles are typically one-byte console IDs that the system cannot unambiguously resolve.

NOUNKNIDS

Deletes this field from the user's profile. z/OS console services uses UNKNIDS(NO) when a session is established.

NOOPERPARM

Specifies that the OPERPARM segment is to be deleted. Operator information no longer appears in LISTUSER output.

OVM | NOOVM

Specifies OpenExtensions VM information for the user profile being changed. This data is not relevant to z/OS, but is stored in the RACF database if specified. For more information, see the RACF for z/VM publications.

FSROOT | NOFSROOT

FSROOT(*file-system-root*)

This data is not relevant to z/OS, but is stored in the RACF database if specified. For more information, see the RACF for z/VM publications.

NOFSROOT

This data is not relevant to z/OS, but is stored in the RACF database if specified. For more information, see the RACF for z/VM publications.

HOME | NOHOME

HOME(*initial-directory-name*)

This data is not relevant to z/OS, but is stored in the RACF database if specified. For more information, see the RACF for z/VM publications.

NOHOME

This data is not relevant to z/OS, but is stored in the RACF database if specified. For more information, see the RACF for z/VM publications.

PROGRAM | NOPROGRAM

PROGRAM(*program-name*)

This data is not relevant to z/OS, but is stored in the RACF database if specified. For more information, see the RACF for z/VM publications.

NOPROGRAM

This data is not relevant to z/OS, but is stored in the RACF database if specified. For more information, see the RACF for z/VM publications.

UID | NOUID

UID(*user-identifier*)

This data is not relevant to z/OS, but is stored in the RACF database if specified. For more information, see the RACF for z/VM publications.

NOUID

This data is not relevant to z/OS, but is stored in the RACF database if specified. For more information, see the RACF for z/VM publications.

NOOVM

This data is not relevant to z/OS, but is stored in the RACF database if specified. For more information, see the RACF for z/VM publications.

OWNER(*userid or group-name*)

Specifies a RACF-defined user or group to be assigned as the new owner of the user's profile.

PASSWORD | NOPASSWORD

PASSWORD[(*password*)]

Specifies the user's logon password. Use this command to specify a password for a user who has forgotten his/her password. Unless the NOEXPIRED operand is also specified, this password is set expired, thus requiring the user to change the password at next logon or job start. Note that the password syntax rules your installation defines using SETROPTS PASSWORD do *not* apply to this password unless the NOEXPIRED operand is also included.

If you specify a password value, the password is checked by the new-password exit (ICHPWX01), if present.

If you specify PASSWORD without a value, no password is assigned.

Note:

1. If the installation is maintaining user password history, the password that was in effect prior to issuing this command is stored as part of this history. Note that the password specified is not subject to history checking.
2. When the installation specifies a minimum change interval, RACF checks the number of days between password changes to ensure the minimum required days have elapsed each time users change their own passwords. RACF also checks the days when users change passwords using their IRR.PASSWORD.RESET or IRR.PWRESET authority unless the command issuer has CONTROL authority or higher.

If you enter PASSWORD without a password value, you are prompted for a value unless your TSO session is in NOPROMPT mode. If you are in NOPROMPT mode, or issuing the command from an environment without prompting, the command fails and the user profile(s) is not defined.

If you enter PASSWORD without a password value, you are prompted for a value unless your TSO session is in NOPROMPT mode. If you are in NOPROMPT mode, or issuing the command from an environment without prompting, the command fails, and no updates to the profile(s) occur.

NOPASSWORD

Specifies that the user cannot supply a password when entering the system. If NOOIDCARD is specified, or the user ID has the NOOIDCARD attribute, and NOPHRASE is specified or the user ID does not have a password phrase, and you specify NOPASSWORD, you change the status of the user ID to protected. Protected user IDs cannot be used to enter the system by any means that requires a password to be specified, such as a TSO logon, CICS signon, batch job that specifies a password on the JOB statement. Therefore, user IDs that you assign to z/OS UNIX, UNIX daemons, started procedures, applications, servers or subsystems can be protected from being revoked when an incorrect password is entered. If the user attempts to enter the system with a password, the attempt fails. Note that the protected user ID is not revoked due to the failed password attempts even if the SETROPTS PASSWORD(REVOKE) option is in effect.

Determine which user IDs you want to protect, ensuring that these user IDs is not used in any circumstance where a password must be supplied. A protected user has the PROTECTED attribute displayed in the output of the LISTUSER command. Protected users can be associated with started procedures defined in the STARTED class (preferred method) or in the started procedures table (ICHRIN03).

Note: z/OS Integrated Security Services Network Authentication Service information such as a local *kerberos-principal-name* must not be defined for protected user IDs, and these user IDs must not be used for z/OS Network Authentication Service authentication, because these authentication failures can result in user revocation.

PHRASE | NOPHRASE

PHRASE('*password-phrase*')

Specifies the user's password phrase. The password phrase you define is a text string of up to 100 characters and must be enclosed in single quotation marks. The password phrase is set expired unless NOEXPIRED is also specified.

The following syntax rules apply to all password phrases. You cannot alter these syntax rules but you can specify additional syntax rules if your installation tailors the new-password-phrase exit (ICHPWX11).

Syntax rules for password phrases:

- Maximum length: 100 characters
- Minimum length:
  - 9 characters, when the encryption algorithm is KDFAES or ICHPWX11 is present and allows the new value
  - 14 characters, when ICHPWX11 is not present and the encryption algorithm is not KDFAES
- Must not contain the user ID (as sequential uppercase or sequential lowercase characters)
- Must contain at least 2 alphabetic characters (A - Z, a - z)
- Must contain at least 2 non-alphabetic characters (numerics, punctuation, or special characters)
- Must not contain more than 2 consecutive characters that are identical
- If a single quotation mark is intended to be part of the password phrase, you must use two single quotation marks together for each single quotation mark.

If the new-password-phrase exit (ICHPWX11) is present, it can reject the specified password phrase. RACF allows password phrases greater than 8 characters when the encryption algorithm is KDFAES, however, ICHPWX11 can enforce any minimum length greater than 8.

If the specified password phrase is accepted, it is made the user's current password phrase and, when SETROPTS PASSWORD(HISTORY) is in effect, it is added to the user's password phrase history.

If you enter PHRASE without a *password-phrase* value, you are prompted for a value unless your TSO session is in NOPROMPT mode.

When the installation specifies a minimum change interval, RACF checks the number of days between password phrase changes to ensure the minimum required days have elapsed each time users change their own password phrases. RACF also checks the days when users change password phrases using the IRR.PASSWORD.RESET or IRR.PWRESET authority unless the command issuer has CONTROL authority or higher.

NOPHRASE

Specifies that the user cannot use a password phrase for authentication. If a password phrase was previously set, the password phrase is cleared. The date of the last password phrase change is also cleared from the user's profile. If NOOIDCARD is specified, or the user ID has the NOOIDCARD attribute, and NOPASSWORD is specified or the user ID has the NOPASSWORD attribute, and you specify NOPHRASE, you change the status of the user ID to protected. See NOPASSWORD for more information.

PWCLEAN | PWCONVERT

PWCLEAN

Performs the following functions:

- Removes residual password and password phrase history entries resulting from lowering the **SETROPTS** PASSWORD(HISTORY(*n*)) value.
- Reorganizes the history so that an increase in the **SETROPTS** PASSWORD(HISTORY(*n*)) value takes immediate effect.
- Removes any password history from a user without a password.
- Removes any password phrase history from a user without a password phrase.

When the **SETROPTS** PASSWORD(HISTORY(*n*)) value is lowered, the residual history entries continue to be used by RACF. PWCLEAN removes these entries.

If the **SETROPTS** PASSWORD(HISTORY(*n*)) value is raised, the higher number does not immediately take effect, depending on how many times a user has changed their password or password phrase in the past. PWCLEAN reorganizes the history so that the history change takes effect immediately after using PWCLEAN.

PWCLEAN should be used against all user IDs whenever the **SETROPTS** PASSWORD(HISTORY(*n*)) value is changed. The **SEARCH** command with the CLIST option provides a way of creating a 'utility' to do this.

PWCONVERT

Performs the following functions:

- Performs the PWCLEAN function.
- If KDFAES is active:
  - If the current password is in legacy format, converts it to KDFAES format.
  - Converts any legacy-format password history entries to KDFAES.
- If KDFAES is not active:
  - Deletes any password and password phrase history entries that are in KDFAES format.

PWCONVERT does nothing with the current password phrase. After KDFAES is enabled, the phrase must be changed before it is encrypted with the new algorithm. Likewise, PWCONVERT does nothing with phrase history entries. They remain in their legacy form until they are replaced in the history.

The IRRDBU00 utility reports on the algorithm that is used to encrypt a user's current password and password phrase, including the number of legacy password history entries. This information can be used to determine the exact user IDs needing an update. This allows for a more efficient conversion than **SEARCH** with CLIST.

Attention:

1. The existing current password and password history entries are assumed to be encrypted with DES when PWCONVERT encrypts them using KDFAES. If you use masking, or an installation-defined encryption method by use of an ICHDEX01 exit, do not use PWCONVERT. This results in the user being unable to log on until the password is changed. In addition, it results in unusable history entries. That is, a user is able to reuse a password value that is contained in the password history.
2. When password history entries are converted, they can never be converted back to the legacy format. Thus, they are always more expensive to evaluate, and they are not recognized by any systems not containing KDFAES support.

PROXY | NOPROXY

PROXY

Specifies information which the z/OS LDAP server uses when acting as a proxy on behalf of a requester. The `R_proxyserv` (IRRSPY00) SAF callable service attempts to retrieve this information when it is not explicitly supplied with the invocation parameters. Applications or other services which use the `R_proxyserv` callable service, such as IBM Policy Director Authorization Services for z/OS and OS/390, may instruct their invokers to define PROXY segment information.

LDAPHOST | NOLDAPHOST

LDAPHOST(*ldap_url*)

Specifies the URL of the LDAP server which the z/OS LDAP server contacts when acting as a proxy on behalf of a requester. An LDAP URL has a format such as `ldap://123.45.6:389` or `ldaps://123.45.6:636`, where `ldaps` indicates that an SSL connection is desired for a higher level of security. LDAP also allows you to specify the host name portion of the URL using either the text form (BIGHOST.POK.IBM.COM) or the dotted decimal address (`123.45.6`). The port number is appended to the host name, separated by a colon `:` (X'7A').

For more information about LDAP URLs and how to enable LDAP servers for SSL connections, see *z/OS IBM Tivoli Directory Server Administration and Use for z/OS*.

The LDAP URL that you define to RACF can consist of 10 - 1023 characters. A valid URL must start with either `ldap://` or `ldaps://`. RACF allows any characters to be entered for the remaining portion of the URL, but you should ensure that the URL conforms to TCP/IP conventions. For example, parentheses, commas, blanks, semicolons, and single quotation marks are not typically allowed in a host name. The LDAP URL can be entered with or without single quotation marks, however, in both cases, it is translated to uppercase.

RACF does not ensure that a valid LDAP URL has been specified.

NOLDAPHOST

Deletes the URL of the LDAP server which the z/OS LDAP server contacts when acting as a proxy on behalf of a requester.

BINDDN | NOBINDDN

BINDDN(*bind_distinguished_name*)

Specifies the distinguished name (DN) which the z/OS LDAP server uses when acting as a proxy on behalf of a requester. This DN is used in conjunction with the BIND password, if the z/OS LDAP server needs to supply an administrator or user identity to BIND with another LDAP server. A DN is made up of attribute value pairs, separated by commas. For example:

```
cn=Ben Gray,ou=editing,o=New York Times,c=US
cn=Lucille White,ou=editing,o=New York Times,c=US
cn=Tom Brown,ou=reporting,o=New York Times,c=US
```

When you define a BIND DN to RACF, it can contain 1 - 1023 characters. The BIND DN can consist of any characters and can be entered with or without single quotation marks. The following rules apply:

- If parentheses, commas, blanks, or semicolons are to be entered as part of the BIND DN, the character string must be enclosed in single quotation marks.
- If a single quotation mark is intended to be part of the BIND DN, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered. For more information about LDAP distinguished names, see *z/OS IBM Tivoli Directory Server Administration and Use for z/OS*.

If you issue the ALTUSER command as a RACF operator command and you specify the BIND DN in lowercase, you must include the BIND DN within single quotations.

RACF does not ensure that a valid BIND DN has been specified.

NOBINDDN

Deletes the distinguished name (DN) used by the z/OS LDAP server when acting as a proxy on behalf of a requester.

BINDPW | NOBINDPW

BINDPW

Specifies the password which the z/OS LDAP server is used when acting as a proxy on behalf of a requester.

When you define a BIND password to RACF, it can contain 1 - 128 characters. The BIND password can consist of any characters (see the following exception) and can be entered with or without single quotation marks. The following rules apply:

- The BIND password cannot start with a left brace { character (X'8B').

- If parentheses, commas, blanks, or semicolons are to be entered as part of the BIND password, the character string must be enclosed in single quotation marks.
- If a single quotation mark is intended to be part of the BIND password, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered. For more information about LDAP passwords, see *z/OS IBM Tivoli Directory Server Administration and Use for z/OS*.

If you issue the ALTUSER command as a RACF operator command and you specify the BIND password in lowercase, you must include the BIND password within single quotations.

RACF does not ensure that a valid BIND password has been specified.

Important:

- When the command is issued from ISPF, the TSO command buffer (including possible BINDPW password data) is written to the ISPLOG data set. As a result, you should not issue this command from ISPF or you must control the ISPLOG data set carefully.
- When the command is issued as a RACF operator command, the command and the possible BINDPW password data is written to the system log. Therefore, use of ALTUSER as a RACF operator command should either be controlled or you should issue the command as a TSO command.

NOBINDPW

Deletes the password used by the z/OS LDAP server when acting as a proxy on behalf of a requester.

NOPROXY

Deletes LDAP proxy information.

RESTRICTED | NORESTRICTED

RESTRICTED

Specifies that global access checking is bypassed when resource access checking is performed for the user, and neither ID(*) on the access list nor the UACC will allow access. The RESTRICTED.FILESYS.ACCESS profile in the UNIXPRIV class can also be used to bypass the z/OS UNIX *other* permission bits during file access checking for RESTRICTED users.

Note: If your installation has profiles defined in the PROGRAM class, and the user ID with the RESTRICTED attribute needs to load programs covered by one or more of these profiles, the user ID must be put on the access list with EXECUTE or READ authority.

NORESTRICTED

Specifies that the user does not have the RESTRICTED attribute and access checking is performed the standard way including global access checking, ID(*), the UACC, and the z/OS UNIX 'other' permission bits as appropriate.

RESUME | NORESUME

RESUME[(*date*)]

Specifies that the user is to be allowed to access the system again. You normally use RESUME to restore access to the system that has been prevented by a prior REVOKE.

If you specify a date, RACF prevents the user from accessing the system until the date you specify. The date must be a future date; if it is not, you are prompted to provide a future date.

Between the time you specify the RESUME and the time the RESUME takes effect, the RESUME is called a *pending* resumption (or a pending RESUME).

You specify a date in the form *mm/dd/yy*, and you need not specify leading zeros; specifying `9/1/06` is the same as specifying `09/01/06`. RACF interprets dates as 20*yy* when *yy* is less than

71, and 19*yy* when *yy* is 71 or higher. So, `09/01/94` would be in the year 1994, and `09/01/14` would be in the year 2014.

If you specify RESUME without a date, the RESUME takes effect immediately.

When no REVOKE or pending REVOKE is in effect for the user, the RESUME operand causes RACF to reset the user's inactivity timer by updating the user's last access date.

Note:

1. If you use the ALTUSER command to issue a REVOKE for a user, you must use the ALTUSER command to issue the corresponding RESUME. Issuing RESUME on the CONNECT command does not restore access revoked on the ALTUSER command.
2. If you specify both REVOKE(*date*) and RESUME(*date*), RACF acts on them in date order. For example, if you specify RESUME(8/19/06) and REVOKE(8/5/06), RACF prevents the user from accessing the system from August 5, 2006, to August 18, 2006. On August 19, the user can again access the system.

   If a user is already revoked and you specify RESUME(8/5/06) and REVOKE(8/19/06), RACF allows the user to access the system from August 5, 2006, to August 18, 2006. On August 19, RACF prevents the user from accessing the system.
3. If RACF detects a conflict between REVOKE and RESUME (for example, you specify both without a date), RACF uses REVOKE.
4. To clear the RESUME date field, specify NORESUME.
5. To successfully resume a user whose revoke date has passed, you must specify NOREVOKE to clear the revoke date as well as specifying the RESUME keyword.
6. Downlevel systems sharing the RACF database should not be affected by the changes to REVOKE and RESUME processing. A user who is considered revoked on a z/OS V1R7 system should also be considered revoked on a downlevel system.

NORESUME
Specifies that RACF is to clear the user's RESUME date field. You can use the NORESUME option to cancel the pending resumption (of a user's ID) that resulted from a previous ALTUSER command specified with RESUME(*date*).

REVOKE | NOREVOKE

REVOKE[(*date*)]
Specifies that RACF is to prevent the user from accessing the system. The user's profile is not deleted from the RACF database, and the user's data sets are not deleted from the RACF data set.

If you specify the date, RACF prevents the user from accessing the system, starting on the date you specify. The date must be a future date; if it is not, you are prompted to provide a future date.

Between the time you specify the REVOKE and the time the REVOKE takes effect, the REVOKE is called a *pending* revocation (or a pending REVOKE).

You specify a date in the form *mm/dd/yy*, and you need not specify leading zeros; specifying `9/1/06` is the same as specifying `09/01/06`. RACF interprets dates as 20*yy* when *yy* is less than 71, and 19*yy* when *yy* is 71 or higher. So, `09/01/94` would be in the year 1994, and `09/01/14` would be in the year 2014.

When you specify REVOKE without a date, the following conditions apply:

- The REVOKE takes effect the next time the user tries to log on to the system.
- Any pending RESUME date remains in effect unless you also specify NORESUME.

  Important: To permanently revoke system access, specify both REVOKE and NORESUME.

When a REVOKE is already in effect for the user, RACF ignores the REVOKE operand and issues a message.

Note:

1. Specifying REVOKE on the ALTUSER command overrides RESUME on the CONNECT command.
2. If you specify both REVOKE(*date*) and RESUME(*date*), RACF acts on them in date order. For example, if you specify RESUME(8/19/06) and REVOKE(8/5/06), RACF prevents the user from accessing the system from August 5, 2006, to August 18, 2006. On August 19, the user can again access the system.

   If a user is already revoked and you specify RESUME(8/5/06) and REVOKE(8/19/06), RACF allows the user to access the system from August 5, 2006, to August 18, 2006. On August 19, RACF prevents the user from accessing the system.
3. If RACF detects a conflict between REVOKE and RESUME (for example, you specify both without a date), RACF uses REVOKE.
4. To clear the REVOKE date field, specify NOREVOKE.
5. Downlevel systems sharing the RACF database should not be affected by the changes to REVOKE and RESUME processing. A user who is considered revoked on a z/OS V1R7 system should also be considered revoked on a downlevel system.

NOREVOKE

Specifies that RACF is to clear the user's REVOKE date field. You can use the NOREVOKE option to cancel the pending revocation (of a user's ID) that resulted from a previous ALTUSER command specified with REVOKE(*date*).

To successfully resume a user whose revoke date has passed, you must specify NOREVOKE to clear the revoke date.

The NOREVOKE option does not resume the user ID after it was revoked by the ALTUSER REVOKE command or the user's excessive attempts to use incorrect passwords or password phrases. To successfully resume a user under these circumstances, you must specify the RESUME keyword as well.

ROAUDIT | NOROAUDIT

ROAUDIT

Specifies that the user is to have full responsibility for auditing the use of system resources.

You must have the SPECIAL attribute to enter the ROAUDIT operand.

NOROAUDIT

Specifies that the user no longer has the ROAUDIT attribute.

You must have the SPECIAL attribute to enter the NOROAUDIT operand.

SECLABEL | NOSECLABEL

SECLABEL(*seclabel-name*)

Specifies the user's default security label where *seclabel-name* is an installation-defined security label that represents an association between a particular security level and a set of zero or more security categories.

A security label corresponds to a particular security level (such as CONFIDENTIAL) with a set of zero or more security categories (such as PAYROLL or PERSONNEL).

When no profile in the SECLABEL class exists for *seclabel-name*, an error message is issued and the user's security label is not changed.

NOSECLABEL

Specifies that the ALTUSER command is to delete any security label contained in the user profile.

SECLEVEL | NOSECLEVEL

SECLEVEL(*seclevel-name*)

Specifies the user's security level, where *seclevel-name* is an installation-defined name that must be a member of the SECLEVEL profile in the SECDATA class. The security level name that you specify corresponds to the number of the minimum security level that a user must have to access the resource.

When you specify SECLEVEL and the SECDATA class is active, RACF adds security level access checking to its other authorization checking. If global access checking does not grant access, RACF compares the security level allowed in the user profile with the security level required in the resource profile. If the security level in the user profile is less than the security level in the resource profile, RACF denies the access. If the security level in the user profile is equal to or greater than the security level in the resource profile, RACF continues with other authorization checking.

Note: RACF does not perform security level checking for a started task or user that has the RACF privileged or trusted attribute. The RACF privileged or trusted attribute can be assigned to a started task through the RACF started procedures table or STARTED class, or to other users by installation-supplied RACF exits.

When the SECDATA class is not active, RACF ignores this operand. When the SECLEVEL profile does not include a member for *seclevel-name*, you are prompted to provide a valid security level name.

NOSECLEVEL

Specifies that the ALTUSER command is to delete any security level contained in the user profile. The user no longer has access to any resource that requires a requester to have a certain security level.

SPECIAL | NOSPECIAL

SPECIAL

Specifies that the user is to be allowed to issue all RACF commands with all operands except the operands that require the AUDITOR attribute. SPECIAL specified on the ALTUSER command overrides NOSPECIAL specified on the CONNECT command.

You must have the SPECIAL attribute to use the SPECIAL operand.

NOSPECIAL

Specifies that the user no longer has the SPECIAL attribute.

You must have the SPECIAL attribute to use the NOSPECIAL operand.

TSO | NOTSO

TSO

Specifies that when you change the profile of a TSO user, you can enter any of the following suboperands to add or change default TSO logon information for that user. Each suboperand defines information that RACF stores in a field within the TSO segment of the user's profile.

You can control access to an entire TSO segment or to individual fields within the TSO segment by using field-level access checking. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

ACCTNUM | NOACCTNUM

ACCTNUM(*account-number*)

Specifies the user's default TSO account number when logging on from the TSO/E logon panel. The account number you specify must be defined as a profile in the ACCTNUM general resource class, and the user must be granted READ access to the profile. Otherwise, the user cannot log on to TSO using the specified account number.

Account numbers can consist of any characters, and can be entered with or without single quotation marks. The following rules apply:

- If parentheses, commas, blanks, and semicolons are to be entered as part of the account number, the character string must be enclosed in single quotation marks. For example, if the account number is `(123)`, you must enter `ACCTNUM('(123)')`.
- If a single quotation mark is intended to be part of the account number, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

A user can change an account number, or specify an account number if one has not been specified, using the TSO/E logon panel. RACF checks the user's authorization to the specified account number. If the user is authorized to use the account number, RACF stores the account number in the TSO segment of the user's profile, and TSO/E uses it as a default value the next time the user logs on to TSO/E. Otherwise, RACF denies the use of the account number.

Note: When you define an account number on TSO, you can specify 1 - 40 characters. When you define a TSO account number to RACF, you can specify only 1 - 39 characters.

NOACCTNUM

Specifies that you want to delete the user's default account number. If you delete the default account number from a user's profile, RACF uses a default value consistent with current TSO defaults when the user logs on to TSO.

COMMAND | NOCOMMAND

COMMAND(*command-issued-at-logon*)

Specifies the command to be run during TSO/E logon. TSO/E uses this field to prime the COMMAND field of the logon panel. The command value can contain 1 - 80 characters and consist of any characters. You can enter the value with or without single quotation marks depending on the following rules:

- If the command value contains parentheses, commas, blanks, or semicolons, enclose the character string in single quotation marks. For example, if the command value is `(123)`, you must enter `COMMAND('(123)')`.
- If a single quotation mark is intended to be part of the command value, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered. A user can change the command value, or specify a command if one has not been specified, using the TSO/E logon panel.

Note: It is recommended that you use this command for a user who is logged off. If you change the command value for a currently logged-on user ID, the change is overwritten by the TSO/E logoff command processor when the user ID is logged off.

NOCOMMAND

Deletes any COMMAND data that was previously saved in the RACF database for this user ID.

Note: When you delete this field for a currently logged-on user ID, the field is overwritten by the TSO/E logoff command processor when the user ID is logged off.

DEST | NODEST

DEST(*destination-id*)

Specifies the default destination to which the user can route dynamically allocated SYSOUT data sets. The specified value must be 1 - 7 alphanumeric characters, beginning with an alphabetic or national character.

NODEST

Specifies that you want to remove any default destination information for this user. Without explicit action by the user to route SYSOUT, the SYSOUT for this user is printed at your system default print location.

HOLDCLASS | NOHOLDCLASS

HOLDCLASS(*hold-class*)

Specifies the user's default hold class. The specified value must be 1 alphanumeric character, excluding national characters.

If you specify the TSO operand on the ALTUSER command but do not specify a value for HOLDCLASS, RACF uses a default value consistent with current TSO defaults.

NOHOLDCLASS
Specifies that you want to delete the default hold class from the TSO segment of the user's profile. If you delete the default hold class from a user's profile, RACF uses a default value consistent with current TSO defaults when the user logs onto TSO.

JOBCLASS | NOJOBCLASS

JOBCLASS(*job-class*)
Specifies the user's default job class. The specified value must be 1 alphanumeric character, excluding national characters.

If you specify the TSO operand on the ALTUSER command but do not specify a value for JOBCLASS, RACF uses a default value consistent with current TSO defaults.

NOJOBCLASS
Specifies that you want to delete the default job class from the TSO segment of the user's profile. If you delete the default job class from a user's profile, RACF uses a default value consistent with current TSO defaults when the user logs on to TSO.

MAXSIZE | NOMAXSIZE

MAXSIZE(*maximum-region-size*)
Specifies the maximum region size that the user can request at logon. The maximum region size is the number of 1024-byte units of virtual storage that TSO can create for the user's private address space. The specified value must be an integer 0 - 2096128.

Note: Entering the integer '0' for this parameter results in a "non value" entry for the parameter, not a 'zero' value.

If you specify the TSO operand on the ALTUSER command but do not specify a value for MAXSIZE, or specify MAXSIZE(0), RACF uses a default value consistent with current TSO defaults.

If values are specified for both MAXSIZE and SIZE and SIZE is greater than MAXSIZE, RACF sets SIZE equal to MAXSIZE. If a value is specified for only SIZE or MAXSIZE and SIZE is greater than MAXSIZE, the operand is ignored.

NOMAXSIZE
Specifies that you want to delete the maximum region size from the TSO segment of the user's profile. If you delete the maximum region size from a user's profile, RACF uses a default value consistent with current TSO defaults when the user logs on to TSO.

MSGCLASS | NOMSGCLASS

MSGCLASS(*message-class*)
Specifies the user's default message class. The specified value must be one alphanumeric character, excluding national characters.

If you specify the TSO operand on the ALTUSER command but do not specify a value for MSGCLASS, RACF uses a default value consistent with current TSO defaults.

NOMSGCLASS
Specifies that you want to delete the default message class from the TSO segment of the user's profile. If you delete the default message class from a user's profile, RACF uses a default value consistent with current TSO defaults when the user logs on to TSO.

PROC | NOPROC

PROC(*logon-procedure-name*)
Specifies the name of the user's default logon procedure when logging on through the TSO/E logon panel. The name you specify must be 1 - 8 alphanumeric characters and begin with an alphabetic character. The name must also be defined as a profile in the TSOPROC general resource class, and the user must be granted READ access to the profile. Otherwise, the user cannot log on to TSO using the specified logon procedure.

A user can change a logon procedure, or specify a logon procedure if one has not been specified, using the TSO/E logon panel. RACF checks the user's authorization to the specified logon procedure. If the user is authorized to use the logon procedure, RACF stores the name of the procedure in the TSO segment of the user's profile, and TSO/E uses it as a default value the next time the user logs on to TSO/E. Otherwise, RACF denies the use of the logon procedure.

NOPROC
Specifies that you want to delete the default logon procedure from the TSO segment of the user's profile. If you delete the default logon procedure from a user's profile, RACF uses a default value consistent with current TSO defaults when the user logs on to TSO.

SECLABEL | NOSECLABEL

SECLABEL(*security-label*)
Specifies the user's security label if the user specifies one on the TSO logon panel.

NOSECLABEL
Specifies that you want to delete the security label from the TSO segment of the user's profile. If you delete the security label from a user's TSO segment, RACF uses the security label in the user's profile the next time the user logs on to TSO.

SIZE | NOSIZE

SIZE(*default-region-size*)
Specifies the minimum region size if the user does not request a region size at logon. The default region size is the number of 1024-byte units of virtual storage available in the user's private address space at logon. The specified value must be an integer 0 - 2096128.

Note: Entering the integer '0' for this parameter results in a "non value" entry for the parameter, not a 'zero' value.

A user can change a minimum region size, or specify a minimum region size if one has not been specified, using the TSO/E logon panel. RACF stores this value in the TSO segment of the user's profile, and TSO/E uses it as a default value the next time the user logs on to TSO/E.

If values are specified for both MAXSIZE and SIZE and SIZE is greater than MAXSIZE, RACF sets SIZE equal to MAXSIZE. If a value is specified for only SIZE or MAXSIZE and SIZE is greater than MAXSIZE, the operand is ignored.

NOSIZE
Specifies that you want to delete the default minimum region size from the TSO segment of the user's profile. If you delete the default minimum region size from a user's profile, RACF uses a default value consistent with current TSO defaults when the user logs on to TSO.

SYS | NOSYS

SYS(*sysout-class*)
Specifies the user's default SYSOUT class. The specified value must be one alphanumeric character, excluding national characters.

If you specify the TSO operand on the ALTUSER command but do not specify a value for SYS, RACF uses a default value consistent with current TSO defaults.

NOSYS
Specifies that you want to delete the default SYSOUT class from the TSO segment of the user's profile. If you delete the default SYSOUT class from a user's profile, RACF uses a default value consistent with current TSO defaults when the user logs on to TSO.

UNIT | NOUNIT

UNIT(*unit-name*)
Specifies the default name of a device or group of devices that a procedure uses for allocations. The specified value must be 1 - 8 alphanumeric characters.

NOUNIT

Specifies that you want to delete the default name of a device or group of devices that a procedure uses for allocations from the TSO segment of the user's profile. If you delete this name from a user's profile, RACF uses a default value consistent with current TSO defaults when the user logs on to TSO.

USERDATA | NOUSERDATA

USERDATA(*user-data*)

Specifies optional installation data defined for the user. The specified value must be 4 EBCDIC characters; valid characters are `0 - 9` and `A - F`.

Note: When you change this value for a currently logged-on user ID, the change is overwritten by the TSO logoff command processor when the user ID is logged off.

NOUSERDATA

Specifies that you want to delete the installation data previously defined for a user.

NOTSO

Specifies that you are revoking a user's authority to use TSO. RACF deletes TSO logon information from the RACF database for the specified user. However, if the user ID is currently logged on, when the user issues the LOGOFF command the TSO logoff processor restores the TSO segment with default values (except for the USERDATA field which is set to the user's current value). To prevent the TSO segment from being restored, the user ID should be logged off before issuing the ALTUSER NOTSO command.

When you specify NOTSO, the result is the same as if you issue the TSO ACCOUNT command with the DELETE subcommand.

UACC(*access-authority*)

Specifies the new default universal access authority for all new resource profiles the user defines while the user's default group or the group specified in the GROUP operand is the user's current connect group. The universal access authorities are ALTER, CONTROL, UPDATE, READ, and NONE. (RACF does not accept EXECUTE access authority with the ALTUSER command.) If you specify UACC without a value, RACF ignores the operand.

This operand is group-related. If a user is subsequently connected to other groups (with the CONNECT command), the user can have a different default universal access authority in each group. Therefore, if the user specifies a different group at logon time or at batch job execution, the user's default UACC is the UACC of the specified group, not the UACC of the user's default group.

UAUDIT | NOUAUDIT

UAUDIT

Specifies that RACF is to log the following events:

- All RACF commands (except LISTDSD, LISTGRP, LISTUSER, RLIST and SEARCH) issued by this user
- All additions, changes, or deletions that the user makes to RACF profiles using RACROUTE REQUEST=DEFINE requests
- All attempts that the user makes to access RACF-protected resources, except those authorized by global access checking and those not logged because the resource manager (issuer of the RACROUTE REQUEST=AUTH or RACROUTE REQUEST=FASTAUTH request) specified no logging
- All security decisions made during RACF callable services involving this user and any resource in certain z/OS UNIX classes. For a list of these classes, see Auditing for z/OS UNIX System Services in *z/OS Security Server RACF Auditor's Guide*.

You must have the AUDITOR attribute, or the user profile must be within the scope of a group in which you have the group-AUDITOR attribute, in order to enter the UAUDIT operand.

If an unauthorized user specifies UAUDIT on the ALTUSER command, none of the operands on the command is processed. RACF issues ICH21005I `NOT AUTHORIZED TO SPECIFY UAUDIT, OPERAND IGNORED`. The **System Action** states `RACF ignores the operand and` `continues processing with the next operand`. RACF verifies other operands, but does not process any of them. For more information, see *z/OS Security Server RACF Messages and Codes*.

NOUAUDIT

Specifies that no UAUDIT logging is to be performed. This operand does not override any other auditing options (for example, CMDVIOL specified on SETROPTS) that might be in effect.

You must have the AUDITOR attribute, or the user profile must be within the scope of a group in which you have the group-AUDITOR attribute, to enter the NOUAUDIT operand.

WHEN

Specifies the days of the week and the hours in the day when the user is allowed to access the system from a terminal. The day-of-week and time restrictions apply only when a user logs on to the system; that is, RACF does not force the user off the system if the end-time occurs while the user is logged on. Also, the day-of-week and time restrictions do not apply to batch jobs; the user can submit a batch job on any day and at any time.

If you specify the WHEN operand, you can restrict the user's access to the system to certain days of the week and to a certain time period within each day. For example, you can restrict a user's access to any one of the following:

- From 9:00 a.m. to 5:00 p.m. (`0900:1700`). (This would be a daily restriction because days were not also specified.)
- Monday through Friday. (This restriction applies for all 24 hours of Monday, Tuesday, Wednesday, Thursday, and Friday.)
- Monday through Friday from 9:00 a.m. to 5:00 p.m. (`0900:1700`)

DAYS(*day-info*)

Specifies days of the week when a user can access the system. The *day-info* value can be any one of the following:

ANYDAY

Specifies that the user can access the system on any day.

WEEKDAYS

Specifies that the user can access the system only on weekdays (Monday through Friday).

day ...

Specifies that the user can access the system only on the days specified, where day can be MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, or SUNDAY, and you can specify the days in any order.

Restriction: You cannot specify more than one combination of days and times, even through multiple ALTUSER commands.

- **Example**:

```
ALTUSER USER127 WHEN(DAYS(MONDAY TUESDAY) TIME(0100:0500))
ALTUSER USER127 WHEN(DAYS(THURSDAY) TIME(0200:0500))
```

- **Result**:

USER127 is allowed to access the system only on Thursday 2:00 - 5:00. The preceding `DAYS(MONDAY TUESDAY)` and `TIME(0100:0500)` operands are overwritten.

TIME(*time-info*)

Specifies the time period each day when a user can access the system. The *time-info* value can be any one of the following:

ANYTIME

Specifies that the user can access the system at any time.

start-time*:*end-time

Specifies that the user can access the system only during the specified time period. The format of both *start-time* and *end-time* is *hhmm*, where *hh* is the hour in 24-hour notation (00 - 23) and *mm* is the minutes (00 - 59). Note that `0000` is not a valid time value.

If *start-time* is greater than *end-time*, the interval spans midnight and extends into the following day.

If you omit DAYS and specify TIME, the time restriction applies to any day-of-week restriction already indicated in the profile. If you omit TIME and specify DAYS, the day restriction applies to the time restriction already indicated in the profile. If you specify both DAYS and TIME, the user can access the system only during the specified time period and only on the specified days.

If you omit both DAYS and TIME, the time and day restriction remains as it was in the profile.

WORKATTR | NOWORKATTR

WORKATTR

Specifies the user-specific attributes of a unit of work.

z/OS elements or features such as APPC, WLM, and z/OS UNIX might use the WORKATTR segment.

These operands are used by APPC/MVS for SYSOUT created by APPC transactions.

WAACCNT(*account-number*) | NOWAACCNT

Specifies an account number for APPC/MVS processing.

You can specify a maximum of 255 EBCDIC characters. Use the following rules when entering a value for this field:

- If the data contains parentheses, commas, blanks, or semicolons, enclose the character string in single quotation marks. For example, if the data is `(123)`, you must enter `WAACCNT'(123)'`.
- If a single quotation mark is intended to be part of the data, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

The `NOWAACCNT` suboperand deletes the account number from the user profile.

WAADDR*n*(*address-line-n*) | NOWAADDR*n*

Where *n* can be 1 - 4, *address-line-n* specifies other address lines for SYSOUT delivery. For each line of the address you can specify a maximum of 60 EBCDIC characters. Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered.

Use the following rules when entering a value for this field:

- If the data contains parentheses, commas, blanks, or semicolons, enclose the character string in single quotation marks. For example, if the data is `(123)`, you must enter `WAADDR('(123)')`.
- If a single quotation mark is intended to be part of the data, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

The `NOWAADDR` suboperand deletes address line *n* from the user profile.

WABLDG(*building*) | NOWABLDG

Specifies the building that SYSOUT information is to be delivered to.

You can specify a maximum of 60 EBCDIC characters. Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered.

Use the following rules when entering a value for this field:

- If the data contains parentheses, commas, blanks, or semicolons, enclose the character string in single quotation marks. For example, if the data is `(123)`, you must enter `WABLDG('(123)')`.
- If a single quotation mark is intended to be part of the data, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

The `NOWABLDG` suboperand deletes the building from the profile.

WADEPT(*department*) | NOWADEPT
Specifies the department that SYSOUT information is to be delivered to.

You can specify a maximum of 60 EBCDIC characters. Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered.

Use the following rules when entering a value for this field:

- If the data contains parentheses, commas, blanks, or semicolons, enclose the character string in single quotation marks. For example, if the data is `(123)`, you must enter `WADEPT('(123)')`.
- If a single quotation mark is intended to be part of the data, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

The `NOWADEPT` suboperand deletes the department from the profile.

WANAME(*name*) | NOWANAME
Specifies the name of the user SYSOUT information is to be delivered to.

You can specify a maximum of 60 EBCDIC characters. Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered.

Use the following rules when entering a value for this field:

- If the data contains parentheses, commas, blanks, or semicolons, enclose the character string in single quotation marks. For example, if the data is `(123)`, you must enter `WANAME('(123)')`.
- If a single quotation mark is intended to be part of the data, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

The `NOWANAME` suboperand deletes the name from the profile.

WAROOM(*room*) | NOWAROOM
Specifies the room SYSOUT information is to be delivered to.

You can specify a maximum of 60 EBCDIC characters. Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered.

Use the following rules when entering a value for this field:

- If the data contains parentheses, commas, blanks, or semicolons, enclose the character string in single quotation marks. For example, if the data is `(123)`, you must enter `WAROOM('(123)')`.
- If a single quotation mark is intended to be part of the data, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

The `NOWAROOM` suboperand deletes the room from the profile.

WAEMAIL(*e-mail*) | NOWAEMAIL
Specifies the user's fully qualified e-mail address in the format *user@domain*, such as `jasper@moes.bar.com`. Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered.

Use the following rules when entering a value for this field:

- The minimum length of the e-mail address is 3 characters and the maximum length is 246 characters.
- If the data contains parentheses, commas, blanks, or semicolons, enclose the character string in single quotation marks. For example, if the data is `joe@a.(b).com`, you must enter `WAEMAIL('joe@a.(b).com')`.
- If a single quotation mark is intended to be part of the data, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.
- To specify WAEMAIL, the RACF database must be at stage 3 of application identity mapping (AIM). For details about using the IRRIRA00 utility to advance the RACF database to AIM stage 3, see *z/OS Security Server RACF System Programmer's Guide*.
- The value that is specified must be unique. Consequently, a list of users cannot be specified on an ADDUSER command with WAEMAIL keyword.

The `NOWAEMAIL` suboperand deletes the e-mail address from the profile.

NOWORKATTR
Specifies that you want to delete the work attributes previously defined for a user.

Examples

Example	Activity label	Description
1	*Operation*	User IA0 wants to alter the level of group authority from USE to CREATE for user DAF0 in the user's (DAF0's) default group so user DAF0 can define generic profiles for data sets in group RESEARCH.
	Known	User IA0 is the owner of user DAF0 and has JOIN authority in the group RESEARCH. The default group for user DAF0 is RESEARCH. User IA0 wants to issue the command as a RACF TSO command.
	Command	`ALTUSER DAF0 AUTHORITY(CREATE)`
	Defaults	GROUP(RESEARCH)
2	*Operation*	User CD0 wants to correct his name and change his default group to PAYROLL.
	Known	The default group for user CD0 is RESEARCH. User CD0 has USE authority in the group PAYROLL. User CD0 wants to issue the command as a RACF TSO command.
	Command	`ALTUSER CD0 NAME(CDAVIS) DFLTGRP(PAYROLL)`
	Defaults	None.

Example	Activity label	Description
3	*Operation*	User IA0 wants to add the FINANCIAL category and the CONFIDENTIAL security level to user ESH25's profile and restrict the user's access to the system to weekdays from 8:00 a.m. - 8:00 p.m.
	Known	User IA0 is connected to group PAYROLL with the group-SPECIAL attribute. Group PAYROLL is user ESH25's default group. User IA0's profile includes the FINANCIAL category and the CONFIDENTIAL security level. The FINANCIAL category and the CONFIDENTIAL security level have been defined to RACF. User IA0 wants to issue the command as a RACF TSO command.
	Command	`ALTUSER ESH25 ADDCATEGORY(FINANCIAL) SECLEVEL(CONFIDENTIAL) WHEN(DAYS(WEEKDAYS)TIME(0800:2000))`
	Defaults	None.
4	*Operation*	User RADM02 wants to revoke the user ID of an employee, user D5819, who will be on vacation for three weeks, starting on August 5, 1994. User RADM02 wants to direct the command to run at the local node under the authority of user HICKS and prohibit the command from being automatically directed to other nodes.
	Known	Users RADM02 and HICKS have the SPECIAL attribute. Today's date is August 3, 1994. User RADM02 wants to issue the command as a RACF TSO command. Users RADM02 and HICKS have an already established user ID association.
	Command	`ALTUSER D5819 REVOKE(8/5/94) RESUME(8/26/94) ONLYAT(.HICKS)`
	Results	The command is only processed on the local node and not automatically directed to any other nodes in the RRSF configuration.
5	*Operation*	User RGB01 wants to remove all class authorities and the AUDITOR attribute from USER1, and wants to audit all activity by user USER1.
	Known	User RGB01 has the SPECIAL and AUDITOR attributes. User USER1 is an existing user. User RGB01 wants to issue the command as a RACF TSO command.
	Command	`ALTUSER USER1 NOCLAUTH(USER TERMINAL) NOAUDITOR UAUDIT`
	Defaults	None.
6	*Operation*	User RADMIN wants to change the installation-defined information contained in the SJR1 user ID entry, and delete the model name information.
	Known	User RADMIN is the owner of user ID SJR1. User RADMIN wants to issue the command as a RACF TSO command.
	Command	`ALTUSER SJR1 DATA('RESOURCE USAGE ADMINISTRATOR NAME TOM P.') NOMODEL`
	Defaults	None.

Example	Activity label	Description
7	*Operation*	User VROGERS wants to change default TSO logon information for user BNORTH. User BNORTH requires the following changes: • A new TSO account number, 12345 • A new TSO logon procedure, LPROC12 • A new SYSOUT data set destination, BL2030 • A new SYSOUT class, Z • A new maximum region size, 18000.
	Known	• User VROGERS has the SPECIAL attribute. • User BNORTH has been defined to RACF with authority to use TSO. • 12345 has been defined to RACF as a profile in the ACCTNUM general resource class, and user BNORTH has been given READ access to this profile. • LPROC12 has been defined to RACF as a profile in the TSOPROC general resource class, and user BNORTH has been given READ access to this profile. • User VROGERS wants to issue the command as a RACF TSO command.
	Command	`ALTUSER BNORTH TSO(ACCTNUM(12345) PROC(LPROC12) DEST(BL2030) SYS(Z) MAXSIZE(18000))`
	Defaults	None.
8	*Operation*	User MIKEM wants to make the following changes to the profile for user MARTIN: • Change the default DFP management class to MGMT617 • Change the default DFP storage class to STOR533 • Delete the default DFP data application.
	Known	• User MIKEM has the SPECIAL attribute. • User MARTIN has been defined to RACF, and MARTIN's user profile contains a DFP segment. • MGMT617 has been defined to RACF as a profile in the MGMTCLAS general resource class, and user MARTIN has been given READ access to this profile. • STOR533 has been defined to RACF as a profile in the STORCLAS general resource class, and user MARTIN has been given READ access to this profile. • User MIKEM wants to issue the command as a RACF TSO command.
	Command	`ALTUSER MARTIN DFP(MGMTCLAS(MGMT617) STORCLAS(STOR533) NODATAAPPL))`
	Defaults	None.

Example	Activity label	Description
9	*Operation*	A user with SPECIAL authority wants to make existing z/OS UNIX System Services user CSMITH a superuser and delete PROGRAM from CSMITH's profile so that the default z/OS UNIX shell program is used when CSMITH enters the TSO/E command OMVS.
	Known	User CSMITH is already defined to OMVS. The user with SPECIAL authority wants to issue the command as a RACF TSO command.
	Command	`ALTUSER CSMITH OMVS(UID(0) NOPROGRAM)`
	Defaults	None.
10	*Operation*	A user with SPECIAL authority wants to make existing z/OS UNIX System Services DCE user, CSMITH, a z/OS UNIX System Services superuser and change the HOMECELL name to `/.../hootie.scarol.ibm.com`.
	Known	The DCE UUID for the `/.../hootie.scarol.ibm.com` cell is `003456ab-ecb7-7de3-ebda-95531ed63dae`.

	Command	`ALTUSER CSMITH OMVS(UID(0))`
		`DCE(HOMECELL('/.../hootie.scarol.ibm.com')`
		`HOMEUUID(003456ab-ecb7-7de3-ebda-95531ed63dae))`

	Defaults	None.
11	*Operation*	A help desk consultant wants to reset a user's password.
	Known	• The consultant is authorized to reset passwords • The consultant's RACF user ID (or RACF group associated with the help desk consultant's user ID) has been permitted by the security administrator with READ access to the RACF FACILITY class profile IRR.PASSWORD.RESET. • The help desk consultant is resetting user JIMBOB's password.
	Command	`ALTUSER JIMBOB PASSWORD(TEMP012X)`
	Defaults	EXPIRED
12	*Operation*	A help desk consultant wants to reset an application's password.
	Known	A help desk consultant has been authorized to reset passwords. The consultant's RACF user ID (or the RACF group associated with the consultant's user ID) has been permitted by the security administrator with UPDATE access to the RACF FACILITY class profile IRR.PASSWORD.RESET. In this example, at the request of operations personnel, the consultant is resetting the user ID associated with an application called CUSTAPP. The consultant uses the NOEXPIRED operand so the application user ID (CUSTAPP in this example) does not need to change the password when it is logged on. To reset the application's password, the consultant enters:
	Command	`ALTUSER CUSTAPP PASSWORD(STBR01R) NOEXPIRED`
		Note: The password value STBR01R must satisfy the installation's password quality rules enforced by both SETROPTS and ICHPWX01.
	Defaults	None.

Example	Activity label	Description
13	*Operation*	User RACFADM with SPECIAL or UPDATE authority requests the alteration of a RACF user to add Lotus Notes information and to delete the NDS segment from the user's profile.
	Known	User RACFADM has SPECIAL authority or UPDATE authority to the desired field within the segment.
	Command	`ALTUSER PCUSER2 LNOTES(SNAME(B.B.SMITH)) NONDS`
	Defaults	None.
14	*Operation*	User RACFADM with SPECIAL authority adds the user IDs PUBLIC, RACFU00, and USER04. The user ID PUBLIC is then altered and is assigned RESTRICTED access.
	Known	User RACFADM has SPECIAL authority.

	Command	`ADDUSER (PUBLIC RACFU00 USER004)`
		`ALTUSER PUBLIC RESTRICTED`
		`ADDSD 'RACFU00.*' UACC(READ)`

	Defaults	RACFU00, USER004, and PUBLIC have NORESTRICTED access by default.
15	*Operation*	An existing user, whose RACF user profile is RONTOMS, is defining a z/OS Integrated Security Services Network Authentication Service account within the local realm. MAXTKTLFE is not specified, so the value specified on the definition of the local realm KERBDFLT in the REALM class is used.
	Known	User RONTOMS wants to alter his user profile in order to add z/OS Integrated Security Services Network Authentication Service information.

	Command	`ALTUSER RONTOMS KERB(KERBNAME('KerberizedUser'))`
		`PASSWORD(BUNG21R) NOEXPIRED`

	Defaults	None.
16	*Operation*	User RACFADMN issues a command to delete the profile that references the EIM domain in the LDAPBIND class for user MRSERVER.
	Known	The profile in the LDAPBIND class that defines the EIM LDAP values is no longer required for EIM processing
	Command	`ALTUSER MRSERVER EIM(NOLDAPPROF)`
	Defaults	None.
17	*Operation*	User RACFADM with SPECIAL authority alters a user's values for allowable shared and nonshared memory allocation.
	Known	User RACFADM has SPECIAL authority.
	Command	`ALTUSER OMVSUSER OMVS(SHMEMMAX(5M) MEMLIMIT(1G))`
	Defaults	None.
	Output	See Figure 3 on page 171

```
LU OMVSUSER OMVS NORACF

USER=OMVSUSER

OMVS INFORMATION
----------------
 UID= 0000000005
 CPUTIMEMAX= NONE
 ASSIZEMAX= NONE
 FILEPROCMAX= NONE
 PROCUSERMAX= NONE
 THREADSMAX= NONE
 MMAPAREAMAX= NONE
 MEMLIMIT= 1G
 SHMEMMAX= 5M
```

Figure 3. Output for ALTUSER command for OMVS Segment

CONNECT (Connect user to group)

Purpose

Use the CONNECT command to connect a user to a group, modify a user's connection to a group, or assign the group-related user attributes. If you are creating a connection, defaults are available as stated for each operand. If you are modifying an existing connection, no defaults apply.

RACF date handling: RACF interprets dates with 2-digit years as follows. (The *yy* value represents the 2-digit year.)

- If `70 < yy <= 99`, the date is interpreted as `19yy`.
- If `00 <= yy <= 70`, the date is interpreted as `20yy`.

Issuing options

The following table identifies the eligible options for issuing the CONNECT command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	Yes	Yes	Yes	Yes

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, "RACF operator commands," on page 21.

You must be logged on to the console to issue this command as a RACF operator command.

Related commands

- To list a user's connections groups, see "LISTUSER (List user profile)" on page 213.
- To list the users connected to a group, see "LISTGRP (List group profile)" on page 204.
- To remove a user from a group, see "REMOVE (Remove user from group)" on page 506.

Authorization required

The specified users and group must already be defined to RACF.

When issuing this command as a RACF operator command, you might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

To use the CONNECT command, you must have at least one of the following:

- The SPECIAL attribute
- The group-SPECIAL attribute in a group with greater authority and the group is within its scope
- The ownership of the group
- JOIN or CONNECT authority in the group

You cannot give a user a higher level of authority in the group than you have.

To specify the AT keyword, you must have READ authority to the DIRECT.*node* resource in the RRSFDATA class and a user ID association must be established between the specified *node.userid* pair(s).

To specify the ONLYAT keyword you must have the SPECIAL attribute, the *userid* specified on the ONLYAT keyword must have the SPECIAL attribute, and a user ID association must be established between the specified *node.userid* pair(s) if the user IDs are not identical.

Note: If a user is added to a RACF group as a result of a CONNECT command while the user is logged on, the user must logoff and logon again to use that authority to access resources in classes that have been RACLISTed. In addition, started tasks have to STOP and START to use the new authority. This might include started tasks such as JES2 or JES3.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the CONNECT command is:

[*subsystem-prefix*]{CONNECT | CO}
(***userid ...***)
[ADSP | NOADSP]
[AT([*node*].*userid ...*) | ONLYAT([*node*].*userid ...*)]
[AUDITOR | NOAUDITOR]
[AUTHORITY(*group-authority*)]
[GROUP(*group-name*)]
[GRPACC | NOGRPACC]
[OPERATIONS | NOOPERATIONS]
[OWNER(*userid or group-name*)]
[RESUME [(*date*)] | NORESUME]
[REVOKE [(*date*)] | NOREVOKE]

[SPECIAL | <u>NOSPECIAL</u>]
[UACC [(*access-authority*)]]

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, "RACF operator commands," on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

userid

Specifies the RACF-defined user to be connected to, or modified in, the group specified in the GROUP operand. If you are specifying more than one user, you must enclose the user IDs in parentheses.

In general, the maximum number of users you can connect to one group is 5957. See *z/OS Security Server RACF Macros and Interfaces* for information about how to determine the exact maximum number.

The exception to this is a group that has been defined as a UNIVERSAL group. A UNIVERSAL group may have an unlimited number of users, with USE authority, connected to it for the purpose of resource access.

The number of users in a universal group with authority higher than USE, or with the attributes SPECIAL, OPERATIONS or AUDITOR at the group level, is still limited to 5957.

When displayed with the LISTGRP command, all members of a UNIVERSAL group will be listed. Only users with authority higher than USE or with the attributes SPECIAL, OPERATIONS or AUDITOR at the group level will be shown in the member list.

This operand is required and must be the first operand following CONNECT.

ADSP | <u>NOADSP</u>

ADSP

Specifies that when the user is connected to this group, all permanent tape and DASD data sets created by the user is RACF-protected by discrete profiles.

RACF ignores the ADSP attribute at LOGON/job initiation if SETROPTS NOADSP is in effect.

<u>NOADSP</u>

Specifies that the user is not to have the ADSP attribute. If you are creating a connection and omit both ADSP and NOADSP, NOADSP is the default. A user attribute of ADSP specified on the ADDUSER or ALTUSER command overrides NOADSP as a connect attribute.

AT | ONLYAT

The AT and ONLYAT keywords are only valid when the command is issued as a RACF TSO command.

AT ([*node*].*userid* ...)

Specifies that the command is to be directed to the node specified by *node*, where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed to the local node.

ONLYAT([*node*].*userid* ...)

Specifies that the command is to be directed only to the node specified by *node* where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed only to the local node.

AUDITOR | NOAUDITOR

AUDITOR

Specifies that the user is to have the group-AUDITOR attribute when connected to this group.

To enter the AUDITOR operand, you must have either the SPECIAL attribute or the group-SPECIAL attribute in the group to which you are connecting or modifying the user's profile.

NOAUDITOR

Specifies that the user is not to have the group-AUDITOR attribute when connected to this group. When you are creating a connection and omit both AUDITOR and NOAUDITOR, NOAUDITOR is the default. If you are modifying an existing connection, you must have either the SPECIAL attribute or the group-SPECIAL attribute in the group in which you are modifying the user's profile.

A user attribute of AUDITOR specified on the ADDUSER or ALTUSER command overrides NOAUDITOR as a connect attribute.

AUTHORITY(*group-authority*)

Specifies the level of authority the user is to have in the group. The valid group authority values are USE, CREATE, CONNECT, and JOIN, as described in "Group authorities" on page 14. If you are creating a connection and omit AUTHORITY or enter it without a value, the default is USE.

You cannot give a user a higher level of authority in the group than you have.

GROUP(*group-name*)

Specifies a RACF-defined group. If you omit this operand, the user is connected to or modified in your current connect group.

Note: RACF allows you to connect a user to more than 300 groups, which is the same as NGROUPS_MAX variable defined in the POSIX standard, but when z/OS UNIX group information is requested, only up to the first 300 z/OS UNIX groups that have GIDs are associated with the process or user.

The first 300 z/OS UNIX groups that have GIDs to which a user is connected are used by z/OS UNIX. LISTUSER displays the groups in the order that RACF examines them when determining which of the user's groups are z/OS UNIX groups.

In addition, the number of users connected to a group should be within the limits allowed by the NFS client for remote access to files. See *z/OS UNIX System Services Planning* for information on NGROUPS_MAX.

GRPACC | NOGRPACC

GRPACC

Specifies that when the user is connected to this group, any group data sets defined by the user are automatically accessible to other users in the group. The group whose name is used as the high-level qualifier of the data set name (or the qualifier supplied by a command installation exit) has UPDATE access authority to the data set.

NOGRPACC

Specifies that the user is not to have the GRPACC attribute. If you are creating a connection and omit both GRPACC and NOGRPACC, NOGRPACC is the default. A user attribute of GRPACC specified on the ADDUSER or ALTUSER command overrides NOGRPACC as a connect attribute.

OPERATIONS | NOOPERATIONS

OPERATIONS

Specifies that the user is to have the group-OPERATIONS attribute when connected to this group. The group-OPERATIONS user has authorization to do maintenance operations on all RACF-protected DASD data sets, tape volumes, and DASD volumes within the scope of the group unless the access list for a resource specifically limits the OPERATIONS user to an access authority that is less than the operation requires.

You establish the lower access authority for the group-OPERATIONS user through the PERMIT command.

To enter the OPERATIONS operand, you must have the SPECIAL attribute or the group-SPECIAL attribute in the group to which you are connecting or modifying the user's profile.

NOOPERATIONS

Specifies that the user is not to have the group-OPERATIONS attribute in this group. If you are creating a connection and omit both OPERATIONS and NOOPERATIONS, NOOPERATIONS is the default. If you are modifying an existing connection, you must have the SPECIAL attribute or the group-SPECIAL attribute in the group in which you are modifying the user's profile.

A user attribute of OPERATIONS specified on the ADDUSER or ALTUSER command overrides NOOPERATIONS as a connect attribute.

OWNER(*userid or group-name*)

Specifies a RACF-defined user or group to be assigned as the owner of the connect profile. If you are creating a connection and you do not specify an owner, you are defined as the owner of the connect profile.

RESUME | NORESUME

RESUME[(*date*)]

Specifies that the user, when connected to the group specified on the GROUP operand, is to be allowed to access the system again. You normally use RESUME to restore access to the system that has been prevented by a prior REVOKE operand. (RESUME, using the current date, is also the default when you are using the CONNECT command to create an initial connection between a user and this group.)

If you specify a date, RACF does not allow the user to access the system until the date you specify. The date must be a future date; if it is not, you are prompted to provide a future date.

Between the time you specify the RESUME and the time the RESUME takes effect, the RESUME is called a *pending* resumption (or a pending RESUME).

You specify a date in the form *mm/dd/yy*, and you need not specify leading zeros; specifying `9/1/06` is the same as specifying `09/01/06`. The date must be a future date; if it is not, you are prompted to provide a future date. RACF interprets dates as 20*yy* when *yy* is less than `71`, and 19*yy* when *yy* is `71` or higher. So, `09/01/94` would be in the year 1994, and `09/01/14` would be in the year 2014.

If you specify RESUME without a date, the RESUME takes effect immediately.

When no REVOKE is in effect for the user, RACF ignores the RESUME operand and issues a message.

Note:

1. If you use the ALTUSER command to issue a REVOKE for a user, you must use the ALTUSER command to issue the corresponding RESUME. Issuing RESUME on the CONNECT command does not restore access revoked on the ALTUSER command.
2. If you specify both REVOKE(*date*) and RESUME(*date*), RACF acts on them in date order. For example, if you specify RESUME(8/19/06) and REVOKE(8/5/06), RACF prevents the user from accessing the system from August 5, 2006, to August 18, 2006. On August 19, the user can again access the system.

   If a user is already revoked and you specify RESUME(8/5/06) and REVOKE(8/19/06), RACF allows the user to access the system from August 5, 2006, to August 18, 2006. On August 19, RACF prevents the user from accessing the system.
3. If RACF detects a conflict between REVOKE and RESUME (for example, you specify both without a date), RACF uses REVOKE.

4. To clear the RESUME date field, specify NORESUME.
5. To successfully resume a user whose revoke date has passed, you must specify NOREVOKE to clear the revoke date as well as specifying the RESUME keyword.
6. Downlevel systems sharing the RACF database should not be affected by the changes to REVOKE and RESUME processing. A user who is considered revoked on a z/OS V1R7 system should also be considered revoked on a downlevel system.

NORESUME

Specifies that RACF is to clear the RESUME date field in the user's group connection. You can use the NORESUME option to cancel the pending resumption (of a user's group connection) that resulted from a previous CONNECT command specified with RESUME(*date*).

REVOKE | NOREVOKE

REVOKE[(*date*)]

Specifies that RACF is to prevent the user from accessing the system by attempting to connect to the group specified on the GROUP operand. The user's profile and data sets are *not* deleted from the RACF database.

If you specify a date, RACF does not prevent the user from accessing the system until the date you specify. The date must be a future date; if it is not, you are prompted to provide a future date.

You specify a date in the form *mm/dd/yy*, and you need not specify leading zeros; specifying `9/1/06` is the same as specifying `09/01/06`. The date must be a future date; if it is not, you are prompted to provide a future date. RACF interprets dates as 20*yy* when *yy* is less than 71, and 19*yy* when *yy* is 71 or higher. So, `09/01/94` would be in the year 1994, and `09/01/14` would be in the year 2014.

Between the time you specify the REVOKE and the time the REVOKE takes effect, the REVOKE is called a *pending* revocation (or a pending REVOKE).

When you specify REVOKE without a date, the following conditions apply:

- The REVOKE takes effect the next time the user tries to log on to the system.
- Any pending RESUME date remains in effect unless you also specify NORESUME.

  Important: To permanently revoke system access, specify both REVOKE and NORESUME.

When a REVOKE is already in effect for the user, RACF ignores the REVOKE operand and issues a message.

Note:

1. If you specify both REVOKE(*date*) and RESUME(*date*), RACF acts on them in date order. For example, if you specify RESUME(8/19/06) and REVOKE(8/5/06), RACF prevents the user from accessing the system from August 5, 2006, to August 18, 2006. On August 19, the user can again access the system.

   If a user is already revoked and you specify RESUME(8/5/06) and REVOKE(8/19/06), RACF allows the user to access the system from August 5, 2006, to August 18, 2006. On August 19, RACF prevents the user from accessing the system.
2. If RACF detects a conflict between REVOKE and RESUME (for example, you specify both without a date), RACF uses REVOKE.
3. To clear the REVOKE date field, specify NOREVOKE.
4. Downlevel systems sharing the RACF database should not be affected by the changes to REVOKE and RESUME processing. A user who is considered revoked on a z/OS V1R7 system should also be considered revoked on a downlevel system.

NOREVOKE

Specifies that RACF is to clear the REVOKE date field in the user's group connection. You can use the NOREVOKE option to cancel the pending revocation (of a user's group connection) that resulted from a previous CONNECT command specified with REVOKE(*date*).

To successfully resume a user whose revoke date has passed, you must specify NOREVOKE to clear the revoke date as well as specifying the RESUME keyword.

The NOREVOKE option does not resume the user's group connection after it was revoked by the CONNECT REVOKE command.

SPECIAL | NOSPECIAL

SPECIAL

Specifies that the user is to have the group-SPECIAL attribute when connected to this group. To enter the SPECIAL operand, you must have the SPECIAL attribute or the group-SPECIAL attribute in the group to which you are connecting or modifying the user's profile.

NOSPECIAL

Specifies that the user is not to have the group-SPECIAL attribute. If you are creating a connection and omit both SPECIAL and NOSPECIAL, NOSPECIAL is the default. If you are modifying an existing connection, you must have the SPECIAL attribute or the group-SPECIAL attribute in the group in which you are modifying the user's profile.

A user attribute of SPECIAL specified on the ADDUSER or ALTUSER command overrides NOSPECIAL as a connect attribute.

UACC[(*access-authority*)]

Specifies the default value for the universal access authority for all new resource profiles the user defines while the specified group is the user's current connect group. The universal access authorities are ALTER, CONTROL, UPDATE, READ, and NONE. (RACF does not accept EXECUTE access authority with the CONNECT command.) If you are creating a connection and omit UACC or enter it without a value, the default is NONE.

This operand is group-related. The user can have a different default universal access authority in each of the groups to which the user is connected (with the CONNECT command).

Examples

Example	Activity label	Description
1	*Operation*	User WJE10 wants to connect users AFG5 and GMD2 to group PAYROLL and to make PAYROLL the owner of the connect profiles.
	Known	User WJE10 has JOIN authority to group PAYROLL. User WJE10 is currently connected to group PAYROLL. Users AFG5 and GMD2 are defined to RACF but not connected to group PAYROLL. User WJE10 wants to issue the command as a RACF TSO command.
	Command	`CONNECT (AFG5 GMD2) OWNER(PAYROLL)`
	Defaults	GROUP(PAYROLL) AUTHORITY(USE) UACC(NONE) NOADSP NOGRPACC RESUME NOOPERATIONS NOSPECIAL NOAUDITOR

Example	Activity label	Description
2	*Operation*	User WRH0 wants to CONNECT user PDJ6 to group RESEARCH with CREATE authority and universal access of UPDATE. User WRH0 wants to direct the command to run under the authority of user EMWIN at node RALNC.
	Known	User EMWIN at RALNC has CONNECT authority to group RESEARCH. RESEARCH is not the default group of user EMWIN at RALNC. User PDJ6 is defined to RACF on node RALNC but is not connected to group RESEARCH. User WRH0 wants to issue the command as a RACF TSO command. WRH0 and EMWIN at RALNC have an already established user ID association.
	Command	`CONNECT PDJ6 GROUP(RESEARCH) AUTHORITY(CREATE) UACC(UPDATE) AT(RALNC.EMWIN)`
	Defaults	NOGRPACC RESUME NOOPERATIONS NOSPECIAL NOAUDITOR NOADSP OWNER(WRH0)
3	*Operation*	User IRB01 wants to revoke the user ID of an employee, user D5819, who will be on vacation for three weeks, starting on August 5, 1994.
	Known	User IRB01 is the owner of the profile for user D5819. Today's date is August 3, 1994. User IRB01 wants to issue the command as a RACF operator command, and the RACF subsystem prefix is `@`.
	Command	`@CONNECT D5819 REVOKE(8/5/94) RESUME(8/26/94)`
	Defaults	None.

DELDSD (Delete data set profile)

Purpose

Use the DELDSD command to remove RACF protection from tape or DASD data sets that are protected by either discrete or generic profiles.

When RACF-protection is removed from a data set protected by a discrete profile:

- The RACF indicator for the data set is turned off. For a DASD data set, the indicator is in the DSCB for a non-VSAM data set or in the catalog entry for a VSAM data set. For a tape data set, the indicator is in the TVTOC entry for the data set in the corresponding TAPEVOL profile.
- The data set profile is deleted from the RACF database. (Note that the data set itself is not physically deleted or scratched.)

  If all the data sets in the TVTOC have expired, then RACF deletes the TAPEVOL profiles and the associated tape DATASET profiles.

To remove RACF protection from a non-VSAM DASD data set that is protected by a discrete profile, the data set must be online and not currently in use. For a VSAM data set that is protected by a discrete profile, the catalog for the data set must be online. The VSAM data set itself must also be online if the VSAM catalog recovery option is being used. If the required data set or catalog is not online, the DELDSD command processor requests that the volume be mounted if you have the TSO MOUNT authority.

Changes made to discrete profiles take effect after the DELDSD command is processed. Changes made to generic profiles do not take effect until one or more of the following steps is taken:

- The user of the data set issues the LISTDSD command:

```
LISTDSD DA(data-set-protected-by-the-profile) GENERIC
```

Note: Use the data set name, not the profile name.

- The security administrator issues the SETROPTS command:

```
SETROPTS GENERIC(DATASET) REFRESH
```

See SETROPTS command for authorization requirements.

- The user of the data set logs off and logs on again.

Note: For more information, refer to *z/OS Security Server RACF Security Administrator's Guide*.

Issuing options

The following table identifies the eligible options for issuing the DELDSD command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	Yes	Yes	Yes	Yes

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

You must be logged on to the console to issue this command as a RACF operator command.

Related commands

- To create a data set profile, see “ADDSD (Add data set profile)” on page 31.
- To change a data set profile, see “ALTDSD (Alter data set profile)” on page 86.
- To display a data set profile, see “LISTDSD (List data set profile)” on page 192.
- To obtain a list of data set profiles, see “SEARCH (Search RACF database)” on page 541.

Authorization required

When issuing this command as a RACF operator command, you might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

To remove RACF protection from a data set or to delete a generic data set profile, you must have sufficient authority over the data set. RACF performs authorization checking in the following sequence until you meet one of these conditions:

- You have the SPECIAL attribute.
- The data set profile is within the scope of a group in which you have the group-SPECIAL attribute.
- The high-level qualifier of the profile name (or the qualifier supplied by a command installation exit) is your user ID.
- You are the owner of the profile.
- For a discrete profile, you have ALTER authority.[4]

[4] More information about ALTER authority and how to limit it can be found in Limiting ALTER access authority in discrete profiles in *z/OS Security Server RACF Security Administrator's Guide*.

To specify the AT keyword, you must have READ authority to the DIRECT.*node* resource in the RRSFDATA class and a user ID association must be established between the specified *node.userid* pair(s).

To specify the ONLYAT keyword you must have the SPECIAL attribute, the *userid* specified on the ONLYAT keyword must have the SPECIAL attribute, and a user ID association must be established between the specified *node.userid* pair(s) if the user IDs are not identical.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the DELDSD command is:

[*subsystem-prefix*]{DELDSD | DD}
(***profile-name...***)
[AT([*node*].*userid* ...) | ONLYAT([*node*].*userid* ...)]
[GENERIC | NOSET | SET]
[VOLUME(*volume-serial*)]
Note: If you specify a profile name containing generic characters, RACF ignores the VOLUME, SET and NOSET operands.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, "RACF operator commands," on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

profile-name ...

Specifies the name of the discrete or generic profile. If you specify more than one profile, the list must be enclosed in parentheses.

This operand is required and must be the first operand following DELDSD.

Note: Because RACF uses the RACF database and not the system catalog, you cannot use alias data set names.

AT | ONLYAT

The AT and ONLYAT keywords are only valid when the command is issued as a RACF TSO command.

AT ([*node*].*userid* ...)

Specifies that the command is to be directed to the node specified by *node*, where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed to the local node.

ONLYAT([*node*].*userid* ...)

Specifies that the command is to be directed only to the node specified by *node* where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed only to the local node.

GENERIC | NOSET | SET

If you do not specify GENERIC, NOSET, or SET, the default value is SET.

GENERIC

Specifies that RACF is to treat the profile name as a generic name, even if it does not contain any generic characters.

NOSET | SET

Specifies whether the RACF indicator should be set off or not.

If the profile name contains a generic character or if you specify GENERIC, RACF ignores this operand.

NOSET

Specifies that RACF is not to turn off the RACF indicator for the data set.

Use NOSET when you are transferring a RACF-indicated data set to another system where it is also to be RACF-protected. Leaving the indicator on prevents unauthorized access to the data set until it can be redefined on the new system. (To delete multiple data set profiles, see Example 2 for the SEARCH command.)

When you specify NOSET for a tape data set protected by a discrete profile, RACF deletes the discrete profile but retains the TVTOC entry for the data set name. You can then use a generic profile to protect the data set.

If you specify NOSET, the volumes on which the data set or catalog resides need not be online.

To use NOSET, you must have the SPECIAL attribute, the data set profile must be within the scope of a group in which you have the group-SPECIAL attribute, or the high-level qualifier of the data set name (or the qualifier supplied by the naming conventions table or by a command installation exit) must be your user ID.

SET

Specifies that RACF is to turn off the RACF indicator for the data set. Use SET, which is the default value, when you are removing RACF protection for a data set. If the indicator is already off, the command fails.

VOLUME(*volume-serial*)

Specifies the volume on which the tape data set, the non-VSAM DASD data set, or the catalog for the VSAM data set resides.

If you specify this operand and *volume-serial* does not appear in the profile for the data set, the command fails.

If the data set name appears more than once in the RACF database and you do not specify VOLUME, the command fails. If the data set name appears only once and you do not specify VOLUME, no volume serial number checking is performed, and processing continues.

If the profile name contains a generic character or if you specify GENERIC, RACF ignores this operand.

Examples

Example	Activity label	Description
1	*Operation*	User EH0 wants to remove discrete profile RACF protection from data set CD0.DEPT1.DATA. User EH0 wants to direct the command to run at node CPPD0 under the authority of user GCP02 and prohibit the command from being automatically directed to other nodes.
	Known	User GCP02 at CPPD0 owns data set CD0.DEPT1.DATA. User EH0 wants to issue the command as a RACF TSO command. Users EH0 and GCP02 at CPPD0 have an already established user ID association. Users EH0 and GCP02 at CPPD0 have the SPECIAL attribute.
	Command	`DELDSD 'CD0.DEPT1.DATA' ONLYAT(CPPD0.GCP02)`
	Results	The command is only processed at node CPPD0 and not automatically directed to any other nodes in the RRSF configuration.
2	*Operation*	User KLE05 wants to enter a RACF TSO command to remove discrete profile protection from data set KLE05.DUPDS1.DATA. The data set is a duplicate data set, and the user wants to remove the profile for the data set on volume DU2 without turning off the RACF indicator.
	Command	`DELDSD DUPDS1.DATA VOLUME(DU2) NOSET`
	Defaults	None.
3	*Operation*	User JTB01 wants to delete the generic profile and remove RACF protection from the data set or sets protected by the profile `SALES.*.DATA`
	Known	User JTB01 has the group-SPECIAL attribute in group SALES. User JTB01 wants to issue the command as a RACF operator command, and the RACF subsystem prefix is `@`.
	Command	`@DELDSD 'SALES.*.DATA'`
	Defaults	None.

DELGROUP (Delete group profile)

Purpose

Use the DELGROUP command to delete a group and its relationship to its superior group from RACF.

There are, however, other places in the RACF database where the group name might appear, and DELGROUP processing does *not* delete these other occurrences of the group name. For example, the group name could be in the access list for any resource. You can use the RACF Remove ID utility (IRRRID00) to remove all occurrences of a group name.

The DELGROUP command does not work for a UNIVERSAL group, in most cases. To delete a UNIVERSAL group, the RACF Remove ID Utility (IRRRID00) should be used.

For information on using the RACF remove ID utility, see *z/OS Security Server RACF Security Administrator's Guide*.

Issuing options

The following table identifies the eligible options for issuing the DELGROUP command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	Yes	Yes	Yes	Yes

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

You must be logged on to the console to issue this command as a RACF operator command.

Related commands

- To add a group profile to the RACF database, see “ADDGROUP (Add group profile)” on page 23.
- To change a group profile in the RACF database, see “ALTGROUP (Alter group profile)” on page 100.
- To connect a user to a group, see “CONNECT (Connect user to group)” on page 171.
- To list information related to a group profile, see “LISTGRP (List group profile)” on page 204.
- To remove a user from a group profile, see “REMOVE (Remove user from group)” on page 506.
- To obtain a list of group profiles, see “SEARCH (Search RACF database)” on page 541.

Authorization required

When issuing this command as a RACF operator command, you might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

To use the DELGROUP command, at least one of the following must be true:

- You must have the SPECIAL attribute
- The group to be deleted must be within the scope of a group in which you have the group-SPECIAL attribute
- You must be the owner of the superior group
- You must have JOIN authority in the superior group
- You must be the owner of the group to be deleted

To specify the AT keyword, you must have READ authority to the DIRECT.*node* resource in the RRSFDATA class and a user ID association must be established between the specified *node.userid* pair(s).

To specify the ONLYAT keyword you must have the SPECIAL attribute, the *userid* specified on the ONLYAT keyword must have the SPECIAL attribute, and a user ID association must be established between the specified *node.userid* pair(s) if the user IDs are not identical.

Syntax

For the key to the symbols used in the command syntax diagrams, see “Syntax of RACF commands and operands” on page 11. The complete syntax of the DELGROUP command is:

[*subsystem-prefix*]{DELGROUP | DG}

(***group-name ...***)

[AT([*node*].*userid* ...) | ONLYAT([*node*].*userid* ...)]

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

group-name

Specifies the name of the group whose profile is to be removed from the RACF database. If you are deleting more than one group, you must enclose the list of group names in parentheses.

You must enter at least one group name. For each group name you enter, the following conditions must exist:

- The group must be defined to RACF.
- The group must not have any subgroups.
- The group must not have any group data sets (data sets whose names are qualified by the group name or begin with the value supplied by an installation exit).
- The group must not have any users connected to it.

AT | ONLYAT

The AT and ONLYAT keywords are only valid when the command is issued as a RACF TSO command.

AT([*node*].*userid* ...)

Specifies that the command is to be directed to the node specified by *node*, where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed to the local node.

ONLYAT([*node*].*userid* ...)

Specifies that the command is to be directed only to the node specified by *node* where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed only to the local node.

Examples

Example	Activity label	Description
1	*Operation*	User WJE10 wants to delete subgroups DEPT1 and DEPT2 from group PAYROLL.
	Known	User WJE10 has JOIN authority to group PAYROLL. DEPT1 and DEPT2 are subgroups of group PAYROLL. Neither DEPT1 nor DEPT2 have any subgroups or users connected to them. In addition, neither group has any group data sets. User WJE10 wants to issue the command as a RACF TSO command.
	Command	`DELGROUP (DEPT1 DEPT2)`
	Defaults	None.

DELUSER (Delete user profile)

Purpose

Use the DELUSER command to delete a user from RACF.

This command removes the user's profile and all user-to-group connections for the user. (The connect profiles define the user's connections to various RACF groups.)

There are, however, other places in the RACF database where the user's user ID might appear, and the DELUSER command does *not* delete the user ID from all these places. Specifically, the user could be the owner of a group, the owner of a user's profile, the owner of a group data set, or in an access list for any resource. Before issuing DELUSER, you must first issue the REMOVE command to assign new owners for any group data sets the user owns in groups other than his default group. You can use the RACF remove ID utility (IRRRID00) to remove all of the occurrences of a user ID. For information on using the RACF remove ID utility, see *z/OS Security Server RACF Security Administrator's Guide*.

You can use the DELUSER command to delete a TSO user from the RACF database. However, you have no way of knowing if the TSO user is logged on to TSO at the time you issue the DELUSER command. As a result, if the user is logged on to TSO, the user remains active until logging off. Therefore, you might consider having the console operator examine any logons (or jobs) that are active for the TSO user and cancel those that should not be allowed to continue.

The DELUSER command supports digital certificates. If the command issuer is authorized to delete the user profile, and the DELUSER command processor has decided that the user profile can be deleted, the profiles in the DIGTCERT, DIGTRING, or DIGTNMAP classes that describe certificates, private key information, key rings, or certificate mappings associated with the user profile are also deleted. When determining what certificates to delete, the list of certificates from the user profile is used. Certificates that are to be deleted as a result of DELUSER processing are removed from any rings they are connected to at the time the DELUSER command was issued. Likewise, rings that are to be deleted as a result of DELUSER processing have all certificates connected to them removed prior to being deleted. No additional authority checking is done. Authority to the IRR.DIGTCERT.*function* resource is not required. If an error is encountered by DELUSER while attempting to delete a DIGTCERT, DIGTRING, or DIGTNMAP profile, the DELUSER command is terminated without attempting to delete the user profile. If the error indicates that the template is downlevel, an error message is issued and the user profile is deleted.

Restrictions:

- User IDs with mixed-case characters, such as `irrcerta`, `irrsitec`, and `irrmulti` which are associated with digital certificates, cannot be specified as *userid* in the DELUSER command because DELUSER cannot process mixed-case user IDs.
- Do not issue a DELUSER command for user ID that has a distributed identity filter (contained in an IDIDMAP profile) associated with it. The command will fail with error message ICH04018I. You must first delete the distributed identity filter. To do this, issue the RACMAP LISTMAP command for the user ID to examine the name filter and determine its label name, and then issue the RACMAP DELMAP command.

Issuing options

The following table identifies the eligible options for issuing the DELUSER command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	Yes	Yes	Yes	Yes

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

You must be logged on to the console to issue this command as a RACF operator command.

Related commands

- To add a user profile to the RACF database, see “ADDUSER (Add user profile)” on page 45.
- To change a user profile in the RACF database, see “ALTUSER (Alter user profile)” on page 110.
- To list information in a user profile, see “LISTUSER (List user profile)” on page 213.
- To administer user ID associations, see “RACLINK (Administer user ID associations)” on page 364.

Authorization required

When issuing this command as a RACF operator command, you might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

To use the DELUSER command, at least one of the following must be true:

- You must have the SPECIAL attribute.
- The user profile to be deleted must be within the scope of a group in which you have the group-SPECIAL attribute.
- You must be the owner of the user's profile.

Note: JOIN authority in the user's default group is not sufficient authority to delete the user from RACF.

To specify the AT keyword, you must have READ authority to the DIRECT.*node* resource in the RRSFDATA class and a user ID association must be established between the specified *node.userid* pair(s).

To specify the ONLYAT keyword you must have the SPECIAL attribute, the *userid* specified on the ONLYAT keyword must have the SPECIAL attribute, and a user ID association must be established between the specified *node.userid* pair(s) if the user IDs are not identical.

Syntax

For the key to the symbols used in the command syntax diagrams, see “Syntax of RACF commands and operands” on page 11. The complete syntax of the DELUSER command is:

```
[subsystem-prefix]{DELUSER | DU}

    (userid ...)

    [ AT([node].userid ...) | ONLYAT([node].userid ...) ]
```

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with

CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

userid

Specifies the user ID of the user whose profile is to be deleted from the RACF database. If you are deleting more than one user, you must enclose the list of user IDs in parentheses. You must enter at least one user ID. For each user ID you enter, the following conditions must exist:

- The user must be defined to RACF.
- The user must not have any user data sets defined to RACF. (User data sets are data sets whose names are qualified by the user ID of the user being deleted or begin with the value supplied by an installation exit.)
- The user cannot have any user ID associations defined. User ID associations for a user must be deleted before the user can be deleted.

AT | ONLYAT

The AT and ONLYAT keywords are only valid when the command is issued as a RACF TSO command.

AT([*node*].*userid* ...)

Specifies that the command is to be directed to the node specified by *node*, where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed to the local node.

ONLYAT([*node*].*userid* ...)

Specifies that the command is to be directed only to the node specified by *node* where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed only to the local node.

Examples

Example	Activity label	Description
1	*Operation*	User WJE10 wants to delete user AEH0 from RACF.
	Known	User AEH0 is defined to RACF. User AEH0 is not the owner of any RACF profiles. User WJE10 is connected to group PAYROLL (and is the owner of user AEH0) with the group-SPECIAL attribute. User WJE10 wants to issue the command as a RACF TSO command.
	Command	`DELUSER AEH0`
	Defaults	None.

Example	Activity label	Description
2	*Operation*	User SPB1 wants to delete user CA00 from RACF.
	Known	User CA00 is defined to RACF. User SPB1 is not the owner of any RACF profiles. User SPB1 is connected to group PAYROLL (and is the owner of user CA00) with the group-SPECIAL attribute. User SPB1 wants to issue the command as a RACF operator command, and the RACF subsystem prefix is `@`.
	Command	`@DELUSER CA00`
	Defaults	None.

DISPLAY (Display signed-on-from list)

Background

Persistent verification allows users to sign on to a partner LU (logical unit) and have their authority persist. In other words, once a user has signed on, a password is not required for subsequent signon attempts.

APPC/MVS invokes RACF to create and maintain a list called the signed-on-from list. If persistent verification is being used, the signed-on-from list consists of the users currently signed on with persistent verification authority.

Purpose

The RACF DISPLAY operator command displays information held in the signed-on-from list. Entries in the signed-on-from list possess the following information:

- User ID
- Group
- APPL (the local LU name)
- POE (the partner LU name from which the user is signed on)
- SECLABEL

The DISPLAY command has operands which correspond to the preceding items listed. You can use these operands to select which user entries to display from the signed-on-from list.

The information is displayed as a list of entries sorted by local LU. If there are multiple entries for a given local LU, these entries are sorted by user ID.

Issuing options

The following table identifies the eligible options for issuing the DISPLAY command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
No	Yes	No	No	Yes

For information on issuing this command as a RACF operator command, see Chapter 4, “RACF operator commands,” on page 21.

Related commands

Use the SIGNOFF command to remove users from the signed-on-from list.

Authorization required

You might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the DISPLAY command is:

subsystem-prefixDISPLAY	
	[SIGNON]
	[APPL(*local-luname* | *)]
	[POE(*partner-luname* | *)]
	[USER(*userid-name* | *)]
	[GROUP(*group-name* | *)]
	[SECLABEL(*security-label* | *)]

For information on issuing this command as a RACF operator command, see "Rules for entering RACF operator commands" on page 21.

Parameters

subsystem-prefix

The subsystem prefix identifies that the RACF subsystem is the processing environment. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

SIGNON

This operand indicates that the information to be displayed is from the signed-on-from list. Because this is always the case, this operand is a default value and can be omitted from the command line.

The following operands allow the operator to select the necessary search criteria. These operands are all optional.

- If none of the operands are specified, you receive an informational message, indicating the version, release and modification level for RACF.
- If no local LU is currently active, you receive an informational message.
- If you specify the APPL operand and at least one local LU is currently active, you receive an informational message with the names of the LU applications listed.

APPL(*local-luname* | *)

The *local-luname* is a 1 - 8 character name of the local LU to be searched for. An asterisk can occupy the last position of the name in order to provide a partial generic selection capability. A character string consisting of a single asterisk is permitted as a full generic that matches any APPL name in the signed-on-from list. A single asterisk is the default value.

POE(*partner-luname* | *)
The *partner-luname* is the name of the partner LU to be searched for. It can be a 1 - 8 character unqualified LU name or a 1 - 17 character network qualified LU name in the format *netid.luname*, where *netid* and *luname* are each 1 - 8 characters. If the netid is omitted, all partner LUs with the specified LU name portion is shown (POE(LU1) would show NET1.LU1 and NET2.LU1). An asterisk can occupy the last position of the *partner-luname* in order to provide a partial generic selection capability. For example, the *partner-luname* NW1.LU2 would match with *, N*, NW*, NW1*, NW1.*, NW1.L*, NW1.LU*, NW1.LU2*, L*, LU*, and LU2*. A character string consisting of a single asterisk is permitted as a full generic that matches any POE name in the *signed-on-from list*. A single asterisk is the default if another operand (besides SIGNON) is specified.

USER(*userid-name* | *)
The *userid-name* is a 1 - 8 character name that represents the RACF user ID to be searched for. An asterisk can occupy the last position of the *userid-name* in order to provide a partial generic selection capability. A character string consisting of a single asterisk is permitted as a full generic that matches any user ID in the signed-on-from list. A single asterisk is the default value if either the GROUP operand or the SECLABEL operand is specified.

GROUP(*group-name* | *)
The *group-name* is a 1 - 8 character name of the RACF group to be searched for. An asterisk can be in the last position of the *group-name* in order to provide a partial generic selection capability. A character string consisting of a single asterisk is permitted as a full generic that matches any group name in the signed-on-from list. A single asterisk is the default value if either the USER operand or the SECLABEL operand is specified. Note that entries in the signed-on-from list might not always be added to that list with a *group-name* value. Such entries have *group-name* values consisting of blanks.

SECLABEL(*security-label* | *)
The *security-label* is a 1 - 8 character name which represents the RACF security label to be searched for. An asterisk can occupy the last position of the specification in order to provide a partial generic selection capability. A character string consisting of a single asterisk is permitted as a full generic that matches any security label in the signed-on-from list. A single asterisk is the default value if either the USER operand or the GROUP operand is specified.

Examples

Example	Activity label	Description
1	*Operation*	Display all the partner LUs associated with a particular local LU.
	Known	The local LU name is `locallu`. The RACF subsystem prefix is `@`.
	Command	`@display appl(locallu),poe(*)`
	Defaults	SIGNON
	Output	See Figure 4 on page 191.
2	*Operation*	Display all the users signed on for a particular LU pair.
	Known	The local LU is `locallu`, the partner LU is `prtnrlu1`. The RACF subsystem prefix is `@`.
	Command	`@display appl(locallu),poe(prtnrlu1),user(*)`
	Defaults	SIGNON, GROUP(*), and SECLABEL(*)
	Output	See Figure 5 on page 191.

Example	Activity label	Description
3	*Operation*	Display each local LU and its associated partner LUs, and for each LU pair, display the users signed on.
	Known	The RACF subsystem prefix is `@`.
	Command	`@display appl(*),poe(*),user(*)`
	Defaults	SIGNON, GROUP(*), and SECLABEL(*)
	Output	See Figure 6 on page 192. **Important:** In many instances, this command might generate large amounts of display output.
4	*Operation*	Display each local LU and its associated partner LUs, and for each LU pair, display the users with *userid_names* beginning with B.
	Known	The RACF subsystem prefix is `@`.
	Command	`@display appl(*),poe(*),user(B*),group(*)`
	Defaults	SIGNON and SECLABEL(*)
	Output	See Figure 7 on page 192.
5	*Operation*	Display all the LU pairs that users have signed on to using a particular group.
	Known	The RACF subsystem prefix is `@`. The *group-name* is `grp1`.
	Command	`@display group(grp1),appl(*),poe(*),user(*)`
	Defaults	SIGNON, SECLABEL(*)
	Output	See Figure 8 on page 192.

```
IRRD004I RACF 2.6.0 SUBSYSTEM 219
REMOTE LU NAME(S) ASSOCIATED WITH ACTIVE LOCAL LU NAME LOCALLU
LU NAME                LU NAME                    LU NAME
PRTNRLU1               PRTNRLU2                   PRTNRLU3
NETID1.PRTNRLU4
```

Figure 4. Example 1: Output for the DISPLAY command

```
IRRD004I RACF 2.6.0 SUBSYSTEM 239
LOCAL LU LOCALLU FOR REMOTE LU PRTNRLU1 HAS USER(S):
USER = BOB      GROUP = SYS1    SECLABEL =
USER = BRIAN    GROUP = SYS1    SECLABEL =
USER = JIM      GROUP = GRP1    SECLABEL =
USER = JOE      GROUP = GRP1    SECLABEL =
```

Figure 5. Example 2: Output for the DISPLAY command

```
IRRD004I RACF 2.6.0 SUBSYSTEM 245
LOCAL LU LOCALLU FOR REMOTE LU PRTNRLU1 HAS USER(S):
USER = BOB      GROUP = SYS1    SECLABEL =
USER = BRIAN    GROUP = SYS1    SECLABEL =
USER = JIM      GROUP = GRP1    SECLABEL =
USER = JOE      GROUP = GRP1    SECLABEL =
LOCAL LU LOCALLU FOR REMOTE LU PRTNRLU2 HAS USER(S):
USER = BRIAN    GROUP =         SECLABEL =
LOCAL LU LOCALLU FOR REMOTE LU PRTNRLU3 HAS USER(S):
USER = BRIAN    GROUP =         SECLABEL =
LOCAL LU LOCALLU FOR REMOTE LU PRTNRLU4 HAS USER(S):
USER = BRIAN    GROUP =         SECLABEL =
LOCAL LU LOCLLU2 FOR REMOTE LU PRTNRLU1 HAS USER(S):
USER = JIM      GROUP = GRP1    SECLABEL =
LOCAL LU LOCLLU3 FOR REMOTE LU PRTNRLU1 HAS USER(S):
USER = JIM      GROUP = GRP1    SECLABEL =
```

Figure 6. Example 3: Output for the DISPLAY command

```
IRRD004I RACF  2.6.0  SUBSYSTEM 647
LOCAL LU LOCALLU  FOR REMOTE LU PRTNRLU1 HAS USER(S):
USER = BOB      GROUP = SYS1     SECLABEL =
USER = BRIAN    GROUP = SYS1     SECLABEL =
LOCAL LU LOCALLU  FOR REMOTE LU PRTNRLU2 HAS USER(S):
USER = BRIAN    GROUP =          SECLABEL =
LOCAL LU LOCALLU  FOR REMOTE LU PRTNRLU3 HAS USER(S):
USER = BRIAN    GROUP =          SECLABEL =
LOCAL LU LOCALLU  FOR REMOTE LU PRTNRLU4 HAS USER(S):
USER = BRIAN    GROUP =          SECLABEL =
```

Figure 7. Example 4: Output for the DISPLAY command

```
IRRD004I RACF 2.6.0 SUBSYSTEM 251
LOCAL LU LOCALLU FOR REMOTE LU PRTNRLU1 HAS USER(S):
USER = JIM      GROUP = GRP1    SECLABEL =
USER = JOE      GROUP = GRP1    SECLABEL =
LOCAL LU LOCLLU2 FOR REMOTE LU PRTNRLU1 HAS USER(S):
USER = JIM      GROUP = GRP1    SECLABEL =
LOCAL LU LOCLLU3 FOR REMOTE LU PRTNRLU1 HAS USER(S):
USER = JIM      GROUP = GRP1    SECLABEL =
```

Figure 8. Example 5: Output for the DISPLAY command

LISTDSD (List data set profile)

Purpose

Use the LISTDSD command to list information included in tape and DASD data set profiles. A data set profile consists of a BASE segment and, optionally, a DFP or TME segment. The LISTDSD command provides you with the option of listing information contained in the entire data set profile (all segments), or listing the information contained only in a specific segment of the profile.

You can request the details for any number of profiles by giving the full name of each profile. You can also request the details for all profiles whose names are qualified by specific user IDs, group names, or character strings.

You can use the LISTDSD command to cause the changes to go into effect for the generic profiles after issuing the ADDSD, ALTDSD, or DELDSD commands. LISTDSD places a new copy of the profile in the user's address space.

Details RACF lists from the BASE segment of each profile:

- The level
- The owner
- The type of access attempts (as specified by the AUDIT operand on the ADDSD or ALTDSD command) that are being logged on the SMF data set
- The universal access authority

- Your highest level of access authority
- The group under which the profile was created
- The data set type (tape, VSAM, non-VSAM, or MODEL)
- The retention period for a tape data set
- The type of access attempts (as specified by the GLOBALAUDIT operand on the ALTDSD command) that are being logged on the SMF data set (for auditors only)
- The volume serial number (volser) of the volume on which the data set resides.

  For both a single volume and multivolume VSAM data set, the volser represents the volume containing the catalog entry for the data set.

  For a non-VSAM data set, the volser represents the volume containing the data set itself. If it is a multivolume non-VSAM data set, a list of volsers is given. The list represents the volumes on which the protected data set resides. They are listed in the order in which they were defined.
- Unit information for the data set (if unit information had been specified in the UNIT operand on the ADDSD or ALTDSD command)
- Installation-defined data as specified on the DATA operand of the ADDSD or ALTDSD command.

  Note: If your installation is running with maximum security (that is, with SETROPTS MLSTABLE, MLS, MLACTIVE, and SECLABELCONTROL all active and the SECLABEL class active), this information is listed only for those with SPECIAL. If you are not SPECIAL, the following text appears in your output in the installation data field: `* SUPPRESSED *`

Additional details listed: You can request the following additional details by using the appropriate LISTDSD operands:

- Historical data, such as the date the data set was:
  - Defined to RACF
  - Last referenced
  - Last updated

  For additional information, see the HISTORY operand.
- The number of times the data set was accessed by all users for each of the following access authorities:
  - ALTER, CONTROL, UPDATE, READ, EXECUTE.

  For additional information, see the STATISTICS operand.

  Note: These details are not meaningful if resource statistics gathering is bypassed at your installation. For a generic profile, RACF replaces any statistics line with `NOT APPLICABLE FOR GENERIC PROFILE`.
- The standard access list, which displays:
  - All users and groups authorized to access the data set
  - The level of authority for each user and group
  - The number of times each user has accessed the data set

  For additional information, see the AUTHUSER operand.
- The conditional access list, which displays the same fields as the standard access list as well as the following fields:
  - The class of the resource
  - The entity name of the resource

  For additional information, see the AUTHUSER operand.
- The following information:
  - The user categories authorized to access the data set

  - The security level required to access the data set
  - The security label required to access the data set

  For additional information, see the AUTHUSER operand.

- The details RACF lists from the DFP segment of the profile:
  - The user ID or group name of the data set resource owner
  - The default CKDS label to associate with a data set at allocation time
- The details RACF lists from the TME segment of the profile:
  - The roles and associated access levels
- The details RACF lists from the CSDATA segment of the data set profile:
  - The list of custom fields that your installation has added to this data set.

RACF date handling: RACF interprets dates with 2-digit years as follows. (The *yy* value represents the 2-digit year.)

- If `70 <  yy <= 99`, the date is interpreted as `19yy`.
- If `00 <= yy <= 70`, the date is interpreted as `20yy`.

Issuing options

The following table identifies the eligible options for issuing the LISTDSD command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	Yes	Yes	No	Yes

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

You must be logged on to the console to issue this command as a RACF operator command.

Related commands

- To list a general resource profile, see “RLIST (List general resource profile)” on page 512. (General resources include terminals and other resources defined in the class descriptor table.)
- To list a user profile, see “LISTUSER (List user profile)” on page 213.
- To list a group profile, see “LISTGRP (List group profile)” on page 204.
- To obtain a list of data set profiles, see “SEARCH (Search RACF database)” on page 541.

Authorization required

When issuing this command as a RACF operator command, you might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

To specify the AT keyword, you must have READ authority to the DIRECT.*node* resource in the RRSFDATA class and a user ID association must be established between the specified *node.userid* pair(s).

To specify the ONLYAT keyword you must have the SPECIAL attribute, the *userid* specified on the ONLYAT keyword must have the SPECIAL attribute, and a user ID association must be established between the specified *node.userid* pair(s) if the user IDs are not identical.

Listing the BASE segment of a data set profile: To list the details of the BASE segment of a data set profile, you must have a sufficient level of authority for each profile to be listed. One of the following conditions must be met for each profile to be listed:

- You have the SPECIAL attribute.
- The profile is within the scope of a group in which you have the group-SPECIAL attribute.
- You have the OPERATIONS attribute.
- The profile is within the scope of a group in which you have the group-OPERATIONS attribute.
- The high-level qualifier of the profile name (or the qualifier supplied by a command installation exit) is your user ID.
- You are the owner of the profile.
- You are on the profile's access list with at least READ authority. (If your level of authority is NONE, the data set is not listed.)
- Your current connect group (or, if list-of-groups checking is active, any group to which you are connected) is in the access list and has at least READ authority.
- The universal access authority is at least READ.
- You have at least READ access for the profile name from the global access table (if this table contains an entry for the profile).
- You have the AUDITOR or the ROAUDIT attribute.
- The data set profile is within the scope of a group in which you have the group-AUDITOR attribute.

To display the type of access attempts (as specified by the GLOBALAUDIT operand on the ALTDSD command) that are being logged on the SMF data set, either you must have the AUDITOR attribute, the ROAUDIT attribute or the profile must be within the scope of a group in which you have the group-AUDITOR attribute.

To specify the AUTHUSER operand to display the access list for a profile, one of the following conditions must be met for each profile to be listed:

- You have the SPECIAL attribute.
- You have the OPERATIONS attribute.
- You have the AUDITOR or the ROAUDIT attribute.
- The profile is within the scope of a group in which you have the group-SPECIAL attribute.
- The profile is within the scope of a group in which you have the group-OPERATIONS attribute.
- The data set profile is within the scope of a group in which you have the group-AUDITOR attribute.
- The high-level qualifier of the profile name (or the qualifier supplied by a command installation exit) is your user ID.
- You are the owner of the profile.
- For a discrete profile, you have ALTER authority.[5]

Profiles that contain inactive security labels may not be listed if SETROPTS SECLBYSYSTEM is active because only users with SPECIAL, AUDITOR, or ROAUDIT authority are allowed to view inactive security labels.

Listing the DFP, TME, or CSDATA segment of a data set profile: To list information within the segment of a data set profile, one of the following conditions must be true:

- You have the SPECIAL, AUDITOR, or ROAUDIT attribute.
- You have at least READ authority to the desired field within the segment through field-level access control.

[5] More information about ALTER authority and how to limit it can be found in Limiting ALTER access authority in discrete profiles in *z/OS Security Server RACF Security Administrator's Guide*.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the LISTDSD command is:

[*subsystem-prefix*]{LISTDSD | LD}
[ALL]
[AT([*node*].*userid* ...) | ONLYAT([*node*].*userid* ...)]
[AUTHUSER]
[CSDATA]
[{ DATASET(*profile-name* ...) | ID(*name* ...) | PREFIX(*char* ...) }]
[DFP]
[DSNS]
[GENERIC | NOGENERIC]
[HISTORY]
[NORACF]
[STATISTICS]
[TME]
[VOLUME(*volume-serial* ...)]

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, "RACF operator commands," on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

ALL

Specifies that you want RACF to display all information for each data set.

The access list is included only if you have sufficient authority to use the AUTHUSER operand (see "Authorization required" on page 194). The type of access attempts (as specified by the GLOBALAUDIT operand on the ALTDSD command) that are being logged on the SMF data set is included only if you have the AUDITOR, ROAUDIT, or group-AUDITOR attribute.

The DFP and TME segments must be requested explicitly.

AT | ONLYAT

The AT and ONLYAT keywords are only valid when the command is issued as a RACF TSO command.

AT ([*node*].*userid* ...)

Specifies that the command is to be directed to the node specified by *node*, where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed to the local node.

ONLYAT ([*node*].*userid* ...)

LISTDSD is not eligible for automatic command direction. If you specify the ONLYAT keyword, the effect is the same as if you specified the AT keyword.

AUTHUSER

Specifies that you want the following information included in the output:

- The user categories authorized to access the data set
- The security level required to access the data set
- The security label required to access the data set
- The standard access list. This contains the following:
  - All users and groups authorized to access the data set
  - The level of authority for each user and group
  - The number of times each user has accessed the data set. This detail is only meaningful when your installation is gathering resource statistics. This detail is not included in the output for generic profiles.
- The conditional access list. This list consists of the same fields as in the standard access list, as well as the following fields:
  - The class of the resource through which each user and group can access the data set. For example, if a user can access the data set through terminal TERM01, then TERMINAL would be the class listed.
  - The entity name of the resource through which each user and group can access the data set. In the preceding example, TERM01 would be listed.

You must have sufficient authorization to use the AUTHUSER operand (see "Authorization required" on page 194).

CSDATA

Specifies that you want to list custom field information for this data set profile. The custom field information in the CSDATA segment for this data set profile was added using the ADDSD and ALTDSD commands.

If you specify CSDATA you must also specify a data set profile or *.

Usage for each custom field is defined using the CFDEF operand of the RDEFINE command for resource profiles in the CFIELD class. Contact your security administrator to see how custom fields are used at your installation. For more information about custom fields, see *z/OS Security Server RACF Security Administrator's Guide*.

DATASET | ID | PREFIX

DATASET(*profile-name ...*)

Specifies the names of one or more data sets whose profiles RACF is to list. If a specified name appears more than once in the RACF database, LISTDSD displays information about all the profiles with that name to which you have proper authority.

The data set name you specify must be enclosed in single quotation marks unless it is your own data set.

Because RACF uses the RACF database and not the catalog when searching for data set profiles, you cannot use alias data set names.

Note that if you are using naming convention processing, either through the naming convention table or an exit, the name you type might not be the same as the name that appears in the output.

ID(*name ...*)

Specifies one or more user IDs or group names. All users and groups must be defined to RACF. Details are listed for all discrete and generic profiles that have the specified user IDs or group names as the high-level qualifier name (or as the qualifier supplied by a command installation exit).

If you do not specify DATASET, PREFIX, or ID, RACF uses your user ID as the default value for the ID operand.

PREFIX(*char ...*)

Specifies one or more character strings. Details are listed for all profiles whose names begin with the specified character strings.

Note that comparison between the character strings and the profile names is not limited to the high-level qualifier. For example, if you specify PREFIX(A.B.C), RACF would display information for profiles such as `A.B.C`, `A.B.CAD`, and `A.B.C.X`.

DFP

Specifies that for a DFP-managed data set, you want to list the user ID or group name designated as the data set resource owner and the default CKDS label to be associated with a data set at allocation time. (The data set resource owner, or RESOWNER, is distinguished from the OWNER, which represents the user or group that owns the data set profile.)

DSNS

Specifies that you want to list the cataloged data sets protected by the profile specified by the DATASET, ID, or PREFIX operand.

Only data sets cataloged in an Integrated Catalog Facility (ICF) catalog are listed.

Affected tape data sets are listed, regardless of what is specified for SETROPTS TAPEDSN, or whether the TAPEVOL class is active.

When data and index components of VSAM clusters are listed, they are followed by `(D)` or `(I)`, respectively.

This operand might give unpredictable results if one of the following is true:

- You are using naming convention processing, either through the naming convention table or an exit, to modify data set names so they are protected by different profiles.
- You are using the PREFIX operand of SETROPTS to provide a high-level qualifier for data sets that have only one level in their names.
- There are migrated items in the list and either information about the item cannot be obtained from the migration facility or the migration facility is not available.

  In these cases, RACF cannot verify that the item is protected by the input profile and the migrated item is included in the list and is followed by the ? character. Whenever these items are included in the list, the following message appears at the end of the list to explain the ? character.

  ```
  ? = Migrated and unable to verify protection
  ```

Note:

1. If a migrated cluster name appears in the list, but it has an alternate index or path, information on its data or index names is unavailable without recalling the cluster. This message appears after the cluster name:

   ```
   ** Migrated cluster component information
   ** not available without recall.
   ```

2. If a migrated cluster name appears in the list and LISTDSD cannot obtain the index and data names due to a migration facility error, this message appears after the cluster name:

   ```
   ** Migrated cluster component information
   ** not available.
   ```

3. If the name of a non-migrated cluster appears in the list and RACF is unable to obtain the data and index names specifically through this item, this message appears after the cluster name:

   ```
   ** Cluster component information
   ** not available.
   ```

4. If the LISTDSD processor could not obtain all the information on one of the data sets potentially protected by the input profile, it includes the data set in the command output, but follow it with this message:

   ```
   ** Data set information not available.(x)
   ```

   It is likely that this condition occurred because the data set was deleted between the time the LISTDSD DSNS processor first found the names of all the data sets potentially protected by the input profile and the time it processed that particular data set. If that is the case, ignore that data set entry. If that is not the case, issue the LISTDSD command again and if the additional message still appears, contact IBM support; (*x*) is a numeric value that denotes diagnostic information used by IBM support.

5. The LISTDSD command processor does not include the following items in the output list of protected data sets:

   - master catalog
   - alternate index (AIX®) and its components
   - catalogs

GENERIC | NOGENERIC

GENERIC

Specifies that RACF is to list only information for the generic profiles. If you specify GENERIC with DATASET, RACF lists information for generic profiles whose names most closely match the data set names you specify.

GENERIC, when specified with DATASET, causes changes to take effect after adding, changing, or deleting generic profiles. It places a fresh copy of the profile in the command user's address space.

NOGENERIC

Specifies that RACF is to list only information for discrete profiles.

Note:

1. If you specify ID or PREFIX but omit GENERIC and NOGENERIC, RACF lists information for all discrete and generic profiles of the data sets owned or represented by the names specified in the command.

   For example, if you enter the following command:

   ```
   LISTDSD ID(SMITH)
   ```

   RACF lists all data set profiles for user ID SMITH.

2. If you specify the DATASET operand but omit GENERIC and NOGENERIC, RACF lists information for the discrete profile, if it exists, and the fully qualified generic profile if it exists, or the generic profile that is not fully qualified, if its name, including all its qualifiers, matches the name specified on the command.

   For example, if you enter the following command:

   ```
   LISTDSD DATASET('XXX.YYY','AA.*')
   ```

   RACF lists information for the discrete profile XXX.YYY, if it exists, the fully qualified generic profile XXX.YYY if it exists, and the generic profile AA.* if it exists.
3. If you specify DATASET with a fully qualified name for a data set that is protected by a generic profile that is not fully qualified, information for this profile can be listed only when GENERIC is specified.

   If you specified DATASET without GENERIC and NOGENERIC and you received an informational message (`No RACF description found.`) for one of the specified fully qualified names, you might want to retry the command on this name using GENERIC, because it is possible that this data set is protected by a generic profile that is not fully qualified.

   For example, data set BBB.CCC is protected by a generic profile BBB.*. If you enter the following command:

   ```
   LISTDSD DATASET('BBB.CCC')
   ```

   RACF lists information only if there is a discrete profile BBB.CCC, or a fully qualified generic profile BBB.CCC, or both. But if you enter the following command:

   ```
   LISTDSD DATASET('BBB.CCC') GENERIC
   ```

   RACF lists information for the fully qualified generic profile BBB.CCC if it exists, or the generic profile that most closely matches BBB.CCC. In this example, the generic profile BBB.* is listed.
4. If generic profile command processing is inactive, only discrete profiles are listed. RACF does not search for generic profiles.

HISTORY

Specifies that you want to list the following data:

- The date each profile was defined to RACF
- The date each data set was last referenced
- The date of the last authorization check for UPDATE authority

NORACF

Specifies that you want to suppress the listing of BASE segment information from the specified data set's profile. If you specify NORACF, you must include one or more of the following operands: DSNS, DFP, TME.

If you do not specify NORACF, RACF displays the information in the BASE segment of a data set.

The information displayed as a result of using the NORACF operand is dependent on other operands used in the command. For example, if you use NORACF with DSNS, DFP, or TME also specified, only that information (DSNS, DFP, or TME) is displayed.

STATISTICS

Specifies that you want to list the statistics for each profile. The list includes the number of times the profile was accessed by users with READ, UPDATE, CONTROL, and ALTER authorities, as well as a separate total for each authority level. These details are meaningful only when your installation is gathering resource statistics. For generic profiles, RACF replaces any statistics line with `NOT APPLICABLE FOR GENERIC PROFILE`.

TME

Specifies that information for the Tivoli Security Management Application is to be listed.

VOLUME(*volume-serial ...*)

Limits the profiles listed to those found on the specific volume or list of volumes identified by volume serial number. RACF does not list profiles with the same name found on other volumes. If you do not specify NOGENERIC, RACF lists any generic profiles as well.

Examples

Example	Activity label	Description
1	*Operation*	User DAF0 wants to list all information for his own data set profiles.
	Known	User DAF0 is RACF-defined, and does not have the AUDITOR attribute. User DAF0 wants to issue the command as a RACF TSO command.
	Command	`LISTDSD ALL`
	Defaults	ID(DAF0)
	Output	See Figure 9 on page 202.
2	*Operation*	User IA0 wants to list the users authorized to data set SYS1.PLIBASE.
	Known	User IA0 has ALTER authority to SYS1.PLIBASE, and does not have the AUDITOR attribute. User IA0 wants to issue the command as a RACF TSO command.
	Command	`LISTDSD DATASET('SYS1.PLIBASE') AUTHUSER`
	Defaults	None.
	Output	See Figure 10 on page 203.
3	*Operation*	User ADM1 wants to list a generic profile SALES.*.ABC.
	Known	User ADM1 is the owner of the generic profile, and generic profile command processing is enabled. User ADM1 has the group-AUDITOR attribute in group SALES. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`LISTDSD DATASET('SALES.*.ABC')`
	Defaults	None.
	Output	See Figure 11 on page 203.
4	*Operation*	User JADAMS wants to display the discrete profile for the DFP-managed data set RESEARCH.TEST.DATA. JADAMS also wants to display the user or group who is the data set resource owner.
	Known	User JADAMS is the owner of the profile protecting data set RESEARCH.TEST.DATA. User JADAMS has field-level access of at least READ for the DFP segment. User JADAMS wants to issue the command as a RACF TSO command.
	Command	`LISTDSD DATASET('RESEARCH.TEST.DATA') DFP`
	Defaults	None.
	Output	See Figure 12 on page 204.

```
LISTDSD ALL
 INFORMATION FOR DATASET DAF0.DS2.DATA
 LEVEL  OWNER    UNIVERSAL ACCESS  WARNING  ERASE
 -----  -------- ----------------  -------  -----
  00    DAF0            READ         NO     NO
AUDITING
--------
SUCCESS(READ),FAILURES(ALTER)
NOTIFY
--------
NO USER TO BE NOTIFIED
YOUR ACCESS  CREATION GROUP  DATASET TYPE
-----------  --------------  ------------
NONE GIVEN        RESEARCH     NON-VSAM
VOLUMES ON WHICH DATASET RESIDES  UNIT
--------------------------------  ----
231406                            SYSDA
NO INSTALLATION DATA
              SECURITY LEVEL
-------------------------------------------
NO SECURITY LEVEL
CATEGORIES
----------
NOCATEGORIES
SECLABEL
----------
NO SECLABEL
CREATION DATE  LAST REFERENCE DATE  LAST CHANGE DATE
(DAY)  (YEAR)       (DAY)  (YEAR)     (DAY)  (YEAR)
-------------  -------------------  ----------------
 145     85          145     85        145     85
ALTER COUNT  CONTROL COUNT   UPDATE COUNT  READ COUNT
-----------  -------------   ------------  ----------
  00000          00010          00000        00010
  ID      ACCESS   ACCESS COUNT
-------   -------   ------------
IA0        READ       00010
ADM1       READ       00000
PROJECTA  UPDATE      00008
  ID      ACCESS   ACCESS COUNT   CLASS   ENTITY NAME
------    ------   ------------   -----   -----------
NO ENTRIES IN CONDITIONAL ACCESS LIST
```

```
INFORMATION FOR DATASET DAF0.DS3.DATA
 LEVEL  OWNER    UNIVERSAL ACCESS  WARNING  ERASE
 -----  -------- ----------------  -------  -----
  00    DAF0            READ         NO     NO
AUDITING
--------
ALL(UPDATE)
NOTIFY
--------
NO USER TO BE NOTIFIED
YOUR ACCESS  CREATION GROUP  DATASET TYPE
-----------  --------------  ------------
NONE GIVEN      RESEARCH       NON-VSAM
VOLUMES ON WHICH DATASET RESIDES  UNIT
--------------------------------  ----
231406                            SYSDA
NO INSTALLATION DATA
              SECURITY LEVEL
-------------------------------------------
NO SECURITY LEVEL
CATEGORIES
----------
NOCATEGORIES
SECLABEL
----------
NO SECLABEL
CREATION DATE  LAST REFERENCE DATE  LAST CHANGE DATE
(DAY)  (YEAR)       (DAY)  (YEAR)     (DAY)  (YEAR)
-------------  -------------------  ----------------
 145     85          145     85        145     85
ALTER COUNT  CONTROL COUNT   UPDATE COUNT  READ COUNT
-----------  -------------   ------------  ----------
 00000           00000          00000        00010
  ID      ACCESS   ACCESS COUNT
-------   -------  ------------
NO ENTRIES IN STANDARD ACCESS LIST
  ID      ACCESS   ACCESS COUNT   CLASS   ENTITY NAME
------    ------   ------------   -----   -----------
NO ENTRIES IN CONDITIONAL ACCESS LIST
```

Figure 9. Example 1: Output for the LISTDSD command

```
LISTDSD  DATASET('SYS1.PL1BASE')  AUTHUSER
 INFORMATION FOR DATASET SYS1.PLIBASE
 LEVEL  OWNER    UNIVERSAL ACCESS  WARNING  ERASE
 -----  -------- ----------------  -------  -----
  00    IAO             READ         NO     NO
AUDITING
--------
SUCCESS(UPDATE)
NOTIFY
--------
NO USER TO BE NOTIFIED
YOUR ACCESS  CREATION GROUP   DATASET TYPE
-----------  --------------   ------------
   ALTER        SYS1            NON-VSAM
VOLUMES ON WHICH DATASET RESIDES   UNIT
---------------------------------  ----
231407                             SYSDA
INSTALLATION DATA
--------------------------------------------------
PL/1 LINK LIBRARY
              SECURITY LEVEL
-------------------------------------------
NO SECURITY LEVEL
CATEGORIES
----------
NOCATEGORIES
SECLABEL
----------
NO SECLABEL
  ID      ACCESS   ACCESS COUNT
-------   -------  ------------
ESH25     UPDATE      00009
PROJECTB   READ       00015
IA0        ALTER      00020
  ID      ACCESS   ACCESS COUNT   CLASS   ENTITY NAME
------    ------   ------------   -----   -----------
NO ENTRIES IN CONDITIONAL ACCESS LIST
```

Figure 10. Example 2: Output for the LISTDSD command

```
LISTDSD DATASET('SALES.*.ABC')
 INFORMATION FOR DATASET SALES.*.ABC (G)
 LEVEL  OWNER    UNIVERSAL ACCESS  WARNING  ERASE
 -----  -------- ----------------  -------  -----
  00    ADM1          READ         NO       NO
 AUDITING
 --------
 ALL(READ)
NOTIFY
--------
NO USER TO BE NOTIFIED
 YOUR ACCESS  CREATION GROUP  DATASET TYPE
 -----------  --------------  ------------
 NONE GIVEN    RESEARCH       NON-VSAM
 GLOBALAUDIT
 -----------
 NONE
 NO INSTALLATION DATA
```

Figure 11. Example 3: Output for the LISTDSD command

```
LISTDSD DATASET('RESEARCH.TEST.DATA') DFP
 INFORMATION FOR DATASET RESEARCH.TEST.DATA
 LEVEL  OWNER    UNIVERSAL ACCESS  WARNING  ERASE
 -----  -------- ----------------  -------  -----
  00    JADAMS          READ         NO     NO
 AUDITING
 --------
 ALL(READ)
NOTIFY
--------
NO USER TO BE NOTIFIED
 YOUR ACCESS  CREATION GROUP  DATASET TYPE
 -----------  --------------  ------------
 NONE GIVEN    RESEARCH       NON-VSAM
 GLOBALAUDIT
 -----------
 NONE
 NO INSTALLATION DATA
DFP INFORMATION
----------------
RESOWNER= KSMITH
DATAKEY= RESEARCH.TEST.DEFAULT.DATAKEY
```

Figure 12. Example 4: Output for the LISTDSD command

LISTGRP (List group profile)

Purpose

Use the LISTGRP command to list details of specific RACF group profiles. A group profile consists of a BASE segment and, optionally, other segments such as DFP and OMVS. The LISTGRP command provides you with the option of listing the information contained in the entire group profile (all segments), or listing the information contained only in a specific segment of the group profile.

The details RACF lists from the BASE segment of each group profile are:

- The superior group of the group
- The owner of the group
- The date the group was defined to RACF
- The terminal option of the group
- Whether or not the group is a universal group
- Any subgroups under the group
- Installation-defined data, as specified by the DATA operand of the ADDGROUP and ALTGROUP command
- The name of the data set model profile.

RACF lists the following information from the BASE segment of the group profile for each user connected to the group:

- The user ID

  An exception to this is when the group is a UNIVERSAL group. When a UNIVERSAL group displayed with the LISTGRP command, not all members will be listed. Only users with authority higher than USE or with the attributes SPECIAL, OPERATIONS or AUDITOR at the group level will be shown in the member list. To view all members of a UNIVERSAL group, the Database Unload Utility (IRRDBU00) must be used. For more information on using the Database Unload Utility (IRRDBU00), see *z/OS Security Server RACF Security Administrator's Guide*.
- The user's level of authority in the group
- The number of times the user has entered the system using this group as the current connect group
- The user's default universal access authority
- The user's connect attributes (group-related user attributes)

- Any REVOKE or RESUME processing either in effect or pending, with the corresponding dates even if they have passed.

The details RACF lists from the DFP segment of the group profile are:

- The group's default data class
- The group's default management class
- The group's default storage class
- The data management data application for the group.

The details RACF lists from the TME segment of the group profile are:

- The list of roles that refer to this group.

The details RACF lists from the OMVS or OVM segment of the group profile are:

- The group's z/OS UNIX System Services group identifier.

The details RACF lists from the CSDATA segment of the group profile are:

- The list of custom fields that your installation has added to this group.

Issuing options

The following table identifies the eligible options for issuing the LISTGRP command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	Yes	Yes	No	Yes

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

You must be logged on to the console to issue this command as a RACF operator command.

Related commands

- To list a user profile, see “LISTUSER (List user profile)” on page 213.
- To list a data set profile, see “LISTDSD (List data set profile)” on page 192.
- To list a general resource profile, see “RLIST (List general resource profile)” on page 512. (General resources include terminals and other resources defined in the class descriptor table.)
- To obtain a list of group profiles, see “SEARCH (Search RACF database)” on page 541.

Authorization required

When issuing this command as a RACF operator command, you might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

To specify the AT keyword, you must have READ authority to the DIRECT.*node* resource in the RRSFDATA class and a user ID association must be established between the specified *node.userid* pair(s).

To specify the ONLYAT keyword you must have the SPECIAL attribute, the *userid* specified on the ONLYAT keyword must have the SPECIAL attribute, and a user ID association must be established between the specified *node.userid* pair(s) if the user IDs are not identical.

Listing the BASE segment of a group profile: To list the details of the BASE segment of a group profile, one of the following conditions must be true:

- You have the SPECIAL attribute.
- You have the group-SPECIAL attribute in each group to be listed, or each group to be listed is within the scope of a group in which you have the group-SPECIAL attribute.
- You have the AUDITOR or the ROAUDIT attribute.
- You have the group-AUDITOR attribute in each group to be listed, or each group to be listed is within the scope of a group in which you have the group-AUDITOR attribute.
- You are the owner of the group.
- You have JOIN or CONNECT authority in the group.

Listing the other segments of a group profile: To list information from segments other than the BASE segment for a group profile, one of the following conditions must be true:

- You have the SPECIAL, AUDITOR, or ROAUDIT attribute.
- You have at least READ authority to the desired field through field-level access control.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the LISTGRP command is:

```
[subsystem-prefix]{LISTGRP | LG}
      [ {(group-name ...) | *}]
      [ AT([node].userid ...) | ONLYAT([node].userid ...) ]
      [ CSDATA ]
      [ DFP ]
      [ NORACF ]
      [ OMVS ]
      [ OVM ]
      [ TME ]
```

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, "RACF operator commands," on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with

CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

***group-name* | ***

group-name

Specifies the name of one or more RACF-defined groups. If you specify more than one group name, you must enclose the names in parentheses.

*****

Specifies that you want to list information contained in all RACF-defined group profiles to which you have the required authority.

On a system with many groups defined, the use of * might result in a large amount of output and might not be useful to a user issuing the command. It might be more appropriate for the user to browse the output of IRRDBU00 (database unload utility) or to write a program to process the IRRDBU00 output and produce a report showing only the subset of information that is of interest to the user. The processing of output of LISTGRP by programs is not supported nor recommended by IBM. If you want a listing of all the groups for use by a program you should instead have the program process the output from IRRDBU00, RACROUTE REQUEST=EXTRACT, or ICHEINTY.

If you specify a group name or *, it must be the first operand following LISTGRP.

If you specify one or more group names (or *) without specifying an additional operand, RACF lists only the BASE segment information from the specified profiles.

If you enter LISTGRP with no operands, RACF lists only the BASE segment information from your current connect group.

AT | ONLYAT

The AT and ONLYAT keywords are valid only when the command is issued as a RACF TSO command.

AT ([*node*].*userid* ...)

Specifies that the command is to be directed to the node specified by *node*, where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed to the local node.

ONLYAT ([*node*].*userid* ...)

LISTGRP is not eligible for automatic command direction. If you specify the ONLYAT keyword, the effect is the same as if you specified the AT keyword.

CSDATA

Specifies that you want to list custom field information for this group. The custom field information in the CSDATA segment for this group was added using the ADDGROUP and ALTGROUP commands.

If you specify CSDATA you must also specify a group name or *.

Usage for each custom field is defined using the CFDEF operand of the RDEFINE command for resource profiles in the CFIELD class. Contact your security administrator to see how custom fields are used at your installation. For more information about custom fields, see *z/OS Security Server RACF Security Administrator's Guide*.

DFP

Specifies that you want to list the information contained in the DFP segment of the group profile.

If you specify DFP you must also specify a group name or *.

NORACF

Specifies that you want to suppress the listing of base segment information from the group profile. If you specify NORACF, you must also specify one of the other segment names such as DFP or OMVS.

If you do not specify NORACF, RACF displays the information in the BASE segment of a group profile.

OMVS

Specifies that you want to list the information contained in the OMVS segment of the group profile.

If you specify OMVS, you must also specify a group name or (*).

If the group profile contains an OMVS segment but GID was not specified on a ADDGROUP or ALTGROUP command, the listing displays the field name followed by the word NONE.

OVM

Specifies that you want to list the information contained in the OVM segment of the group profile.

If you specify OVM, you must also specify a group name or an (*).

If the group profile contains an OVM segment but GID was not specified on a ADDGROUP or ALTGROUP command, the listing displays the field name followed by the word NONE.

TME

Specifies that information for the Tivoli Security Management Application is to be listed.

If you specify TME you must also specify a group name or an asterisk (*).

Examples

Example	Activity label	Description
1	*Operation*	User IA0 wants to display the information contained in the BASE segment of the profile for group RESEARCH.
	Known	User IA0 has CONNECT authority to group RESEARCH. User IA0 wants to issue the command as a RACF TSO command.
	Command	`LISTGRP RESEARCH`
	Defaults	None.
	Output	See Figure 13 on page 210.
2	*Operation*	User ADM1 wants to display the information contained in the BASE segment of the profiles for all groups.
	Known	User ADM1 has the SPECIAL and AUDITOR attributes. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`LISTGRP *`
	Defaults	None.
	Output	See Figure 14 on page 211.
3	*Operation*	User ADM1 wants to display the information contained in the BASE segment and DFP segment of the profile for group DFPADMN.
	Known	User ADM1 has the SPECIAL and AUDITOR attributes. Group DFPADMN is defined to RACF, and DFPADMN's profile contains a DFP segment. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`LISTGRP DFPADMN DFP`
	Defaults	None.
	Output	See Figure 15 on page 212.

Example	Activity label	Description
4	*Operation*	User ADM1 wants to display the information contained in only the DFP segment of the profile for group DFPADMN.
	Known	User ADM1 has the SPECIAL and AUDITOR attributes. Group DFPADMN is defined to RACF, and DFPADMN's profile contains a DFP segment. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`LISTGRP DFPADMN DFP NORACF`
	Defaults	None.
	Output	See Figure 16 on page 212.
5	*Operation*	User ADM1 requests the listing of the OMVS segment for the group OMVSG1.
	Known	User ADM1 has the SPECIAL attribute. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`LISTGRP OMVSG1 OMVS NORACF`
	Defaults	None.
	Output	See Figure 17 on page 212.
6	*Operation*	User NETADM requests the listing of the UNIVERSAL group NETGROUP.
	Known	NETGROUP is a UNIVERSAL group and only users with authority higher than USE or users with SPECIAL, OPERATIONS and AUDITOR at the GROUP level will be displayed in the member list. User NETADM has the SPECIAL attribute to the group NETGROUP. User NETADM wants to issue the command as a RACF TSO command.
	Command	`LISTGRP NETGROUP`
	Defaults	None.
	Output	See Figure 18 on page 212.

```
LISTGRP RESEARCH
INFORMATION FOR GROUP RESEARCH
    SUPERIOR GROUP=SYS1         OWNER=IBMUSER   CREATED=06.123
    NO INSTALLATION DATA
    NO MODEL DATA SET
    TERMUACC
    SUBGROUP(S)= PAYROLLB
    USER(S)=      ACCESS=      ACCESS COUNT=     UNIVERSAL ACCESS=
    IBMUSER         JOIN          000000              ALTER
       CONNECT   ATTRIBUTES=NONE
       REVOKE DATE=NONE                 RESUME DATE=NONE
    DAF0            JOIN          000002              READ
      CONNECT    ATTRIBUTES=NONE
      REVOKE DATE=NONE                  RESUME DATE=NONE
    IA0             CONNECT       000004              READ
      CONNECT    ATTRIBUTES=ADSP SPECIAL OPERATIONS
      REVOKE DATE=NONE                  RESUME DATE=NONE
    ESH25           USE           000000              READ
      CONNECT    ATTRIBUTES=NONE
      REVOKE DATE=NONE                  RESUME DATE=NONE
    PROJECTB        USE           000000              READ
      CONNECT    ATTRIBUTES=NONE
      REVOKE DATE=NONE                  RESUME DATE=NONE
    RV2             CREATE        000000              READ
      CONNECT    ATTRIBUTES=NONE
      REVOKE DATE=NONE                  RESUME DATE=NONE
    RV3             CREATE        000000              READ
      CONNECT    ATTRIBUTES=NONE
      REVOKE DATE=NONE                  RESUME DATE=NONE
    ADM1            JOIN          000000              READ
      CONNECT    ATTRIBUTES=OPERATIONS
      REVOKE DATE=NONE                  RESUME DATE=NONE
    AEH0            USE           000000              READ
      CONNECT    ATTRIBUTES=REVOKED
      REVOKE DATE=NONE                  RESUME DATE=NONE
```

Figure 13. Example 1: Output for LISTGRP RESEARCH

```
LISTGRP *
INFORMATION FOR GROUP PAYROLLB
    SUPERIOR GROUP=RESEARCH     OWNER=IBMUSER   CREATED=06.123
    NO INSTALLATION DATA
    NO MODEL DATA SET
    TERMUACC
    NO SUBGROUPS
    USER(S)=      ACCESS=      ACCESS COUNT=      UNIVERSAL ACCESS=
      IBMUSER       JOIN          000000               ALTER
         CONNECT ATTRIBUTES=NONE
         REVOKE DATE=NONE                  RESUME DATE=NONE
      DAF0          CREATE        000000               READ
         CONNECT ATTRIBUTES=NONE
         REVOKE DATE=NONE                  RESUME DATE=NONE
      IA0           CREATE        000000               READ
         CONNECT ATTRIBUTES=ADSP SPECIAL OPERATIONS
         REVOKE DATE=NONE                  RESUME DATE=NONE
      AEH0          CREATE        000000               READ
         CONNECT ATTRIBUTES=NONE
         REVOKE DATE=NONE                  RESUME DATE=NONE
INFORMATION FOR GROUP RESEARCH
    SUPERIOR GROUP=SYS1         OWNER=IBMUSER   CREATED=06.123
    NO INSTALLATION DATA
    NO MODEL DATA SET
    TERMUACC
    SUBGROUP(S)= PAYROLLB
    USER(S)=      ACCESS=      ACCESS COUNT=      UNIVERSAL ACCESS=
      IBMUSER       JOIN          000000               ALTER
         CONNECT ATTRIBUTES=NONE
         REVOKE DATE=NONE                  RESUME DATE=NONE
      DAF0          JOIN          000002               READ
         CONNECT ATTRIBUTES=NONE
         REVOKE DATE=NONE                  RESUME DATE=NONE
      IA0           CONNECT       000004               READ
         CONNECT ATTRIBUTES=ADSP SPECIAL OPERATIONS
         REVOKE DATE=NONE                  RESUME DATE=NONE
      ESH25         USE           000000               READ
         CONNECT ATTRIBUTES=NONE
         REVOKE DATE=NONE                  RESUME DATE=NONE
      PROJECTB      USE           000000               READ
         CONNECT ATTRIBUTES=NONE
         REVOKE DATE=NONE                  RESUME DATE=NONE
      RV2           CREATE        000002               READ
         CONNECT ATTRIBUTES=NONE
         REVOKE DATE=NONE                  RESUME DATE=NONE
      RV3           CREATE        000000               READ
         CONNECT ATTRIBUTES=NONE
         REVOKE DATE=NONE                  RESUME DATE=NONE
      ADM1          JOIN          000001               READ
         CONNECT ATTRIBUTES=OPERATIONS
         REVOKE DATE=NONE                  RESUME DATE=NONE
      AEH0          USE           000000               READ
         CONNECT ATTRIBUTES=NONE
         REVOKE DATE=NONE                  RESUME DATE=NONE
```

*Figure 14. Example 2: Output for LISTGRP **

```
LISTGRP DFPADMN DFP
INFORMATION FOR GROUP DFPADMN
    SUPERIOR GROUP=SYSADMN      OWNER=SYSADMN   CREATED=06.123
    NO INSTALLATION DATA
    NO MODEL DATA SET
    TERMUACC
    SUBGROUP(S)= DFPGRP1, DFPGRP2
    USER(S)=      ACCESS=      ACCESS COUNT=     UNIVERSAL ACCESS=
    IBMUSER         JOIN          000000              ALTER
       CONNECT   ATTRIBUTES=NONE
       REVOKE DATE=NONE                 RESUME DATE=NONE
    DSMITH          JOIN          000002              READ
      CONNECT    ATTRIBUTES=NONE
      REVOKE DATE=NONE                  RESUME DATE=NONE
    HOTROD          CONNECT       000004              READ
      CONNECT    ATTRIBUTES=ADSP SPECIAL OPERATIONS
      REVOKE DATE=NONE                  RESUME DATE=NONE
    ESHAW           USE           000000              READ
      CONNECT    ATTRIBUTES=NONE
      REVOKE DATE=NONE                  RESUME DATE=NONE
    PROJECTB        USE           000000              READ
      CONNECT    ATTRIBUTES=NONE
      REVOKE DATE=NONE                  RESUME DATE=NONE
    ADM1            JOIN          000000              READ
      CONNECT    ATTRIBUTES=OPERATIONS
      REVOKE DATE=NONE                  RESUME DATE=NONE
    AEHALL          USE           000000              READ
      CONNECT    ATTRIBUTES=REVOKED
      REVOKE DATE=NONE                  RESUME DATE=NONE
 DFP INFORMATION
    MGMTCLAS= DFP2MGMT
    STORCLAS= DFP2STOR
    DATACLAS= DFP2DATA
    DATAAPPL= DFP2APPL
```

Figure 15. Example 3: Output for LISTGRP DFPADMIN DFP

```
LISTGRP DFPADMN DFP NORACF
INFORMATION FOR GROUP DFPADMN
 DFP INFORMATION
    MGMTCLAS= DFP2MGMT
    STORCLAS= DFP2STOR
    DATACLAS= DFP2DATA
    DATAAPPL= DFP2APPL
```

Figure 16. Example 4: Output for LISTGRP DFPADMIN DFP NORACF

```
LISTGRP OMVSG1 OMVS NORACF
INFORMATION FOR GROUP OMVSG1
 OMVS INFORMATION
    GID= 0000003243
```

Figure 17. Example 5: Output for LISTGRP OMVSG1 OMVS NORACF

```
LISTGRP NETGROUP
INFORMATION FOR GROUP NETGROUP
      SUPERIOR GROUP=SYS1       OWNER=IBMUSER   CREATED=06.123
      NO INSTALLATION DATA
      NO MODEL DATA SET
      TERMUACC
      UNIVERSAL
      NO SUBGROUPS
    USER(S)=      ACCESS=      ACCESS COUNT=      UNIVERSAL ACCESS=
    IBMUSER         JOIN          00000000             NONE
        CONNECT ATTRIBUTES= NONE
        REVOKE DATE= NONE                RESUME DATE= NONE
    NETADM        CREATE          00000000             READ
        CONNECT ATTRIBUTES= SPECIAL
        REVOKE DATE= NONE                RESUME DATE= NONE
```

Figure 18. Example 6: Output for LISTGRP NETGROUP

LISTUSER (List user profile)

Purpose

Use the LISTUSER command to list the details of specific RACF user profiles. A user profile consists of a BASE segment and, optionally, other segments such as TSO and DFP. The LISTUSER command provides you with the option of listing the information contained in the entire user profile (all segments), or listing the information contained only in specific segments of the user profile.

You cannot use the LISTUSER command to list information about user ID associations; you must use the RACLINK command.

The details RACF lists from the BASE segment for each user profile are:

- The user ID
- The user's name or `UNKNOWN`, if the user's name was not specified on the ADDUSER command
- The owner of the user's profile
- The date the user was defined to RACF
- The default group
- The date the user's password was last updated
- The date the user's password phrase was last updated
- The change interval (in number of days)
- The password phrase change interval (in number of days)
- Information about the user's password envelope and password phrase envelope, if any. (See "Details about listing envelope information".)
- The user's attributes
- The date and time the user last entered the system
- The classes in which the user is authorized to define profiles
- The installation-defined data
  - If your z/OS installation is configured as a multilevel-secure environment, this information is not listed in your output. The output line `* SUPPRESSED *` appears under the installation data field. Only those with SPECIAL will be allowed to list the field.
- The name of default data set model profile
- Any REVOKE or RESUME processing either in effect or pending, with the corresponding dates even if they have passed
- The security label, the security level, and category
  - When you specify the user ID on the LISTUSER command, the default security label from the user profile in the RACF database is displayed in the output.
  - When you do *not* specify the user ID on the LISTUSER command, the security label you are currently logged on with (from the in-storage ACEE control blocks) is displayed in the output.

In addition, RACF lists the following information from the BASE segment of the user profile for each group to which the user is connected:

- The group name
- The user's authority in the group
- The user ID of the person who connected the user to this group
- The date the user was connected to this group
- The number of times the user has entered the system with this group as the current connect group
- The default universal access authority

- The date and time the user last entered the system using this group as the current connect group
- The connect attributes (group-related user attributes).

Details about listing a user's envelope information:

- Listing information about password envelopes:
  - Information about a user's password envelope is displayed only if the user does not have the PROTECTED attribute.
  - If the user's password is enveloped (regardless of whether password enveloping is enabled), the `PASSWORD  ENVELOPED=YES` line is displayed.
  - If the user's password is not enveloped and password enveloping is enabled, the `PASSWORD ENVELOPED=NO` line is displayed.
  - If the user's password is not enveloped and password enveloping is *not* enabled, no output line about password enveloping is displayed.
- Listing information about password phrase envelopes:
  - Information about a user's password phrase envelope is displayed only if the user does not have the PROTECTED attribute.
  - If the user's password phrase is enveloped (regardless of whether password phrase enveloping is enabled), the `PHRASE  ENVELOPED=YES` line is displayed.
  - If the user's password phrase is not enveloped and password phrase enveloping is enabled, the `PHRASE  ENVELOPED=NO` line is displayed.
  - If the user's password phrase is not enveloped and password phrase enveloping is *not* enabled, or if the user has no password phrase, no output line about password phrase enveloping is displayed.

Details about listing the password and password phrase change interval: Users will always have a password interval but may or may not have a password phrase interval value. When a user does not have a password phrase interval value set the password interval value is used as both the password interval and password phrase interval. In this case, LISTUSER will not list the user’s PHRASE INTERVAL value.

RACF date handling: RACF interprets dates with 2-digit years as follows. (The *yy* value represents the 2-digit year.)

- If `70 <  yy <= 99`, the date is interpreted as `19yy`.
- If `00 <= yy <= 70`, the date is interpreted as `20yy`.

Issuing options

The following table identifies the eligible options for issuing the LISTUSER command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	Yes	Yes	No	Yes

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

You must be logged on to the console to issue this command as a RACF operator command.

Related commands

- To list a group profile, see “LISTGRP (List group profile)” on page 204.
- To list a data set profile, see “LISTDSD (List data set profile)” on page 192.

- To list a general resource profile, see "RLIST (List general resource profile)" on page 512. (General resources include terminals, and other resources defined in the class descriptor table.)
- To list information about user ID associations, see "RACLINK (Administer user ID associations)" on page 364.
- To obtain a list of user profiles, see "SEARCH (Search RACF database)" on page 541.

Authorization required

When issuing this command as a RACF operator command, you might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

To specify the AT keyword, you must have READ authority to the DIRECT.*node* resource in the RRSFDATA class and a user ID association must be established between the specified *node.userid* pair(s).

To specify the ONLYAT keyword you must have the SPECIAL attribute, the *userid* specified on the ONLYAT keyword must have the SPECIAL attribute, and a user ID association must be established between the specified *node.userid* pair(s) if the user IDs are not identical.

Listing the BASE segment of a user profile: You can always list the details of the BASE segment of your own user profile. To list details of the BASE segment of another user's profile, one of the following conditions must be true:

- You are the owner of the user's profile.
- You have the SPECIAL attribute.
- The user's profile is within the scope of a group in which you have the group-SPECIAL attribute.
- You have the AUDITOR or the ROAUDIT attribute.
- The user's profile is within the scope of a group in which you have the group-AUDITOR attribute.
- You have READ access to the IRR.LISTUSER resource in the FACILITY class and the user does not have the SPECIAL, AUDITOR, ROAUDIT, or OPERATIONS attribute.
- You have READ access to an appropriate resource (IRR.LU.OWNER.*owner* or IRR.LU.TREE.*owner*) in the FACILITY class, and *both* of the following conditions are also true:
  - The user does not have the SPECIAL, AUDITOR, ROAUDIT, or OPERATIONS attribute. (You can list a PROTECTED user.)
  - You are not excluded from listing the user by the IRR.LU.EXCLUDE.*excluded-user* resource in the FACILITY class.

  For more information about the IRR.LU profiles, see *z/OS Security Server RACF Security Administrator's Guide*.

To list details of the BASE segment of all RACF-defined user profiles (by specifying the asterisk (*) operand), one of the following conditions must be true for each listed profile:

- You are the owner of the user's profile. RACF lists the BASE segment for all the user profiles that you own.
- You have the SPECIAL attribute. RACF lists the BASE segment for all user profiles.
- The user's profile is within the scope of a group in which you have the group-SPECIAL attribute. RACF lists the BASE segment for all the user profiles within the scope of your group.
- You have the AUDITOR or ROAUDIT attribute. RACF lists the BASE segment for all user profiles.
- The user's profile is within the scope of a group in which you have the group-AUDITOR attribute. RACF lists the BASE segment for all the user profiles within the scope of your group.
- You have READ access to the IRR.LISTUSER resource in the FACILITY class and the user does not have any of the SPECIAL, AUDITOR, ROAUDIT, or OPERATIONS attributes.

If you have the group-SPECIAL or group-AUDITOR attribute and your installation has assigned security levels and security categories to user profiles, you must have the following to be able to display the BASE segment of a user's profile:

- A security level equal to, or greater than, that in the user profile you are trying to display
- All security categories contained in the user profile you are trying to display contained in your own user profile.

If you have the AUDITOR or ROAUDIT attribute, or the profile is within the scope of a group in which you the group-AUDITOR attribute, RACF also lists the value of the UAUDIT/NOUAUDIT operand.

Listing the other segments of a user profile: To list information from segments other than the BASE segment for a user profile, including your own, one of the following conditions must be true:

- You have the SPECIAL, AUDITOR or ROAUDIT attribute
- You have at least READ authority to the desired field within the segment through field-level access checking.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the LISTUSER command is:

[*subsystem-prefix*] {LISTUSER | LU}
[(*userid* ...) | *]
[AT([*node*].*userid* ...) | ONLYAT([*node*].*userid* ...)]
[CICS]
[CSDATA]
[DCE]
[DFP]
[EIM]
[KERB]
[LANGUAGE]
[LNOTES]
[MFA]
[NDS]
[NETVIEW]
[NORACF]

[OMVS]
[OPERPARM]
[OVM]
[PROXY]
[TSO]
[WORKATTR]

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

***userid* | ***

userid

Specifies the user ID of one or more RACF-defined users. If you specify more than one user ID, you must enclose the list of user IDs in parentheses.

*****

Specifies that you want to list information contained in all RACF-defined user profiles to which you have the required authority.

Important: On a system with many users defined, the use of * might result in a large amount of output and might not be useful to a user issuing the command. It might be more appropriate for the user to browse the output of IRRDBU00 (database unload) or to write a program to process the IRRDBU00 output and produce a report showing only the subset of information that is of interest to the user. The processing of output of LISTUSER by programs is not supported nor recommended by IBM. If you want a listing of all the groups for use by a program you should instead have the program process the output from IRRDBU00, RACROUTE REQUEST=EXTRACT, or ICHEINTY.

The *userid* value or an asterisk (*) must be specified if you specify any other operand in the LISTUSER command, and must be the first operand following LISTUSER.

If you enter LISTUSER and specify one or more user IDs, or an asterisk (*), without specifying an additional operand, RACF lists only the BASE segment information from the specified profiles.

If you enter only LISTUSER, RACF lists only the BASE segment information from your own user profile.

Note: You cannot use the LISTUSER command for user IDs that have mixed-case characters, such as `irrcerta`, `irrsitec`, and `irrmulti` (which are associated with digital certificates).

AT | ONLYAT

The AT and ONLYAT keywords are only valid when the command is issued as a RACF TSO command.

AT ([*node*].*userid* ...)

Specifies that the command is to be directed to the node specified by *node*, where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed to the local node.

ONLYAT ([*node*].*userid* ...)

LISTUSER is not eligible for automatic command direction. If you specify the ONLYAT keyword, the effect is the same as if you specified the AT keyword.

CICS

Specifies that you want to list the information contained in the CICS segment of the user's profile.

The details RACF lists from the CICS segment of the user's profile are:

- The classes assigned to this operator to which BMS messages are sent.

  Note: The values of the classes are listed in a three digit format, even though a maximum of two digits are used to define the value.
- Whether the operator are forced off when an XRFSOFF takeover occurs.
- The operator identification.
- The priority of the operator.
- The time in hours and minutes that the operator is allowed to be idle before being signed off.
- Resource security level (RSL) keys, if any are assigned to the user. If 99 is displayed, this indicates that all RSL keys are assigned to the user (1 - 24, inclusive). If 0 is displayed, no RSL keys are assigned to the user.
- Transaction security level (TSL) keys, if any are assigned to the user. If 99 is displayed, this indicates that all TSL keys are assigned to the user (1 - 64, inclusive). If 0 is displayed, no TSL keys are assigned to the user.

CSDATA

Specifies that you want to list custom field information for this user. The custom field information in the CSDATA segment for this user was added using the ADDUSER and ALTUSER commands.

Usage for each custom field is defined using the CFDEF operand of the RDEFINE command for resource profiles in the CFIELD class. Contact your security administrator to see how custom fields are used at your installation. For more information about custom fields, see *z/OS Security Server RACF Security Administrator's Guide*.

DCE

Specifies that you want to list the information contained in the DCE segment of the user's profile.

The details that RACF lists from the DCE segment are:

- The DCE universal unique identifier
- The DCE principal name
- The DCE home cell name
- The DCE home cell universal unique identifier
- The DCE AUTOLOGIN indicator.

If there is no DCENAME or HOMECELL for this segment, the field name is not displayed. However, if UUID or HOMEUUID was not specified when the DCE segment was added to the user profile, the word `NONE` appears in the listing.

DFP

Specifies that you want to list the information contained in the DFP segment of the user's profile.

The details RACF lists from the DFP segment of the user's profile are:

- The user's default data class
- The user's default management class
- The user's default storage class
- The data management data application for the user.

EIM

Specifies that the Enterprise Identity Mapping (EIM) segment information should be listed.

KERB

Specifies that you want to list the information contained in the KERB segment of the user's profile.

The details that RACF lists from the KERB segment of the user's profile are:

- The encryption value settings (ENCRYPT values or NOENCRYPT)
- The local *kerberos-principal-name* (KERBNAME)
- The *max-ticket-life* associated with this local principal (MAXTKTLFE)
- The current z/OS Network Authentication Service key version (KEY VERSION)
- The authenticator used to generate the current user's z/OS Network Authentication Service keys (KEY FROM)
  - When `PASSWORD` is displayed, the current keys were derived from the user's password.
  - When PHRASE is displayed, the current keys were derived from the user's password phrase.

LANGUAGE

Specifies that you want to list the information contained in the LANGUAGE segment of the user's profile.

The 3-character language code and, if defined, the 24-character language name, is displayed. `NOT SPECIFIED` indicates that no language has been specified.

If the code is displayed without a name, one of the following is true:

- The MVS message service was not active
- The language was not active.

If the language code equals the language name, one of the following is true:

- There was no language name defined on your system
- The language name was defined to be the same as the language code.

The details RACF lists from the LANGUAGE segment of the user's profile are:

- The user's primary language, if one has been specified
- The user's secondary language, if one has been specified.

LNOTES

Specifies that you want to list the information for the Lotus Notes for z/OS *short-name*, which is contained in the LNOTES segment of the user's profile.

MFA

Specifies that multi-factor authentication information should be listed for the user. The MFA keyword is ignored when NORACF is specified.

NDS

Specifies that you want to list the information for the Novell Directory Services for OS/390 *user-name*, which is contained in the NDS segment of the user's profile.

NETVIEW

Specifies that you want to list the information contained in the NETVIEW segment of the user's profile.

The details RACF lists from the NETVIEW segment of the user's profile are:

- The command or command line to be processed by NetView for this operator
- The default MCS console identifier

- Whether security checking should be done for this NetView operator
- Whether this operator can receive unsolicited messages
- The count of operator class values
- The list of NetView scope classes for which this operator has authority
- The number of domains this NetView operator controls
- The list of identifiers of NetView programs in another NetView domain for which this operator has authority
- Whether this operator has administrator authority to the NetView Graphic Monitor Facility (NGMF).

If there is no information in the fields of the NETVIEW segment, the field name is not displayed (with the exception of SIZE, MAXSIZE, and USERDATA).

NORACF

Specifies that you want to suppress the listing of BASE segment information from the user's profile.

If you specify NORACF, you must also specify at least one segment name.

The information displayed as a result of using the NORACF operand is dependent on other operands used in the command. For example, if you use NORACF with TSO or DFP also specified, only that information (TSO or DFP) is displayed. User profiles that do not have at least one of the specified segments appear in the command output.

The information displayed as a result of using the NORACF operand is dependent on other operands used in the command. For example, if you use NORACF with TSO or DFP also specified, only that information (TSO or DFP) is displayed.

When you specify an asterisk (*) in place of the user ID, only user profiles with at least one of the specified segments appear in the command output. (See “userid” on page 217 for an important note about specifying an asterisk with the LISTUSER command.)

If you do not specify NORACF, RACF displays the information in the BASE segment of a user profile.

OMVS

Specifies that you want to list the information contained in the OMVS segment of the user's profile.

The details RACF lists from the OMVS segment are:

- The user identifier
- The initial directory path name
- The program path name
- The CPU time, in seconds, the user's processes can use
- The address space region size, in bytes, the user's processes can use
- The maximum number of active or open files the user can have
- The maximum number of active processes the user can have
- The maximum number of threads the user can have
- The maximum amount of space, in pages, the user can map in storage.

Note: If CPUTIMEMAX, ASSIZEMAX, FILEPROCMAX, PROCUSERMAX, THREADSMAX, or MMAPAREAMAX is not specified, or is removed with the ALTUSER command, the word `NONE` appears in the listing. In such situations, z/OS UNIX uses its system level values for limit values.

If there is no HOME or PROGRAM information, the field name is not displayed. However, the word `NONE` appears in the listing if the UID was not specified, or if the UID was removed using the NOUID operand on the ALTUSER command.

OPERPARM

Specifies that you want to list the information contained in the OPERPARM segment of the user's profile.

The details RACF lists from the OPERPARM segment of the user's profile are:

- The alternate console group (ALTGRP)
- The operator authority (AUTH)
- Whether the console receives messages that can be automated in a sysplex environment.
- The system name for commands from this console (CMDSYS)
- Whether, and what kind of, delete operator messages are received (DOM)
- The searching key (KEY)
- The message level information (LEVEL)
- Whether system command responses are logged (LOGCMDRESP)
- The message format (MFORM)
- Whether this console is assigned a migration ID (MIGID)
- Event information (MONITOR)
- The systems this console can receive undirected messages from (MSCOPE)
- Routing code information (ROUTCODE)
- Storage information (STORAGE)
- Whether this console receives undeliverable messages (UD).

If there is no information in a field in the user's profile for this segment, the field name is not displayed. However, if no value was specified for STORAGE when the OPERPARM segment was added to the user profile, `STORAGE=0` appears in the listing.

OVM
Specifies that you want to list the information contained in the OVM segment of the user's profile.

The details that RACF lists from the OVM segment are the z/OS UNIX System Services user's:

- User identifier
- Initial directory path name
- Program path name
- File system root name.

If there is no HOME, PROGRAM, or FSROOT information, the field name is not displayed. However, the word `NONE` appears in the listing if the UID was not specified, or if the UID was removed using the NOUID operand on the ALTUSER command.

PROXY
Specifies that PROXY segment information should be listed.

The BINDPW password value will not be listed. If a BINDPW password value is defined for a user, LISTUSER will display YES for the PROXY segment BINDPW attribute. If no BINDPW password value has been defined, LISTUSER will display `NO` for the PROXY segment BINDPW attribute.

TSO
Specifies that you want to list the information contained in the TSO segment of the user's profile.

The details RACF lists from the TSO segment of the user's profile are:

- The user's default account number when logging on from the TSO/E logon panel
- The destination ID for SYSOUT data sets
- The user's default HOLDCLASS
- The user's default JOBCLASS
- The user's default MSGCLASS
- The user's default SYS
- The maximum region size
- The default region size

- The logon procedure name
- The unit name
- The optional user data
- The user's security label
- The default command to be run during the TSO/E logon.

If there is no information in the fields of the TSO segment, the field name is not displayed (with the exception of SIZE, MAXSIZE, and USERDATA).

WORKATTR

Specifies that you want to list the information contained in the WORKATTR segment of the user's profile.

The details RACF lists for the distribution information from the user's WORKATTR segment are:

- The name of the user (WANAME)
- The building (WABLDG)
- The department (WADEPT)
- The room (WAROOM)
- Up to four additional lines of output distribution information (WAADDR*n*)
- An account number for APPC/MVS processing (WAACCNT).
- An e-mail address for the user (WAEMAIL).

Examples

Example	Activity label	Description
1	*Operation*	User DAF0 wants to list the user attributes from the BASE segment of her user profile.
	Known	User DAF0 is RACF-defined. User DAF0 wants to issue the command as a RACF TSO command.
	Command	`LISTUSER`
	Defaults	DAF0 (*userid*)
	Output	See Figure 19 on page 226.
2	*Operation*	User CALTMANN wants to list the user attributes from the BASE segment of profiles for users IBMUSER, CALTMANN, and DAF0.
	Known	User CALTMANN has the SPECIAL and AUDITOR attributes. User CALTMANN wants to issue the command as a RACF TSO command.
	Command	`LISTUSER (IBMUSER CALTMANN DAF0)`
	Defaults	None.
	Output	See Figure 20 on page 227.

Example	Activity label	Description
3	*Operation*	User ADM1 wants to list the user attributes from the BASE segment and TSO segment of the profile for user DAF0.
	Known	User ADM1 has the SPECIAL and AUDITOR attributes. User DAF0 is defined to RACF with authority to use TSO. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`LISTUSER DAF0 TSO`
	Defaults	None.
	Output	See Figure 21 on page 228.
4	*Operation*	User ADM1 wants to list the user attributes from only the TSO segment of the profile for user DAF0.
	Known	User ADM1 has the SPECIAL and AUDITOR attributes. User DAF0 is defined to RACF with authority to use TSO. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`LISTUSER DAF0 NORACF TSO`
	Defaults	None.
	Output	See Figure 22 on page 228.
5	*Operation*	User ADM1 wants to list the user attributes from the BASE segment and DFP segment of the profile for user DAF0.
	Known	User ADM1 has the SPECIAL and AUDITOR attributes. User DAF0 is defined to RACF and DAF0's profile contains a DFP segment. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`LISTUSER DAF0 DFP`
	Defaults	None.
	Output	See Figure 23 on page 229.
6	*Operation*	User ADM1 wants to list the user attributes from only the DFP segment of the profile for user DAF0.
	Known	User ADM1 has the SPECIAL and AUDITOR attributes. User DAF0 is defined to RACF and DAF0's profile contains a DFP segment. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`LISTUSER DAF0 NORACF DFP`
	Defaults	None.
	Output	See Figure 24 on page 229.

Example	Activity label	Description
7	*Operation*	User ADM1 wants to list the user attributes from only the CICS segment of the profile for user DAF0.
	Known	User DAF0 is defined to RACF and DAF0's profile contains a CICS segment. User running CICS in a distributed environment. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`LISTUSER DAF0 NORACF CICS`
	Defaults	None.
	Output	See Figure 25 on page 229.
8	*Operation*	User ADM1 wants to list the user attributes from only the LANGUAGE segment of the profile for user DAF0.
	Known	User ADM1 has the SPECIAL and AUDITOR attributes. User DAF0 is defined to RACF and DAF0's profile has American English (language code ENU) defined as her primary language and German (language code DEU) defined as her secondary language. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`LISTUSER DAF0 NORACF LANGUAGE`
	Defaults	None.
	Output	See Figure 26 on page 230.
9	*Operation*	User ADM1 wants to list the user attributes from only the OPERPARM segment of the profile for user DAF0.
	Known	User ADM1 has the SPECIAL and AUDITOR attributes. User DAF0 is defined to RACF and DAF0's profile contains an OPERPARM segment. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`LISTUSER DAF0 NORACF OPERPARM`
	Defaults	None.
	Output	See Figure 27 on page 230.
10	*Operation*	User ADM1 wants to list the user attributes from the OMVS segment of the profile for user CSMITH.
	Known	User ADM1 has the SPECIAL attribute. User CSMITH is defined to RACF and CSMITH's profile contains an OMVS segment. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`LISTUSER CSMITH OMVS NORACF`
	Defaults	None.
	Output	See Figure 28 on page 230.

Example	Activity label	Description
11	*Operation*	User ADM1 wants to list the user attributes from the OMVS segment of the profile for user CSMITH.
	Known	User ADM1 has the SPECIAL attribute. User CSMITH is defined to RACF and CSMITH's profile contains an OMVS segment, but there was no value specified for HOME or PROGRAM in the OMVS segment for this profile. Defaults were used. User ADM1 wants to issue the command as a RACF TSO command. **Note:** If the user also has no user limits because the defaults were taken, CPUTIMEMAX, ASSIZEMAX, FILEPROCMAX, PROCUSERMAX, THREADSMAX, and MMAPAREAMAX will display NONE as their value.
	Command	`LISTUSER CSMITH OMVS NORACF`
	Defaults	None.
	Output	See Figure 29 on page 230.
12	*Operation*	User ADM1 wants to list the DCE segment for user CSMITH.
	Known	User ADM1 has the SPECIAL attribute.
	Command	`LISTUSER CSMITH NORACF DCE`
	Defaults	None.
	Output	See Figure 30 on page 231.
13	*Operation*	A security administrator lists the KERB segment of the altered RACF user profile for RONTOMS.
	Known	The administrator wants to list the information contained in the KERB segment of the altered RACF user profile.
	Command	`LISTUSER RONTOMS NORACF KERB`
	Defaults	None.
	Output	See Figure 31 on page 231.
14	*Operation*	A security administrator lists the PROXY segment of the altered RACF user profile for MRSERVER.
	Known	The administrator wants to list the information contained in the PROXY segment of the altered RACF user profile.
	Command	`LISTUSER MRSERVER PROXY NORACF`
	Defaults	None.
	Output	See Figure 32 on page 231.
15	*Operation*	A security administrator lists the EIM segment of the RACF user profile for KCROVE.
	Known	User ADM1 has the SPECIAL attribute.
	Command	`LISTUSER KCROVE EIM NORACF`
	Defaults	None.
	Output	See Figure 33 on page 231.

Example	Activity label	Description
16	*Operation*	User ADM1 wants to list the status of the RACF user profile for UPWENV who has an enveloped password and an enveloped password phrase.
	Known	User ADM1 has the SPECIAL attribute. User UPWENV does not have the PROTECTED attribute.
	Command	`LISTUSER UPWENV`
	Defaults	None.
	Output	See Figure 34 on page 231.
17	*Operation*	User SECADM wants to list the custom field information for user ANDREW.
	Known	User SECADM has the SPECIAL attribute.
	Command	`LISTUSER ANDREW CSDATA NORACF`
	Output	See Figure 35 on page 231.
18	*Operation*	User ADM1 wants to list the factor tags for user USER01.
	Known	User ADM1 has the SPECIAL attribute.
	Command	`LISTUSER USER01 MFA`
	Output	See Figure 36 on page 232.

```
 LISTUSER
USER=DAF0     NAME=D.M.BROWN  OWNER=IBMUSER  CREATED=05.228
 DEFAULT-GROUP=RESEARCH  PASSDATE=05.228  PASS-INTERVAL= 30 PHRASEDATE=05.231
 PHRASE-INTERVAL=00365
 PASSWORD ENVELOPED=NO
 ATTRIBUTES=ADSP
 ATTRIBUTES=PASSPHRASE
 REVOKE DATE=NONE   RESUME DATE=NONE
 LAST-ACCESS=05.228/13:31:11
 CLASS AUTHORIZATIONS=NONE
 NO-INSTALLATION-DATA
 NO-MODEL-NAME
 LOGON ALLOWED   (DAYS)          (TIME)
 --------------------------------------------
 ANYDAY                          ANYTIME
   GROUP=RESEARCH AUTH=JOIN    CONNECT-OWNER=IBMUSER   CONNECT-DATE=05.228
     CONNECTS=    01  UACC=READ    LAST-CONNECT=05.228/13:31:11
     CONNECT ATTRIBUTES=NONE
     REVOKE DATE=NONE   RESUME DATE=NONE
   GROUP=PAYROLLB AUTH=CREATE  CONNECT-OWNER=IBMUSER  CONNECT-DATE=05.228
     CONNECTS=   00  UACC=READ    LAST-CONNECT=UNKNOWN
     CONNECT ATTRIBUTES=NONE
     REVOKE DATE=NONE   RESUME DATE=NONE
 SECURITY-LEVEL=NONE SPECIFIED
 CATEGORY-AUTHORIZATION
  NONE SPECIFIED
```

Figure 19. Example 1: Output for LISTUSER

```
 LISTUSER (IBMUSER CALTMANN DAF0)
USER=IBMUSER  NAME=G. SMITH OWNER=IBMUSER  CREATED=05.163
 DEFAULT-GROUP=SYS1  PASSDATE=05.220  PASS-INTERVAL=N/A  PHRASEDATE=05.231
 PASSWORD ENVELOPED=NO
 ATTRIBUTES=SPECIAL OPERATIONS
 ATTRIBUTES=PASSPHRASE AUDITOR
 REVOKE DATE=NONE   RESUME DATE=NONE
 LAST-ACCESS=05.146/15:45:23
 CLASS AUTHORIZATIONS=NONE
 NO-INSTALLATION-DATA
 NO-MODEL-NAME
 LOGON ALLOWED   (DAYS)          (TIME)
 --------------------------------------------
 ANYDAY                          ANYTIME
  GROUP=SYS1      AUTH=JOIN    CONNECT-OWNER=IBMUSER  CONNECT-DATE=04.263
    CONNECTS=   456  UACC=READ    LAST-CONNECT=05.146/15:45:23
    CONNECT ATTRIBUTES=NONE
    REVOKE DATE=NONE   RESUME DATE=NONE
 SECURITY-LEVEL=NONE SPECIFIED
 CATEGORY-AUTHORIZATION
  NONE SPECIFIED
 SECURITY-LABEL=NONE SPECIFIED
```

```
USER=CALTMANN  NAME=C. ALTMANN  OWNER=IBMUSER   CREATED=05.144
 DEFAULT-GROUP=RESEARCH  PASSDATE=00.000 PASS-INTERVAL=254 PHRASEDATE=05.231
 PASSWORD ENVELOPED=NO
 ATTRIBUTES=SPECIAL
 ATTRIBUTES=PASSPHRASE AUDITOR
 REVOKE DATE=NONE   RESUME DATE=NONE
 LAST-ACCESS=05.146/16:16:14
 CLASS AUTHORIZATIONS=USER
 NO-INSTALLATION-DATA
 MODEL-NAME=ALLENA
 LOGON ALLOWED   (DAYS)          (TIME)
 --------------------------------------------
 ANYDAY                          ANYTIME
  GROUP=RESEARCH  AUTH=JOIN    CONNECT-OWNER=IBMUSER  CONNECT-DATE=05.144
    CONNECTS=    01  UACC=READ    LAST-CONNECT=05.146/16:16:14
    CONNECT ATTRIBUTES=OPERATIONS
    REVOKE DATE=NONE   RESUME DATE=NONE
 SECURITY-LEVEL=NONE SPECIFIED
 CATEGORY-AUTHORIZATION
  NONE SPECIFIED
 SECURITY-LABEL=NONE SPECIFIED
USER=DAF0     NAME=D.M.BROWN  OWNER=IBMUSER  CREATED=05.144
 DEFAULT-GROUP=RESEARCH  PASSDATE=00.000 PASS-INTERVAL=254 PHRASEDATE=05.231
 PASSWORD ENVELOPED=NO
 ATTRIBUTES=ADSP
 ATTRIBUTES=PASSPHRASE
 REVOKE DATE=NONE   RESUME DATE=NONE
 LAST-ACCESS=05.146/15:11:31
 CLASS AUTHORIZATIONS=NONE
 NO-INSTALLATION-DATA
 NO-MODEL-NAME
 LOGON ALLOWED   (DAYS)          (TIME)
 --------------------------------------------
 ANYDAY                          ANYTIME
  GROUP=RESEARCH  AUTH=JOIN    CONNECT-OWNER=IBMUSER  CONNECT-DATE=05.144
    CONNECTS=    02  UACC=READ    LAST-CONNECT=05.146/15:11:31
    CONNECT ATTRIBUTES=NONE
    REVOKE DATE=NONE   RESUME DATE=NONE
 SECURITY-LEVEL=NONE SPECIFIED
 CATEGORY-AUTHORIZATION
  NONE SPECIFIED
 SECURITY-LABEL=NONE SPECIFIED
```

Figure 20. Example 2: Output for LISTUSER (IBMUSER CALTMAN DAF0)

```
 LISTUSER DAF0 TSO
USER=DAF0     NAME=D.M.BROWN  OWNER=IBMUSER  CREATED=05.228
 DEFAULT-GROUP=RESEARCH  PASSDATE=05.231 PASS-INTERVAL=30  PHRASEDATE=05.231
 PASSWORD ENVELOPED=NO
 ATTRIBUTES=ADSP
 ATTRIBUTES=PASSPHRASE
 REVOKE DATE=NONE   RESUME DATE=NONE
 LAST-ACCESS=05.228/13:31:11
 CLASS AUTHORIZATIONS=NONE
 NO-INSTALLATION-DATA
 NO-MODEL-NAME
 LOGON ALLOWED   (DAYS)          (TIME)
 --------------------------------------------
 ANYDAY                          ANYTIME
   GROUP=RESEARCH AUTH=JOIN    CONNECT-OWNER=IBMUSER   CONNECT-DATE=05.228
     CONNECTS=    01  UACC=READ    LAST-CONNECT=05.228/13:31:11
     CONNECT ATTRIBUTES=NONE
     REVOKE DATE=NONE   RESUME DATE=NONE
   GROUP=PAYROLLB AUTH=CREATE  CONNECT-OWNER=IBMUSER  CONNECT-DATE=05.228
     CONNECTS=   00  UACC=READ    LAST-CONNECT=UNKNOWN
     CONNECT ATTRIBUTES=NONE
     REVOKE DATE=NONE   RESUME DATE=NONE
 SECURITY-LEVEL=NONE SPECIFIED
 CATEGORY-AUTHORIZATION
  NONE SPECIFIED
 SECURITY-LABEL=NONE SPECIFIED
 TSO INFORMATION
 ---------------
  ACCTNUM= P00F1V
  HOLDCLASS= H
  JOBCLASS= I
  MSGCLASS= A
  PROC= V0LOGON
  SIZE= 00001024
  MAXSIZE= 00002048
  SYSOUTCLASS = A
  UNIT= SYSDA
  USERDATA= 0000
```

Figure 21. Example 3: Output for LISTUSER DAF0 TSO

```
 LISTUSER DAF0 NORACF TSO
USER=DAF0
 TSO INFORMATION
  ACCTNUM= P00F1V
  HOLDCLASS= H
  JOBCLASS= I
  MSGCLASS= A
  PROC= V0LOGON
  SIZE= 00001024
  MAXSIZE= 00002048
  SYSOUTCLASS = A
  UNIT= SYSDA
  USERDATA= 0000
```

Figure 22. Example 4: Output for LISTUSER NORACF TSO

```
 LISTUSER DAF0 DFP
USER=DAF0     NAME=D.M.BROWN  OWNER=IBMUSER  CREATED=05.228
 DEFAULT-GROUP=RESEARCH  PASSDATE=05.228  PASS-INTERVAL=30 PHRASEDATE=05.231
 PASSWORD ENVELOPED=NO
 ATTRIBUTES=ADSP
 ATTRIBUTES=PASSPHRASE
 REVOKE DATE=NONE   RESUME DATE=NONE
 LAST-ACCESS=05.228/13:31:11
 CLASS AUTHORIZATIONS=NONE
 NO-INSTALLATION-DATA
 NO-MODEL-NAME
 LOGON ALLOWED   (DAYS)          (TIME)
 --------------------------------------------
 ANYDAY                          ANYTIME
   GROUP=RESEARCH AUTH=JOIN    CONNECT-OWNER=IBMUSER   CONNECT-DATE=05.228
     CONNECTS=    01  UACC=READ    LAST-CONNECT=05.228/13:31:11
     CONNECT ATTRIBUTES=NONE
     REVOKE DATE=NONE   RESUME DATE=NONE
   GROUP=PAYROLLB AUTH=CREATE  CONNECT-OWNER=IBMUSER  CONNECT-DATE=05.228
     CONNECTS=   00  UACC=READ    LAST-CONNECT=UNKNOWN
     CONNECT ATTRIBUTES=NONE
     REVOKE DATE=NONE   RESUME DATE=NONE
 SECURITY-LEVEL=NONE SPECIFIED
 CATEGORY-AUTHORIZATION
  NONE SPECIFIED
 SECURITY-LABEL=NONE SPECIFIED
 DFP INFORMATION
 ---------------
  MGMTCLAS= DFP5MGMT
  STORCLAS= DFP5STOR
  DATACLAS= DFP5DATA
  DATAAPPL= DFP5APPL
```

Figure 23. Example 5: Output for LISTUSER DAF0 DFP

```
 LISTUSER DAF0 NORACF DFP
USER=DAF0
DFP INFORMATION
---------------
 MGMTCLAS= DFP5MGMT
 STORCLAS= DFP5STOR
 DATACLAS= DFP5DATA
 DATAAPPL= DFP5APPL
```

Figure 24. Example 6: Output for LISTUSER DAF0 NORACF DFP

```
 LISTUSER DAF0 NORACF CICS
USER=TEST
CICS INFORMATION
----------------
 OPCLASS=001
 OPIDENT= ID2
 OPPRTY= 00010
 TIMEOUT= 02:30 (HH:MM)
 XRFSOFF= NOFORCE
 RSLKEYS= 00001 00003 00005 00007 00009 00011 00002
 00018 00016 00014 00012 00023 00021 00019
 00017 00015 00013
 TSLKEYS= 00001 00003 00005 00007 00009 00011 00002
 00004 00006 00008 00010 00024 00022 00020
 00018 00016 00014 00012 00023 00021 00019
 00038 00035 00036 00032 00064 00041 00063
 00043 00048 00051 00042 00055 00062 00044
 00061 00060 00059 00058
```

Figure 25. Example 7: Output for LISTUSER DAF0 NORACF CICS

```
 LISTUSER DAF0 NORACF LANGUAGE
USER=DAF0
LANGUAGE INFORMATION
--------------------
 PRIMARY LANGUAGE: ENU
 SECONDARY LANGUAGE: DEU
READY
```

Figure 26. Example 8: Output for LISTUSER DAF0 NORACF LANGUAGE

```
  LU DAF0 NORACF OPERPARM
 USER=DAF0
 OPERPARM INFORMATION
 --------------------
  STORAGE= 00002
  AUTH= IO
  ROUTCODE= ALL
  LEVEL= ALL
  MFORM= T J M
  MONITOR= JOBNAMEST SESST
  MIGID= YES
  DOM= NORMAL
  KEY= MCS2
  CMDSYS= SYS1
  MSCOPE= *ALL
  UD= YES
  HC= YES
  INTIDS= YES
  UNKNIDS= YES
READY
```

Note: With the exception of the STORAGE operand, if a field has no value in the OPERPARM segment, no value appears for the field in the listing. If there is an OPERPARM segment and the storage is not specified, `00000` appears in the listing. When an extended MCS console session is established, the values for STORAGE is 1.

Figure 27. Example 9: Output for LISTUSER DAF0 NORACF OPERPARM

```
LISTUSER CSMITH OMVS NORACF
USER = CSMITH
OMVS INFORMATION
----------------
 UID= 0000000024
 HOME= /u/CSMITH
 PROGRAM= /u/CSMITH/bin/myshell
 CPUTIMEMAX= 0010000000
 ASSIZEMAX= NONE
 FILEPROCMAX= 0000050000
 PROCUSERMAX= NONE
 THREADSMAX= NONE
 MMAPAREAMAX= 0016777216
```

Figure 28. Example 10: Output for listing OMVS user information

```
 LISTUSER CSMITH OMVS NORACF
 USER=CSMITH
 OMVS INFORMATION
 ----------------
  UID= 0000000024
  CPUTIMEMAX= NONE
  ASSIZEMAX= NONE
  FILEPROCMAX= NONE
  PROCUSERMAX=NONE
  THREADSMAX= NONE
  MMAPAREAMAX= NONE
```

Figure 29. Example 11: Output for LISTUSER CSMITH OMVS NORACF (Using Defaults)

```
 LISTUSER CSMITH NORACF DCE
 USER=CSMITH
 DCE INFORMATION
 ---------------
  UUID= 004386ea-ebb6-lec3-bcae-10005ac90feb
  DCENAME= charlie
  HOME CELL UUID= 003456aab-ecb7-7de3-ebda-95531ed63dae
  HOME CELL= /.../hootie.scarol.ibm.com
  DCE AUTOLOGIN= NO
```

Figure 30. Example 12: Output for LISTUSER CSMITH NORACF DCE

```
LISTUSER RONTOMS NORACF KERB
USER=RONTOMS
KERB INFORMATION
----------------
 KERBNAME= KerberizedUser
 KEY FROM= PASSWORD
 KEY VERSION= 001
 KEY ENCRYPTION TYPE= DES DES3 DESD AES128 AES256 AES128SHA2 AES256SHA2
```

Figure 31. Example 13: Output for LISTUSER RONTOMS NORACF KERB

```
LISTUSER MRSERVER PROXY NORACF
USER=MRSERVER
PROXY INFORMATION
-----------------
 LDAPHOST= LDAP://SOME.LDAP.HOST:389
 BINDDN= cn=Joe User,ou=Poughkeepsie,o=IBM,c=US
 BINDPW= YES
```

Figure 32. Example 14: Output for LISTUSER MRSERVER PROXY NORACF

```
LISTUSER KCROVE EIM NORACF
USER=MRSERVER
EIM INFORMATION
---------------
 LDAPPROF= EIMDOMAINALOOKUP
```

Figure 33. Example 15: Output for LISTUSER KCROVE EIM NORACF

```
 LISTUSER UPWENV
USER=UPWENV  NAME=GREGOR  OWNER=IBMUSER   CREATED=05.161
 DEFAULT-GROUP=SYS1      PASSDATE=00.000  PASS-INTERVAL=254 PHRASEDATE=05.231
 PASSWORD ENVELOPED=YES
 PHRASE ENVELOPED=YES
 ATTRIBUTES=PASSPHRASE
⋮
```

Figure 34. Example 16: Output for LISTUSER indicating that the user's password and password phrase are each enveloped

```
 LISTUSER ANDREW CSDATA NORACF
USER=ANDREW
CSDATA INFORMATION
--------------------------------------
 ACTIVE= NO
 HOME ADDRESS= 14 Main Street, Anywhere, IL 01234
 EMPLOYEE CODE= FC01B2D8
 EMPLOYEE SERIAL= 0000256400
 HOME PHONE= 555-555-5555
```

Figure 35. Example 17: Output for listing CSDATA user information

```
LISTUSER USER01 MFA
USER=USER01
---------------------------------------
MULTIFACTOR AUTHENTICATION INFORMATION:
---------------------------------------
PASSWORD FALLBACK IS NOT ALLOWED
PASSWORD FALLBACK IS NOT ALLOWED
AUTHENTICATION POLICIES =
  RSAANDPASS
  TTANDPASS
FACTOR = AZFSIDP1
  STATUS = ACTIVE
  FACTOR TAGS =
    SIDUSERID:joeyuser
FACTOR = AZFTOTP1
  STATUS = ACTIVE
  FACTOR TAGS =
    REGSTATE:PROVISIONED
```

Figure 36. Example 18: Output for LISTUSER MFA when MFA information exists

PASSWORD or PHRASE (Specify user password or password phrase)

This command is usually called the PASSWORD command even though the PHRASE command is a supported alias.

Purpose

Use the PASSWORD command to:

- Change your own password or password phrase to a specified value
- Change another user's change interval (the number of days that the user's password and password phrase remain valid)
- Specify a password or password phrase that never expires.

When a user's password is changed, RACF makes sure the new password is not the same as the current password. When SETR PASSWORD(HISTORY) is active, RACF also makes sure the new password is not already in the user's password history list. If the new password does not match one of these passwords, the current password is added to the user's password history list, and the new password is activated.

When a user's password phrase is changed, RACF makes sure the new password phrase is not the same as the current password phrase. When SETR PASSWORD(HISTORY) is active, RACF also makes sure the new password phrase is not already in the user's password phrase history list. If the new password phrase does not match one of these password phrases, the *new* password phrase is added to the user's password phrase history list, and the new password phrase is activated.

If you use the PASSWORD command to change your own password or password phrase and you have user ID associations with password synchronization defined, the password or password phrase is synchronized. However, if you use the PASSWORD command to change another user's password or password phrase, it is not synchronized.

Attention:

- When the PASSWORD command is issued from ISPF, the TSO command buffer (including password or password phrase data) is written to the ISPLOG data set. As a result, you should not issue this command from ISPF or you must control the ISPLOG data set carefully.
- If the PASSWORD command is issued as a RACF operator command, the command and the password or password phrase data is written to the system log. Therefore, use of PASSWORD as a RACF operator command should either be controlled or you should issue the command as a TSO command.

Issuing options

The following table identifies the eligible options for issuing the PASSWORD command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	Yes	Yes	Yes	Yes

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

You must be logged on to the console to issue this command as a RACF operator command.

Related commands

- To change the installation change interval, see “SETROPTS (Set RACF options)” on page 571.
- To establish password synchronization between users, see “RACLINK (Administer user ID associations)” on page 364.

Authorization required

When issuing this command as a RACF operator command, you might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

If you are a RACF-defined user and you are required to provide a RACF user password or password phrase when entering the system, you can change your own password, password phrase, or change interval.

To change another user's change interval, or to set a password and password phrase (if assigned) that never expire, you must have the SPECIAL attribute, or the user's profile must be within the scope of a group in which you have the group-SPECIAL attribute.

To specify the AT keyword, you must have READ authority to the DIRECT.*node* resource in the RRSFDATA class and a user ID association must be established between the specified *node.userid* pair(s).

To specify the ONLYAT keyword you must have the SPECIAL attribute, the *userid* specified on the ONLYAT keyword must have the SPECIAL attribute, and a user ID association must be established between the specified *node.userid* pair(s) if the user IDs are not identical.

Syntax

For the key to the symbols used in the command syntax diagrams, see “Syntax of RACF commands and operands” on page 11. The complete syntax of the PASSWORD or PHRASE command is:

```
[subsystem-prefix]{PASSWORD | PW | PHRASE}

    [ AT([node].userid ...) | ONLYAT([node].userid ...) ]

    [ INTERVAL(change-interval) | NOINTERVAL ]

    [ PHRASEINT(phrase-change-interval) | NOPHRASEINT ]

    [ PASSWORD(current-password new-password) ]
```

[PHRASE('*current-password-phrase*' '*new-password-phrase*')]
[USER(*userid* ...)]

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

AT | ONLYAT

The AT and ONLYAT keywords are only valid when the command is issued as a RACF TSO command.

AT([*node*].*userid* ...)

Specifies that the command is to be directed to the node specified by *node*, where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed to the local node.

ONLYAT([*node*].*userid* ...)

Specifies that the command is to be directed only to the node specified by *node* where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed only to the local node.

INTERVAL | NOINTERVAL

INTERVAL(*change-interval*)

Specifies the number of days during which a user's password and password phrase (if set) remain valid; the value must be 1 - 254 days.

The INTERVAL value you specify here cannot exceed the system value (if any) that your installation specified using the INTERVAL operand on the SETROPTS command. (The initial system default after RACF initialization is 30 days.)

The INTERVAL value you specify should not be less than the value (if any) that your installation specified using the MINCHANGE operand on the SETROPTS command. If this occurs, the user's password and password phrase (if set) cannot expire until your installation's minimum interval is reached and the user will not be allowed to change them prior to expiration.

If you specify INTERVAL on the PASSWORD command without a *change-interval* value, RACF uses the system interval value (if any) that your installation specified or the system default.

To specify INTERVAL with USER, you must have the SPECIAL attribute, or the user profile must be within the scope of a group in which you have the group-SPECIAL attribute.

If you specify the interval incorrectly, RACF ignores this operand.

Notes: The INTERVAL setting is overridden for password phrases in the following cases:

1. The user has a non-zero PHRASEINT value
2. The user has NOPHRASEINT

3. The system has a non-zero PHRASEINT value

NOINTERVAL

Specifies that neither a user's password nor password phrase (if set) will expire. To specify NOINTERVAL with USER, you must have the SPECIAL attribute, or the user profile must be within the scope of a group in which you have the group-SPECIAL attribute.

Specifying NOINTERVAL without USER defines your own password and password phrase (if set) to never expire.

You can use INTERVAL at any time to reinstate an expiration interval for a user previously defined with NOINTERVAL.

Notes: The NOINTERVAL setting is overridden for password phrases in the following cases:

1. The user has a non-zero PHRASEINT value
2. The user has NOPHRASEINT
3. The system has a non-zero PHRASEINT value

PHRASEINT | NOPHRASEINT

PHRASEINT(phrase-change-interval)

Specifies the number of days during which a user's password phrase remains valid; the value must be 0 – 65534 days.

A PHRASEINT value of 0 indicates that the user does not have a specific password phrase interval value and it is set to a non-zero value, which will be the user’s effective password phrase interval. When the user PHRASEINT and system level PHRASEINT are set to 0 the user’s INTERVAL value and system INTERVAL values are used to determine their password phrase interval. 0 is the default value.

The PHRASEINT value you specify can exceed the system value (if any) that your installation specified using the PHRASEINT or INTERVAL operand on the SETROPTS command.

The PHRASEINT value you specify should not be less than the value (if any) that your installation specified using the MINCHANGE operand on the SETROPTS command. If this occurs, the user's password phrase cannot expire until your installation's minimum interval is reached and the user will not be allowed to change them prior to expiration.

To specify PHRASEINT, you must have the SPECIAL attribute, or the user profile must be within the scope of a group in which you have the group-SPECIAL attribute.

If you specify the password phrase interval incorrectly, RACF ignores this operand.

NOPHRASEINT

Specifies that a user's password phrase will not expire.

To specify NOPHRASEINT with USER, you must have the SPECIAL attribute, or the user profile must be within the scope of a group in which you have the group-SPECIAL attribute.

Specifying NOPHRASEINT without USER defines your own password phrase (if set) to never expire.

You can use PHRASEINT at any time to reinstate an expiration interval for a user previously defined with NOPHRASEINT.

PASSWORD(*current-password new-password*)

Specifies your current password and the new one you want. If you enter only the PASSWORD operand, you are prompted so you can enter the current and new passwords in print inhibit mode.

The current and new passwords must have different values. When the installation allows mixed-case passwords, the old and new passwords cannot be the same characters with the case changed. If you specify your current password incorrectly, RACF notifies you and ignores the PASSWORD operand.

You can use the PASSWORD operand to change your own password at any time unless it is within the number of days specified by your installation's minimum change interval.

RACF ignores this operand when you specify the USER operand.

PHRASE('*current-password-phrase*' '*new-password-phrase*')
Specifies your current password phrase and the new one you want. The new password phrase is a text string of up to 100 characters and must be enclosed in single quotation marks.

When the new-password-phrase exit (ICHPWX11) is present and allows it, the password phrase can be 9 - 100 characters. When ICHPWX11 is not present, the password phrase must be 14 - 100 characters. Contact your system programmer to find out if your installation uses the new-password-phrase exit (ICHPWX11) or see *z/OS Security Server RACF System Programmer's Guide* for programming details.

Restriction: Because the password phrase value is a quoted string, TSO/E does not support your entering it in *print inhibit* mode. Therefore, you should take care when entering your new password phrase to ensure it is not observed by others.

The current and new password phrases must have different values. If you specify your current password phrase incorrectly, RACF notifies you and ignores the PHRASE operand.

You can use the PHRASE operand to change your own password phrase at any time unless it is within the number of days specified by your installation's minimum change interval.

The following syntax rules apply to all password phrases. You cannot alter these syntax rules but you can specify additional syntax rules if your installation tailors the new-password-phrase exit (ICHPWX11).

Syntax rules for password phrases:

- Maximum length: 100 characters
- Minimum length:
  - 9 characters, when the encryption algorithm is KDFAES or ICHPWX11 is present and allows the new value
  - 14 characters, when ICHPWX11 is not present and the encryption algorithm is not KDFAES
- Must not contain the user ID (as sequential uppercase or sequential lowercase characters)
- Must contain at least 2 alphabetic characters (A - Z, a - z)
- Must contain at least 2 non-alphabetic characters (numerics, punctuation, or special characters)
- Must not contain more than 2 consecutive characters that are identical
- If a single quotation mark is intended to be part of the password phrase, you must use two single quotation marks together for each single quotation mark.

If the new-password-phrase exit (ICHPWX11) is present, it can reject the specified password phrase. RACF allows password phrases greater than 8 characters when the encryption algorithm is KDFAES, however, ICHPWX11 can enforce any minimum length greater than 8.

If the specified password phrase is accepted, it is made the user's current password phrase and, when SETROPTS PASSWORD(HISTORY) is in effect, it is added to the user's password phrase history.

RACF ignores this operand when you specify the USER operand.

USER(*userid ...*)
Specifies one or more users whose interval is to be changed.

Note:

1. To change your own password or password phrase, use the PASSWORD or PHRASE operand, not the USER operand.
2. If you specify USER without the INTERVAL or NOINTERVAL operand, the USER operand is ignored.
3. If you specify USER with the PASSWORD or PHRASE operand, the PASSWORD or PHRASE operand is ignored.

Examples

Example	Activity label	Description
1	*Operation*	User AEH0 wants to change his password from XY262 to YZ344 and increase his change interval to 60 days.
	Known	User AEH0 is RACF-defined. The maximum installation change-interval is at least 60 days. User AEH0 wants to issue the command as a RACF TSO command.
	Command	`PASSWORD PASSWORD(XY262 YZ344) INTERVAL(60)`
2	*Operation*	User ADM1 wants to set a password that never expires for user CD2. User ADM1 wants to direct the command to run under the authority of CHERYLB at node ALBNY and prohibit the command from being automatically directed to other nodes.
	Known	Users ADM1 and CHERYLB at ALBNY have the SPECIAL attribute. User CD2 is RACF-defined on node ALBNY. Users ADM1 and CHERYLB at ALBNY have an already established user ID association. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`PASSWORD USER(CD2) NOINTERVAL ONLYAT(ALBNY.CHERYLB)`
	Results	The command is only processed at node ALBNY and not automatically directed to any other nodes in the RRSF configuration.
3	*Operation*	Bob wants to change his password from `pass1` to `word1` on both his user IDs. His user IDs are BOB1 on MVS01 and BOB2 on MVS02.
	Known	Bob has a peer user ID association with password synchronization established between his two user IDs. Bob wants to issue the command as a RACF TSO command from MVS01.
	Command	`PASSWORD PASSWORD(pass1 word1)`
	Results	The command is processed on MVS01 and the password is changed for user ID BOB1. The password is also changed for user ID BOB2 at MVS02.

PERMIT (Maintain resource access lists)

Purpose

Use the PERMIT command to maintain the lists of users and groups authorized to access a particular resource. RACF provides two types of access lists: standard and conditional.

Standard Access List:
The standard access list includes the user IDs and group names authorized to access the resource and the level of access granted to each.

Conditional Access List:
The conditional access list includes the user IDs and group names authorized to access the resource and the level of access granted to each when a certain condition is met. The conditions that can be specified are:

- The name of the program the user must be executing
- The name of the terminal by which the user entered the system
- The name of the JES input device through which the user entered the system

- The name of the system console from which the request was originated
- The name of the APPC partner LU (logical unit) from which the transaction program originated
- The system identifier (SMFID) of the system on which the user is loading the controlled program
- The SERVAUTH profile name that protected the network access security zone name containing the IP address by which the user entered the system
- An application-specific CRITERIA name and value.

RACF considers the conditional access list if one of the following is true:

- The class specified in the condition is active (for the SERVAUTH, TERMINAL, JESINPUT, CONSOLE, or APPCPORT conditions).
- The RACF program control facility is active (for the PROGRAM or the SYSID condition). The RACF program control facility is activated by your installation using SETROPTS WHEN(PROGRAM) command.
- An application-specific CRITERIA name and value is specified on the RACROUTE REQUEST=FASTAUTH request.

If one of the preceding criteria is met, RACF uses both the standard and conditional access lists when it checks a user's authority to access a resource; otherwise RACF uses only the standard access list. For more information on conditional access lists or program control, see *z/OS Security Server RACF Security Administrator's Guide*.

You can maintain either the standard access list or the conditional access list with a single PERMIT command. Changing both requires you to issue PERMIT twice, with one exception. You can change individual names in one access list and copy the other access list from another profile on one PERMIT command.

Using PERMIT, you can make the following changes to either a standard access list or a conditional access list:

- Give authority to access a discrete or generic resource profile to specific RACF-defined users or groups
- Remove authority to access a discrete or generic resource profile from specific users or groups
- Change the level of access authority to a discrete or generic resource profile for specific users or groups
- Copy the list of authorized users from one discrete or generic resource profile to another profile of either type and modify the new list as you require
- Delete an existing access list.

Using PERMIT to modify an automatic TAPEVOL profile changes the profile to nonautomatic. For more information about TAPEVOL profiles, see *z/OS Security Server RACF Security Administrator's Guide*.

To have changes take effect after updating a user's access to a generic profile, one of the following steps is required:

- If the command was issued for a data set profile, the user of the data set issues the LISTDSD command:

  ```
  LISTDSD DA(data-set-protected-by-the-profile) GENERIC
  ```

  Note: Use the data set name, not the profile name.
- The security administrator issues the SETROPTS command:

  ```
  SETROPTS GENERIC(class-name) REFRESH
  ```

  See SETROPTS command for authorization requirements.
- The user of the data set or resource logs off and logs on again.

Note: For more information, refer to *z/OS Security Server RACF Security Administrator's Guide*.

Issuing options

The following table identifies the eligible options for issuing the PERMIT command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	Yes	Yes	Yes	Yes

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, "RACF operator commands," on page 21.

You must be logged on to the console to issue this command as a RACF operator command.

Related commands

- To specify the UACC for a data set profile, see "ADDSD (Add data set profile)" on page 31 (when creating a new profile), or "ALTDSD (Alter data set profile)" on page 86 (to change an existing profile).
- To specify the UACC for a general resource (such as a terminal), see "RDEFINE (Define general resource profile)" on page 444 (when creating a new profile), or "RALTER (Alter general resource profile)" on page 382 (to change an existing profile).
- To obtain a list of profiles, see "SEARCH (Search RACF database)" on page 541.
- To list a data set profile, see "LISTDSD (List data set profile)" on page 192.
- To list a general resource profile, see "RLIST (List general resource profile)" on page 512. (General resources include terminals, and other resources defined in the class descriptor table.)

Authorization required

When issuing this command as a RACF operator command, you might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

To perform any of the PERMIT functions, you must have sufficient authority over the resource. RACF makes the following checks until one of the conditions is met:

- You have the SPECIAL attribute.
- The profile is within the scope of a group in which you have the group-SPECIAL attribute.
- You are the owner of the resource.
- If the resource belongs to the DATASET class, the high-level qualifier of the profile name (or the qualifier supplied by the naming conventions routine or a command installation exit) is your user ID.
- If the resource belongs to the DATASET class, you must be the current owner of the profile or have the SPECIAL attribute, or the profile must be within the scope of a group in which you have the group-SPECIAL attribute.
- If the profile is in the FILE or DIRECTRY class, the second qualifier of the profile name is your user ID.
- For a discrete profile, you have ALTER authority.[6]

To specify the AT keyword, you must have READ authority to the DIRECT.*node* resource in the RRSFDATA class and a user ID association must be established between the specified *node.userid* pair(s).

[6] More information about ALTER authority and how to limit it can be found in Limiting ALTER access authority in discrete profiles in *z/OS Security Server RACF Security Administrator's Guide*.

To specify the ONLYAT keyword you must have the SPECIAL attribute, the *userid* specified on the ONLYAT keyword must have the SPECIAL attribute, and a user ID association must be established between the specified *node.userid* pair(s) if the user IDs are not identical.

When you are copying a list of authorized users from one resource profile to another, you must have sufficient authority, as described in the preceding list, to both of the resources.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the PERMIT command is:

```
[subsystem-prefix]{PERMIT | PE}

     profile-name-1

     [ ACCESS(access-authority) | DELETE  ]

     [ AT([node].userid ...) | ONLYAT([node].userid ...) ]

     [ CLASS(profile-name-1-class) ]

     [ FCLASS(profile-name-2-class) ]

     [ FGENERIC ]

     [ FROM(profile-name-2) ]

     [ FVOLUME(volume-serial) ]

     [ GENERIC ]

     [ ID( { name ... |* } ) ]

     [ RESET [ (ALL  | STANDARD | WHEN) ]

     [ VOLUME(volume-serial) ]

     [ WHEN(
          [ APPCPORT( { partner-luname ... | * } ) ]
          [ CONSOLE( { console-id ... | * } ) ]
          [ CRITERIA( criteria-name ( { criteria-value | * } )) ]
          [ JESINPUT( { JES-input-device-name ... | * } ) ]
          [ PROGRAM( { program-name ... | * } ) ]
          [ SERVAUTH( { SERVAUTH-profile-name ... | * } ) ]
          [ SYSID( { system-identifier ... | * } ) ]
          [ TERMINAL( { terminal-id ... | * } ) ]
          ) ]
```

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

profile-name-1

Specifies the name of an existing discrete or generic profile whose access list you want to modify. You can specify only one profile.

This operand is required and must be the first operand following PERMIT.

If the name specified is a tape volume serial number that is a member of a tape volume set, the authorization assigned by this command applies to all the volumes in the volume set.

If the profile does not belong to the DATASET class, you must also specify CLASS.

Mixed-case profile names are accepted and preserved when CLASS refers to a class defined in the static class descriptor table with CASE=ASIS or in the dynamic class descriptor table with CASE(ASIS).

AT | ONLYAT

The AT and ONLYAT keywords are only valid when the command is issued as a RACF TSO command.

AT ([*node*].*userid* ...)

Specifies that the command is to be directed to the node specified by *node*, where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed to the local node.

ONLYAT ([*node*].*userid* ...)

Specifies that the command is to be directed only to the node specified by *node* where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed only to the local node.

ACCESS | DELETE

ACCESS(*access-authority*)

Specifies the access authority you want to associate with the names that you identify on the ID operand. RACF sets the access authority in the standard access list.

If you specify WHEN, RACF sets the access authority in the conditional access list.

The valid access authorities are NONE, EXECUTE (for DATASET, PROGRAM, or APPCTP class only), READ, UPDATE, CONTROL, and ALTER. If you need more information, see *z/OS Security Server RACF Security Administrator's Guide*.

If you specify ACCESS and omit *access-authority*, the default value is ACCESS(READ).

If you specify the ID operand and omit both ACCESS and DELETE, the default value is ACCESS(READ).

If you specify both ACCESS and DELETE, RACF uses the last operand you specify.

DELETE

Specifies that you are removing the names you identify on the ID operand from an access list for the resource. RACF deletes the names from the standard access list.

If you specify WHEN, RACF deletes the names from the conditional access list.

If you specify the ID operand and omit both ACCESS and DELETE, the default value is ACCESS(READ).

If you specify both ACCESS and DELETE, RACF uses the last operand you specify.

CLASS(*profile-name-1-class*)

Specifies the name of the class to which *profile-name-1* belongs. The valid class names are DATASET and those classes defined in the class descriptor table. For a list of general resource classes defined in the class descriptor table supplied by IBM, see Appendix B, "Supplied RACF resource classes," on page 647.

If you omit CLASS, the default is DATASET.

FCLASS(*profile-name-2-class*)

Specifies the name of the class to which *profile-name-2* belongs. The valid class names are DATASET and those classes defined in the class descriptor table. For a list of general resource classes defined in the class descriptor table supplied by IBM, see Appendix B, "Supplied RACF resource classes," on page 647.

If you specify FROM and omit FCLASS, RACF assumes that the class for *profile-name-2* is same as the class for *profile-name-1*. This operand is valid only when you also specify the FROM operand; otherwise, RACF ignores it.

FGENERIC

Specifies that RACF is to treat *profile-name-2* as a generic name, even if it is fully qualified (meaning that it does not contain any generic characters). This operand is only needed if *profile-name-2* is a DATASET profile.

FROM(*profile-name-2*)

Specifies the name of the existing discrete or generic profile that contains the access lists RACF is to copy as the access lists for *profile-name-1*. If you specify FROM and omit FCLASS, RACF assumes that *profile-name-2* is the name of a profile in the same class as *profile-name-1*.

Mixed-case profile names are accepted and preserved when FCLASS refers to a class defined in the static class descriptor table with CASE=ASIS or in the dynamic class descriptor table with CASE(ASIS).

If *profile-name-2* contains a standard access list, RACF copies it to the profile you are changing. If *profile-name-2* contains a conditional access list, RACF copies it to the profile you are changing.

RACF modifies the access list for *profile-name-1* as follows:

- Authorizations for *profile-name-2* are added to the access list for *profile-name-1*.

  Note: The following conditional access list conditions are valid only for specific classes. Entries in the conditional access list of *profile-name-2* for these conditions are copied to the conditional access list of *profile-name-1* only if the condition is valid for the class of *profile-name-1*.

  - WHEN(SYSID) is valid only for the PROGRAM class. SYSID entries are copied *only* when the class of *profile-name-1* is PROGRAM.
  - WHEN(PROGRAM) is valid only for data sets and the SERVAUTH class. PROGRAM entries are copied *only* when *profile-name-1* is a data set profile or a SERVAUTH class profile.
  - WHEN(CRITERIA) is valid only for general resource classes (not data sets). CRITERIA entries are *not* copied when *profile-name-1* is a data set profile.
- If a group or user appears in both lists, RACF uses the authorization granted in *profile-name-1*.
- If you specify a group or user on the ID operand and that group or user also appears in the *profile-name-2* access list, RACF uses the authorization granted on the ID operand.

To specify FROM, you must have sufficient authority to both *profile-name-1* and *profile-name-2*, as described under "Authorization required" on page 239.

FVOLUME(*volume-serial*)

Specifies the volume RACF is to use to locate *profile-name-2*. This is the volume on which the non-VSAM DASD data set, the tape data set, or the catalog for the VSAM data set resides.

If you specify FVOLUME and RACF does not find *profile-name-2* on that volume, the command fails. If you omit this operand and *profile-name-2* appears more than once in the RACF data set, the command fails.

FVOLUME is valid only when FCLASS either specifies or defaults to DATASET and when *profile-name-2* specifies a discrete profile. Otherwise, RACF ignores FVOLUME.

GENERIC

Specifies that RACF is to treat *profile-name-1* as a generic name, even if it does not contain any generic characters. This operand is only needed if *profile-name-1* is a DATASET profile.

ID(*name ...* | *)

Specifies the user IDs and group names of RACF-defined users or groups whose authority to access the resource you are giving, removing, or changing. If you omit this operand, RACF ignores the ACCESS and DELETE operands.

ID(*) can be used with standard or conditional access lists. You might specify ID(*) with a conditional access list, as follows:

```
PERMIT 'resource' ID(*) WHEN(PROGRAM(XYZ)) ACCESS(READ)
```

This command, depending on other environmental factors, may allow all RACF-defined users and groups READ access to the specified data set when executing program XYZ. RACF grants access to the data set, using the conditional access list, with the authority you specify on the ACCESS operand. The value specified with ACCESS is used only if no more specific values are found. If you do not specify the ACCESS operand, or if you specify ACCESS without an access authority, RACF uses a default value of ACCESS(READ). See *z/OS Security Server RACF Security Administrator's Guide* for more information on program access to data sets.

For profiles in the FIELD class, you may also specify the value &RACUID for the *name* variable with the ID operand on the PERMIT command. When you enter this value on the PERMIT command, you allow all users access to the specified field or segment of their own user profiles.

RESET

RESET | RESET(<u>ALL</u>)

Specifies that RACF is to delete from the profile both the entire current standard access list and the entire current conditional access list.

RACF deletes both access lists before it processes any operands (ID and ACCESS or FROM) that create new entries in an access list. If you delete both access lists and specify FROM when *profile-name-2* contains two access lists, the PERMIT command copies both access lists to *profile-name-1*. In any other situation, you cannot, on one PERMIT command, add entries to both access lists.

If you specify RESET and do not specify ALL, STANDARD, or WHEN, the default value is RESET(ALL).

If you specify RESET or RESET(ALL), add entries, and omit WHEN, RACF deletes both access lists, then adds entries to the standard access list.

If you specify RESET or RESET(ALL), add entries, and specify WHEN, RACF deletes both access lists, then adds entries to the conditional access list.

For profiles that include two access lists, use RESET and RESET(ALL) carefully. Unless you are copying both lists from another profile, it is a good practice to use RESET(STANDARD) to maintain the standard access list and RESET(WHEN) to maintain the conditional access list.

RESET(STANDARD)

Specifies that RACF is to delete the entire current standard access list from the profile.

If you specify RESET(STANDARD) with ID and ACCESS or with FROM, RACF deletes the current standard access list from the profile before it adds the new names.

If you specify RESET(STANDARD) with ID and DELETE, RACF ignores RESET(STANDARD) and deletes only the names that you specify.

If you specify RESET(STANDARD) without ID and ACCESS, or without FROM, the resulting standard access list is empty. An empty standard access list means that, for a general resource or a group data set profile, you must be the owner or have the SPECIAL attribute, or the profile must be within the scope of a group in which you have the group-SPECIAL attribute, in order to update the access list again.

For a DATASET profile, an empty conditional access list means that no users or groups can access the data set by executing a program.

RESET(WHEN)

Specifies that RACF is to delete the entire current conditional access list from the profile.

If you specify RESET(WHEN) with ID and ACCESS or with FROM, RACF deletes the current conditional access list from the profile before it adds the new names.

If you specify RESET(WHEN) with ID, DELETE, and WHEN, RACF ignores RESET(WHEN) and deletes only the names that you specify.

If you specify RESET(WHEN) without ID and ACCESS, or without FROM, the resulting conditional access list is empty.

VOLUME(*volume-serial*)

Specifies the volume on which the tape data set, the non-VSAM DASD data set, or the catalog for the VSAM data set resides.

If you specify VOLUME and *volume-serial* does not appear in the profile for the data set, the command fails.

If you omit VOLUME and the data set name appears more than once in the RACF data set, the command fails.

This operand is valid only for CLASS(DATASET). RACF ignores it for all other CLASS values.

If *profile-name-1* is a generic profile, RACF ignores this operand.

WHEN(APPCPORT(*partner-luname ...* | *))

Specifies that the indicated users or groups have the specified access authority when executing commands and jobs originating from the specified partner LU.

Specify one or more LU names. No generic names or profile names are supported.

WHEN(APPCPORT(*)) deletes all APPCPORT entries for the specified users or groups. It is valid only with the DELETE operand.

Note: The LU name must be qualified with the network name if the installation is using the network qualified names feature on the APPC connection. For more information, refer to *z/OS Security Server RACF Security Administrator's Guide*.

WHEN(CONSOLE(*console-id ...* | *))

Specifies that the indicated users or groups have the specified access authority when executing commands and jobs originating from the specified system console.

Specify one or more console identifiers. No generic names or profile names are supported.

WHEN(CONSOLE(*)) deletes all CONSOLE entries for the specified users or groups. It is valid only with the DELETE operand.

WHEN(CRITERIA(*criteria-name* (*criteria-value* | *)))

Specifies that the indicated users or groups have the specified access authority when they are defined in an application that uses the specified criteria. Applications, such as Db2®z/OS, can execute the RACROUTE REQUEST=FASTAUTH request to check user and group authority to access a resource associated with a particular criteria, such as a Db2z/OS role.

Important: Specify the same criteria name and value that the application specifies on the RACROUTE REQUEST=FASTAUTH request. For details about valid criteria names and values, see your application documentation. For information about RACROUTE, see *z/OS Security Server RACROUTE Macro Reference*.

The *criteria-name* is a string of 1 - 8 characters. Lowercase alphabetic characters in the *criteria-name* are translated to uppercase. The valid *criteria-name* values are SQLROLE, SMS, and SERVICE.

The *criteria-value* is a string of 1 - 235 characters of any combination. For SERVICE, the *criteria-value* is a string of 1 - 8 characters of any combination. If the *criteria-value* consists of a single asterisk (*), you can optionally enclose it in single quotation marks. If the *criteria-value* contains blanks or other special characters, you must enclose the entire string in single quotation marks.

When the *criteria-value* is enclosed in single quotation marks, the following rules apply.

- The string must contain at least one non-blank character.
- The string must not contain blanks between the last character and the ending quote.
- If a single quotation mark is intended to be part of the *criteria-value*, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

For SQLROLE, the *criteria-value* is stored in the RACF database exactly as you specify it:

- Both uppercase and lowercase characters are preserved in the case in which they are specified.
- Leading blanks are preserved when the string is quoted. For SMS and SERVICE, the *criteria-value* is folded to uppercase and stored in the RACF database.

WHEN(CRITERIA(SQLROLE(*Db2-role-name*)))

Beginning with Db2z/OS Version 9, you can authorize conditional access to Db2z/OS resources for users and groups associated (in Db2z/OS) with a Db2z/OS role by specifying SQLROLE as the *criteria-name* and a Db2z/OS role name as the *criteria-value*. Specify *Db2-role-name* to match a Db2z/OS-defined role name. (For more information about using Db2z/OS roles, see the Db2z/OS Version 9 publication library.)

Example: `WHEN(CRITERIA(SQLROLE(TELLER)))`

WHEN(CRITERIA(SQLROLE(*))) and WHEN(CRITERIA(SQLROLE('*'))) delete all SQLROLE CRITERIA entries for the specified users or groups when the DELETE operand is also specified.

WHEN(CRITERIA(SMS(DSENCRYPTION)))

You can authorize conditional access to keys stored by label in the ICSF CKDS when being performed by DFSMS to encrypt or decrypt data via an encrypting access method.

Example: WHEN(CRITERIA(SMS(DSENCRYPTION)))

WHEN(CRITERIA(SMS(*))) and WHEN(CRITERIA(SMS('*'))) delete all SMS CRITERIA entries for the specified users or groups and are only valid when the DELETE operand is also specified.

WHEN(CRITERIA(SERVICE(*service-names*)))

You can authorize conditional access to resources by specifying which services it can be used with.

Example: WHEN(CRITERIA(SERVICE(CSFSKE,CSFSKD,CSFKRR2)))

Example: WHEN(CRITERIA(SERVICE(CSFKGN)))

WHEN(CRITERIA(SERVICE(*))) and WHEN(CRITERIA(SERVICE('*'))), specified with the DELETE operand, delete all SERVICE CRITERIA entries for the specified users or groups. Specifying '*' as part of a list of services, yields unpredictable results.

WHEN(JESINPUT(*JES-input-device-name ...* | *))

Specifies that the indicated users or groups have the specified access authority when entering the system through the specific JES input device.

Specify one or more device names. No generic names or profile names are supported.

WHEN(JESINPUT(*)) deletes all JESINPUT entries for the specified users or groups. It is valid only with the DELETE operand.

WHEN(PROGRAM(*program-name ...* | *))

Specifies that you want to create or delete entries in the conditional access list of the specified data set or SERVAUTH profile. This operand applies only to resources in the data set and SERVAUTH classes.

Specify one or more program names. No generic names or profile names are supported.

For example, if you enter the following command:

```
PERMIT 'XXX.YYY' ID(SMITH) ACCESS(READ) WHEN(PROGRAM(ABC))
```

RACF allows user SMITH READ access to the data set protected by profile XXX.YYY when executing program ABC. RACF grants access, through the conditional access list, with the authority you specify on the ACCESS operand. If you do not specify the ACCESS operand, or if you specify ACCESS without an access authority, RACF uses a default value of ACCESS(READ).

See *z/OS Security Server RACF Security Administrator's Guide* for more information on data set access and program access to SERVAUTH resources when program control is active.

WHEN(PROGRAM) affects only users and groups specified on the ID operand; it has no effect on names copied from a standard access list in another profile (using the FROM operand). Thus, you can copy a standard access list from another profile that contains only a standard access list and add or delete names in the conditional access list on a single PERMIT command.

To delete an entry from the conditional access list of a data set profile, issue the PERMIT command as follows:

```
PERMIT 'XXX.YYY' ID(JONES) DELETE WHEN(PROGRAM(ABC))
```

When you issue this command, RACF no longer allows user JONES access to the data set protected by profile XXX.YYY when executing program ABC. If you specify WHEN(PROGRAM(*)) with DELETE, RACF deletes all program names for each user or group specified on the ID operand.

See also the description of the ID operand.

WHEN(PROGRAM(*)) deletes all PROGRAM entries for the specified users or groups. It is valid only with the DELETE operand.

WHEN(SERVAUTH(*SERVAUTH-profile-name ...* | *))

WHEN(SERVAUTH(*SERVAUTH-profile-name ...*))

Specifies that the indicated users or groups have the specified access authority when using an IP address protected by the named SERVAUTH profile. The profile name may be generic; however, it must match exactly the name of a profile to allow access.

Guideline: Use careful consideration before specifying the SERVAUTH profile name * on the RDEFINE and PERMIT WHEN(SERVAUTH(...) commands. The SERVAUTH profile name * cannot be removed from the conditional access list without deleting all SERVAUTH entries for the specified users or groups. Instead, we recommend that you create the profile ** in the SERVAUTH class. Then use the ** profile name for the conditional access list.

WHEN(SERVAUTH(*)

Deletes all SERVAUTH entries for the specified users or groups when specified with the DELETE operand.

WHEN(SYSID(*system-identifier ...* | *))

Specifies that the indicated users or groups have the specified access authority when loading this controlled program on the specified system.

Specify one or more system identifiers. No generic names or profile names are supported.

This operand applies only to resources in the PROGRAM class. The *system-identifier* is the 4-character value specified for the SID parameter of the SMFPRMxx member of SYS1.PARMLIB. See *z/OS MVS Initialization and Tuning Reference* for additional information on SMFPRMxx.

WHEN(SYSID(*)) deletes all SYSID entries for the specified users or groups. It is valid only with the DELETE operand.

WHEN(TERMINAL(*terminal-id ...* | *))

Specifies that the indicated users or groups have the specific access authority when logged on to the named terminal.

Specify one or more terminal identifiers. No generic names or profile names are supported.

WHEN(TERMINAL(*)) deletes all TERMINAL entries for the specified users or groups. It is valid only with the DELETE operand.

Examples

Example	Activity label	Description
1	*Operation*	User WJE10 wants to give UPDATE access authority to data set WJE10.DEPT2.DATA to all the users in the group RESEARCH. Data set WJE10.DEPT2.DATA is protected by a discrete profile.
	Known	User WJE10 and group RESEARCH are RACF-defined. Data set WJE10.DEPT2.DATA is RACF-defined. User WJE10 wants to issue the command as a RACF TSO command.
	Command	`PERMIT 'WJE10.DEPT2.DATA' ID(RESEARCH) ACCESS(UPDATE)`
	Defaults	CLASS(DATASET)
2	*Operation*	User WRH0 wants to give all users authorized to access the data set RESEARCH.PROJ01.DATA on volume DASD22 the authority to access RESEARCH.PROJ01.DATA on volume DASD11. User WRH0 also wants to give user AEH10 READ authority to RESEARCH.PROJ01.DATA.
	Known	User WRH0 has ALTER access to both RESEARCH.PROJ01.DATA data sets. Both data sets are protected by discrete profiles. User WRH0 wants to issue the command as a RACF TSO command.

	Command	`PERMIT 'RESEARCH.PROJ01.DATA' ID(AEH10)`
		`FROM('RESEARCH.PROJ01.DATA') VOLUME(DASD11)`
		`FVOLUME(DASD22)`

	Defaults	ACCESS(READ) CLASS(DATASET) FCLASS(DATASET)
3	*Operation*	User LAB2 wants to delete user MMC02's access to tape volume TAP8X.
	Known	User LAB2 is the owner of the profile for tape volume TAP8X. User LAB2 wants to issue the command as a RACF operator command, and the RACF subsystem prefix is `@`.
	Command	`@PERMIT TAP8X CLASS(TAPEVOL) ID(MMC02) DELETE`
	Defaults	None.

Example	Activity label	Description
4	*Operation*	User ADM1 wants to delete the existing standard access list from the discrete profile protecting the data set SALES.EUROPE.ABC, then copy the standard access list from the generic profile `SALES.*.`ABC to the discrete profile for SALES.EUROPE.ABC User ADM1 wants to direct the command to run under the authority of user THB11.
	Known	User THB11 has the SPECIAL attribute. SALES.EUROPE.ABC is in the DATASET class. User ADM1 wants to issue the command as a RACF TSO command. ADM1 and THB11 have an already established user ID association.

	Command	`PERMIT 'SALES.EUROPE.ABC' FROM('SALES.*.ABC')`
		`RESET(STANDARD) AT(.THB11)`

	Defaults	CLASS (DATASET) FCLASS(DATASET) Command direction defaults to the local node.
5	*Operation*	User ADM1 wants to replace the conditional access list in the discrete profile that protects the data set SALES.EUROPE.ABC. Two users, TH01 and TH03, are to be allowed to update the data set when executing the program named FUTURE.
	Known	User ADM1 has the SPECIAL attribute. Users TH01 and TH03 are defined to RACF. The program FUTURES has been defined to RACF as a controlled program. User ADM1 wants to issue the command as a RACF TSO command.

	Command	`PERMIT 'SALES.EUROPE.ABC' RESET(WHEN) ID(TH01 TH03)`
		`ACCESS(UPDATE) WHEN(PROGRAM(FUTURES))`

	Defaults	CLASS(DATASET)
6	*Operation*	User ADM1 wants to control the access of shared user IDs PUBLIC and RESELL to data sets containing sales data. All users working within the company need access to sales data along with RESELL, but PUBLIC cannot have access.
	Known	User ADM1 has the SPECIAL attribute. User IDs PUBLIC and RESELL have the RESTRICTED attribute. SALES RESELL.* is a generic data set with a UACC(READ).
	Command	`PERMIT 'SALES.RESELL.*' ID(RESELL) ACCESS(READ)`
	Defaults	None.

Example	Activity label	Description
7	*Operation*	Rui wants to authorize user JEAN to alter a Db2z/OS table owned by ZHAOHUI only when JEAN is assigned in Db2z/OS to the role called TELLER.
	Known	Rui has the SPECIAL attribute. A general resource called DSN.ZHAOHUI.TABLE.ALTER is defined in the MDSNTB class with UACC(NONE). The user JEAN is assigned in Db2z/OS to the role called TELLER. The installation uses the RACF access control module (ACM) with Db2z/OS. The ACM is configured for multiple-subsystem scope and the Db2z/OS subsystem is operational.
	Command	`PERMIT DSN.ZHAOHUI.TABLE.ALTER CLASS(MDSNTB) ID(JEAN) ACCESS(READ) WHEN(CRITERIA(SQLROLE(TELLER)))`
	Defaults	None.

RACDCERT (Manage RACF digital certificates)

The RACDCERT command has numerous functions. Each function of the RACDCERT command is documented in a separate topic that contains its purpose, authorization required, syntax, and other specific information.

For details about each RACDCERT function, see the following topics:

- "RACDCERT ADD (Add certificate)" on page 257
- "RACDCERT ADDRING (Add key ring)" on page 267
- "RACDCERT ADDTOKEN (Add token)" on page 270
- "RACDCERT ALTER (Alter certificate)" on page 271
- "RACDCERT ALTMAP (Alter mapping)" on page 274
- "RACDCERT BIND (Bind certificate to token)" on page 276
- "RACDCERT CHECKCERT (Check certificate or certificate chain)" on page 280
- "RACDCERT CONNECT (Connect a certificate to key ring)" on page 287
- "RACDCERT DELETE (Delete certificate)" on page 290
- "RACDCERT DELMAP (Delete mapping)" on page 293
- "RACDCERT DELRING (Delete key ring)" on page 295
- "RACDCERT DELTOKEN (Delete token)" on page 297
- "RACDCERT EXPORT (Export certificate package)" on page 299
- "RACDCERT GENCERT (Generate certificate)" on page 302
- "RACDCERT GENREQ (Generate request)" on page 317
- "RACDCERT IMPORT (Import certificate)" on page 320
- "RACDCERT LIST (List certificate)" on page 325
- "RACDCERT LISTCHAIN (List certificate chain)" on page 332
- "RACDCERT LISTMAP (List mapping)" on page 336
- "RACDCERT LISTRING (List key ring)" on page 339
- "RACDCERT LISTTOKEN (List token)" on page 341
- "RACDCERT MAP (Create mapping)" on page 343
- "RACDCERT REKEY (Rekey certificate)" on page 349
- "RACDCERT REMOVE (Remove certificate from key ring)" on page 356
- "RACDCERT ROLLOVER (Rollover certificate)" on page 359

- “RACDCERT UNBIND (Unbind certificate from token)” on page 362.

Purpose

Use the RACDCERT command to install and maintain digital certificates, key rings, and digital certificate mappings in RACF. RACDCERT should be used for all maintenance of profiles in the DIGTCERT, DIGTRING, and DIGTNMAP classes.

The RACDCERT command is a RACF TSO command used to:

- List information about the certificates for a specified RACF-defined user ID, or your own user ID.
- Add a certificate and associate it with a specified RACF-defined user ID, or your own user ID, and set the TRUST status.
- Check to see if a certificate has been defined to RACF.
- Alter the TRUST status or label for a certificate.
- Delete a certificate.
- List a certificate or a chain of certificates contained in a data set and determine if it is associated with a RACF-defined user ID.
- Add or remove a certificate from a key ring.
- Create, delete, or list a key ring.
- Generate a public/private key pair and certificate, replicate a digital certificate with a new public/private key pair, or retire the use of an existing private key.
- Write (export) a certificate or certificate package to a data set.
- Create a certificate request.
- Create, alter, delete, or list a certificate name filter (user ID mapping).
- Add, delete, or list a z/OS PKCS #11 token.
- Bind a certificate to a z/OS PKCS #11 token.
- Remove (unbind) a certificate from a z/OS PKCS #11 token.
- Import a certificate (with its private key, if present) from a z/OS PKCS #11 token and add it to RACF.

RACF supports RSA, DSA, and ECC keys. The key value can reside in the RACF database in a DER encoded format, or in the ICSF PKA key data set or ICSF token key data set (TKDS). If the key is in ICSF, its location, not the value, is stored in the RACF database.

RACF signs its certificates using a set of secure hash algorithms based on the SHA-1 or SHA-2 hash functions.

For increased security and performance of signature verifications, RACF uses an exponent value of 65537 for each key it generates with the RSA algorithm.

Authorization required

Authority required includes appropriate access to:

1. the resource(s) in the FACILITY class which is based on the RACDCERT function, or
2. the resource(s) in the RDATALIB class which is based on the RACDCERT function, the certificate owner, the certificate label, the ring owner and the ring name specified for the command. If they are not explicitly specified, the default values will be used to form the resource.

   This authority checking mechanism provides granular control on a subset of RACDCERT functions: ADD, ADDRING, ALTER, CONNECT, DELETE, DELRING, EXPORT, GENCERT, GENREQ, IMPORT, REKEY, REMOVE and ROLLOVER, if IRR.RACDCERT.GRANULAR is defined in the RDATALIB class. Note: Don't define IRR.RACDCERT.GRANULAR before granular profiles are set up. Otherwise these RACDCERT functions will fail the authorization check.

3. the resources in the CSFSERV, CSFKEY or CRYPTOZ classes if the key is stored or managed by ICSF

For authorization details about each RACDCERT function, see the "Authorization required" topic under each RACDCERT function.

Controlling the use of RACDCERT: Effective use of RACDCERT requires that its privileges be carefully controlled. However, end users and application administrators should be allowed some flexibility in defining their security characteristics.

Guidelines:

- Give the authority to add certificate authorities to only a small set of trusted people. Enforce a naming convention on the certificate labels and key ring names and segregate the administration if needed.
- End users need to add, delete, and modify the contents of their own key rings and to add, delete, and alter their own certificates.
- Help desk personnel need to list certificates and key rings.

EXAMPLES:

Example commands to implement one method of controlling RACDCERT access, according to these guidelines, using the FACILITY class are listed in "Examples of controlling access to RACDCERT functions using the FACILITY class" on page 256.
Examples shown in "Examples of controlling the use of the RACDCERT command using the RDATALIB class" on page 256 lists the granular control on naming convention on the certificate label and key ring name used in the system using the RDATALIB class.

Syntax

For details about syntax and parameters for each RACDCERT function, see the "Syntax" and "Parameters" subtopics of each RACDCERT function.

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

UTF-8 and BMP character restrictions

You can include UTF-8 and BMP characters in certificate names with the following restrictions:

- You can specify certificate names that include UTF-8 and BMP characters *only* when they are part of an encoded certificate or certificate request that is stored in an MVS data set, and you specify the data set name with your RACDCERT command.
- Do not use keyboard entries (including cut-and-paste methods) to specify UTF-8 and BMP characters as command-line input. UTF-8 or BMP characters specified at the command line might be incorrectly processed, although you might receive no input error.
- Any UTF-8 or BMP character that does not map to the IBM-1047 code page is represented by six characters in the U+*nnnn* format, where *nnnn* is the hexadecimal form of the Unicode code point for the UTF-8 or BMP character. For example, the Euro symbol (€) is represented as U+20AC.

  For a sample listing of a certificate that contains information that includes an unmapped character, see Figure 47 on page 332.

  When one unmapped UTF-8 or BMP character is represented by six characters, the additional five characters of length might affect the processing of certain certificates, such as in the following cases:

  - When the issuer's distinguished name is lengthy and contains one or more unmapped UTF-8 or BMP characters, the resulting profile name for the certificate might exceed the allowable length for a profile name. If this occurs, the RACDCERT ADD or GENCERT command fails and the certificate is not added.

- When RACF generates a default label for a certificate extracted from a PKCS #12 package during RACDCERT ADD processing and the certificate's friendly name contains one or more unmapped UTF-8 or BMP characters, the resulting label might exceed 32 characters. If this occurs, RACF truncates the label.

DEBUG keyword

Add the DEBUG keyword when you issue the RACDCERT command to obtain additional diagnostic messages for failures related to encryption calls, and RACF-invoked ICHEINTY ALTER, RACROUTE REQUEST=EXTRACT, and RACROUTE REQUEST=DEFINE calls.

The content of these additional diagnostic messages are not documented in the RACF publication library.

If you report a problem to the IBM Support Center, use the DEBUG keyword to gather diagnostic information.

ICSF considerations

RACDCERT processing makes use of ICSF services. When your installation controls access to ICSF services and the CSFSERV class is active, issuers of certain RACDCERT command functions might require additional access to CSFSERV resources. For complete details, see the "Authorization required" topic of each RACF command function.

Restriction: When ICSF is operating in FIPS mode, the following RACDCERT functions do not support Brainpool ECC keys:

- ADD
- EXPORT
- GENCERT
- GENREQ
- IMPORT
- REKEY

If your installation establishes access control over keys that are stored in ICSF and the RACDCERT command that is used has a reference to a key stored in PKDS, the issuers of the RACDCERT command must have READ access authority to key label that is controlled by the profile in the CSFKEYS class. You can reference a key that is stored in PKDS through the RACDCERT command either explicitly (by using GENCERT, ADD, or REKEY) or implicitly (by using GENREQ or DELETE).

If a key label is not supplied (either specified or derived from the certificate label) through the RACDCERT command, a system generated label is created in the format of IRR.DIGTCERT.*certificate-owner*.*cvtsname*.*ebcdic-stck-value*, where *certificate-owner* is user ID, CERTIFAUTH or SITECERTIF. The *cvtsname* is the system name that is taken from CVT and *ebcdic-stck-value* is an EBCDIC version of the current store-clock value.

If you always want to use the system generated key label, you can define a generic profile in the CSFKEYS class to protect the key. For example, by using IRR.DIGTCERT.CERTIFAUTH.*.

Sufficient ICSF authority for the following command functions is controlled using resources in the CRYPTOZ class. If the CSFSERV class is active, sufficient ICSF authority for the following command functions might also be required. For more information about authorization details, see *z/OS Cryptographic Services ICSF Administrator's Guide*.

- ADDTOKEN
- BIND
- DELTOKEN
- IMPORT
- LISTTOKEN
- UNBIND

Hardware requirements

The following hardware features are required on the system when you issue the ADD, GENCERT, IMPORT, or REKEY functions to store a key in the ICSF PKA key data set (PKDS) or in the ICSF token data set (TKDS). These features are also required on any system where a user or SSL application accesses the key.

- The ICSF subsystem must be operational and configured for PKA operations. Otherwise, command processing stops and an error message is displayed.
- The cryptographic coprocessor must be operational and configured to use the PKDS or TKDS where the key is to be stored or accessed.
  - CCA cryptographic coprocessor is required to process keys stored in the PKDS.
    - A Crypto Express3 coprocessor (CEX3C), or later, is required with the 32 bytes ECC master key activated to process RSA and ECC PKDS keys.
  - Enterprise PKCS#11 cryptographic coprocessor is required to process secure keys stored in the TKDS.

PKDS label considerations

When you specify the PKDS keyword with the ADD, GENCERT, IMPORT, or REKEY function, RACF stores the key in the ICSF PKA key data set (PKDS).

Setting a PKDS label for the key is optional. You can specify a label or you can specify an asterisk (*****) to use the certificate label from the WITHLABEL keyword as the PKDS label for the key. If you specify an asterisk (*****), you must specify the WITHLABEL keyword.

Whether specified or taken from the WITHLABEL keyword, the PKDS label must be unique and conform to ICSF syntax requirements. That is, allowed characters are alphanumeric, national (@, #, $), or period (`.`). Blank characters are not allowed. The first character must be alphabetic or national. The label must be 1 - 64 characters and is translated to uppercase (not case-sensitive).

If the specified PKDS label, or the certificate label (when you specify an asterisk), does not conform to ICSF syntax requirements, it cannot be used as the PKDS label and the command fails.

When you do not specify a PKDS label and you do not specify an asterisk (*****), RACF generates a default label in the format IRR.DIGTCERT.*certificate-owner*.*cvtsname*.*ebcdic-stck-value*, where *certificate-owner* is the owning user ID, *cvtsname* is the system name (taken from the CVT), and *ebcdic-stck-value* is an EBCDIC version of the current store-clock value. RACF does not generate a PKDS label for a public key.

Note: When the key is associated with a certificate-authority certificate, the owning user ID is set to CERTIFAUTH. When the key is associated with a site certificate, then the owning user ID is set to SITECERTIF.

Certificate Date and Time value considerations

These considerations pertain to the following functions that involve the setting and displaying of the date and time values in a certificate:

- GENCERT
- REKEY
- LIST
- LISTCHAIN
- CHECKCERT

Since the specified or default date and time values are treated as local time, internal command processing converts the values to Universal Time Coordinated (UTC) by using the difference between the local and UTC time that is defined on the system. The converted UTC date and time values are stored in the certificate.

If the local time on the system is rolled back approximately 204 days from the UTC time on the system, the certificate validity dates are not computed correctly and unpredictable dates are stored in the certificate.

Key ring name handling in a profile

For functions that involve key ring – ADDRING, DELRING, CONNECT, REMOVE, we use similar rules that apply to R_datalib, documented in the RACF Callable Service book.

The ringOwner must be in uppercase. The ringName is folded into uppercase during profile checking.

Note: ringNames which differ only in case use the same profile.

If the constructed profile based on the ringOwner, ringName and function name has reached the field size limits, and you want to create a discrete profile, you can truncate the ring name from the end to make the whole profile name length 246 characters.

For example, if the owner ID is JOESMITH and the ring name is:

- `THISISARINGWITH237CHARACTERS...REACHINGRINGEND` (with a length of 237) the discrete profile for ADDRING will be `JOESMITH.THISISARINGWITH237CHARACTERS...REA.UPD.ADDRING`
- The discrete profile for REMOVE will be `JOESMITH.THISISARINGWITH237CHARACTERS...REAC.UPD.REMOVE`
- If the owner ID is J, the profile for REMOVE will be `J.THISISARINGWITH237CHARACTERS...REACHINGRIN.UPD.REMOVE`

Certificate label handling in a profile

The certificate label is part of the profile, but the characters in a label and in the profile do not follow the same set of rules. For example, the certificate label can contain special characters like *, which is considered a generic character in the profile; the label can contain blanks, but the profile can not; the label is case sensitive but the profile is not.

The label part will be modified as follows in the construction of the resource profile:

1. blank( ), comma(,), back slash(\), ampersand(&), asterisk(*) and percent(%) will be replaced with underscore (_, X’6D’)
2. will be folded into uppercase

With these restrictions, the certificates that have labels differ only in case, with blanks or special characters may be covered by the same profile.

Example 1: IRR.DIGTCERT.JOSH.MY_CERT.UPD.ALTER will cover the following certificate labels that belong to Josh:

MY_CERT
My_Cert
My CERT
My%cert
My\Cert
my&cert
my*cert
...

Example 2: IRR.DIGTCERT.JOSH.MY*.UPD.DELETE will cover the following certificate labels that belong to Josh:

MY*CERT
MyfirstCERT
MyCA

...

Example 3: IRR.DIGTCERT.JOSH.MY_*.UPD.DELETE will cover the following certificate labels that belong to Josh:

MY*CERT
My*firstCERT
My*CA
...

The function CLBL in the sample program IRRICE in SYS1.SAMPLIB can be used to find out the certificate labels that will result to the same string after the conversion so that the customer can alter them if they want to avoid using the same discrete profile to protect multiple labels.

Examples of controlling access to RACDCERT functions using the FACILITY class

```
RDEFINE FACILITY IRR.DIGTCERT.ADD       UACC(NONE)
RDEFINE FACILITY IRR.DIGTCERT.ADDRING   UACC(NONE)
RDEFINE FACILITY IRR.DIGTCERT.ALTER     UACC(NONE)
RDEFINE FACILITY IRR.DIGTCERT.ALTMAP    UACC(NONE)
RDEFINE FACILITY IRR.DIGTCERT.BIND      UACC(NONE)
RDEFINE FACILITY IRR.DIGTCERT.CONNECT   UACC(NONE)
RDEFINE FACILITY IRR.DIGTCERT.DELETE    UACC(NONE)
RDEFINE FACILITY IRR.DIGTCERT.DELMAP    UACC(NONE)
RDEFINE FACILITY IRR.DIGTCERT.DELRING   UACC(NONE)
RDEFINE FACILITY IRR.DIGTCERT.EXPORT    UACC(NONE)
RDEFINE FACILITY IRR.DIGTCERT.EXPORTKEY UACC(NONE)
RDEFINE FACILITY IRR.DIGTCERT.GENCERT   UACC(NONE)
RDEFINE FACILITY IRR.DIGTCERT.GENREQ    UACC(NONE)
RDEFINE FACILITY IRR.DIGTCERT.LIST      UACC(NONE)
RDEFINE FACILITY IRR.DIGTCERT.LISTCHAIN UACC(NONE)
RDEFINE FACILITY IRR.DIGTCERT.LISTMAP   UACC(NONE)
RDEFINE FACILITY IRR.DIGTCERT.LISTRING  UACC(NONE)
RDEFINE FACILITY IRR.DIGTCERT.MAP       UACC(NONE)
RDEFINE FACILITY IRR.DIGTCERT.REKEY     UACC(NONE)
RDEFINE FACILITY IRR.DIGTCERT.REMOVE    UACC(NONE)
RDEFINE FACILITY IRR.DIGTCERT.ROLLOVER  UACC(NONE)

PERMIT IRR.DIGTCERT.ADD       CLASS(FACILITY) ID(WEBADMIN) ACCESS(CONTROL)
PERMIT IRR.DIGTCERT.ADDRING   CLASS(FACILITY) ID(WEBADMIN) ACCESS(UPDATE)
PERMIT IRR.DIGTCERT.ALTER     CLASS(FACILITY) ID(WEBADMIN) ACCESS(CONTROL)
PERMIT IRR.DIGTCERT.ALTMAP    CLASS(FACILITY) ID(WEBADMIN) ACCESS(UPDATE)
PERMIT IRR.DIGTCERT.BIND      CLASS(FACILITY) ID(WEBADMIN) ACCESS(CONTROL)
PERMIT IRR.DIGTCERT.CONNECT   CLASS(FACILITY) ID(WEBADMIN) ACCESS(CONTROL)
PERMIT IRR.DIGTCERT.DELETE    CLASS(FACILITY) ID(WEBADMIN) ACCESS(CONTROL)
PERMIT IRR.DIGTCERT.DELMAP    CLASS(FACILITY) ID(WEBADMIN) ACCESS(UPDATE)
PERMIT IRR.DIGTCERT.DELRING   CLASS(FACILITY) ID(WEBADMIN) ACCESS(UPDATE)
PERMIT IRR.DIGTCERT.EXPORT    CLASS(FACILITY) ID(WEBADMIN) ACCESS(CONTROL)
PERMIT IRR.DIGTCERT.EXPORTKEY CLASS(FACILITY) ID(WEBADMIN) ACCESS(CONTROL)
PERMIT IRR.DIGTCERT.GENCERT   CLASS(FACILITY) ID(WEBADMIN) ACCESS(CONTROL)
PERMIT IRR.DIGTCERT.GENREQ    CLASS(FACILITY) ID(WEBADMIN) ACCESS(CONTROL)
PERMIT IRR.DIGTCERT.LIST      CLASS(FACILITY) ID(WEBADMIN) ACCESS(CONTROL)
PERMIT IRR.DIGTCERT.LISTCHAIN CLASS(FACILITY) ID(WEBADMIN) ACCESS(CONTROL)
PERMIT IRR.DIGTCERT.LISTMAP   CLASS(FACILITY) ID(WEBADMIN) ACCESS(UPDATE)
PERMIT IRR.DIGTCERT.LISTRING  CLASS(FACILITY) ID(WEBADMIN) ACCESS(UPDATE)
PERMIT IRR.DIGTCERT.MAP       CLASS(FACILITY) ID(WEBADMIN) ACCESS(UPDATE)
PERMIT IRR.DIGTCERT.REKEY     CLASS(FACILITY) ID(WEBADMIN) ACCESS(CONTROL)
PERMIT IRR.DIGTCERT.REMOVE    CLASS(FACILITY) ID(WEBADMIN) ACCESS(CONTROL)
PERMIT IRR.DIGTCERT.ROLLOVER  CLASS(FACILITY) ID(WEBADMIN) ACCESS(CONTROL)

PERMIT IRR.DIGTCERT.ADD       CLASS(FACILITY) ID(*) ACCESS(READ)
PERMIT IRR.DIGTCERT.ADDRING   CLASS(FACILITY) ID(*) ACCESS(READ)
PERMIT IRR.DIGTCERT.ALTER     CLASS(FACILITY) ID(*) ACCESS(READ)
PERMIT IRR.DIGTCERT.ALTMAP    CLASS(FACILITY) ID(*) ACCESS(READ)
PERMIT IRR.DIGTCERT.BIND      CLASS(FACILITY) ID(*) ACCESS(READ)
PERMIT IRR.DIGTCERT.CONNECT   CLASS(FACILITY) ID(*) ACCESS(READ)
PERMIT IRR.DIGTCERT.DELETE    CLASS(FACILITY) ID(*) ACCESS(READ)
PERMIT IRR.DIGTCERT.DELMAP    CLASS(FACILITY) ID(*) ACCESS(READ)
PERMIT IRR.DIGTCERT.DELRING   CLASS(FACILITY) ID(*) ACCESS(READ)
PERMIT IRR.DIGTCERT.EXPORT    CLASS(FACILITY) ID(*) ACCESS(READ)
PERMIT IRR.DIGTCERT.EXPORTKEY CLASS(FACILITY) ID(*) ACCESS(READ)
PERMIT IRR.DIGTCERT.GENCERT   CLASS(FACILITY) ID(*) ACCESS(READ)
PERMIT IRR.DIGTCERT.GENREQ    CLASS(FACILITY) ID(*) ACCESS(READ)
PERMIT IRR.DIGTCERT.LIST      CLASS(FACILITY) ID(*) ACCESS(READ)
PERMIT IRR.DIGTCERT.LISTMAP   CLASS(FACILITY) ID(*) ACCESS(READ)
PERMIT IRR.DIGTCERT.LISTRING  CLASS(FACILITY) ID(*) ACCESS(READ)
PERMIT IRR.DIGTCERT.MAP       CLASS(FACILITY) ID(*) ACCESS(READ)
PERMIT IRR.DIGTCERT.REKEY     CLASS(FACILITY) ID(*) ACCESS(READ)
PERMIT IRR.DIGTCERT.REMOVE    CLASS(FACILITY) ID(*) ACCESS(READ)
PERMIT IRR.DIGTCERT.ROLLOVER  CLASS(FACILITY) ID(*) ACCESS(READ)

PERMIT IRR.DIGTCERT.LIST      CLASS(FACILITY) ID(HELPDESK) ACCESS(CONTROL)
PERMIT IRR.DIGTCERT.LISTCHAIN CLASS(FACILITY) ID(HELPDESK) ACCESS(CONTROL)
PERMIT IRR.DIGTCERT.LISTMAP   CLASS(FACILITY) ID(HELPDESK) ACCESS(UPDATE)
PERMIT IRR.DIGTCERT.LISTRING  CLASS(FACILITY) ID(HELPDESK) ACCESS(UPDATE)
```

Figure 37. Controlling access to RACDCERT functions using the FACILITY class

Examples of controlling the use of the RACDCERT command using the RDATALIB class

By using the granular control (enabled by defining the profile IRR.RACDCERT.GRANULAR in the RDATALIB class), you can enforce a naming convention for the certificates and the key rings in your system and segregate the administration of them. For example:

- To enforce the rule that the label for a certificate used for tcpip must start with the string TCPIP,you can use:

  `RDEFINE RDATALIB IRR.DIGTCERT.*.TCPIP*.UPD.GENCERT UACC(NONE)` for all certificate owners with all certificate names that start with the string TCPIP

  or

  `RDEFINE RDATALIB IRR.DIGTCERT.`*certificate_owner*`.TCPIP_SYS1.UPD.GENCERT UACC(NONE)` for a specific certificate owner with all certificate name TCPIP_SYS1.

- To enforce the rule that the name for a key ring used for servers must start with the string SERVER, you can use:

  `RDEFINE RDATALIB.*.SERVER*.UPD.ADDRING UACC(NONE)` for all ring owners with all ring names that start with the string SERVER

  or

  `RDEFINE RDATALIB.`*ring_owner*`.SERVERABC.UPD.ADDRING UACC(NONE)` for a specific ring owner with all ring names that start with the string SERVER.

- To allow system administrators to create certificates with labels that start with TCPIP and create key rings with names that start with SERVER:

  ```
  PERMIT IRR.DIGTCERT.*.TCPIP*.*.GENCERT CLASS(RDATALIB) ID(SYSADMIN)
  ACCESS(READ)
  PERMIT *.SERVER*.UPD.ADDRING CLASS(RDATALIB) ID(SYSADMIN) ACCESS(READ)
  ```

- To allow web server administrators to connect the TCPIP_TEST certificate to the SERVERABC key ring:

  ```
  PERMIT IRR.DIGTCERT.*.TCPIP*.*.CONNECT CLASS(RDATALIB) ID(WEBADMIN)
  ACCESS(READ)
  PERMIT *.SERVER*.UPD.CONNECT CLASS(RDATALIB) ID(WEBADMIN) ACCESS(READ)
  ```

- To enforce the CA certificate of PKI Services (label LOCAL_PKI_CA) can only be used by the PKI daemon PKISRVD, but not by any administrators to sign other certificates:

  ```
  RDEFINE RDATALIB IRR.DIGTCERT.CERTIFAUTH.LOCAL_PKI_CA.UPD.GENCERT
  UACC(NONE)
  PERMIT IRR.DIGTCERT.CERTIFAUTH.LOCAL_PKI_CA.UPD.GENCERT CLASS(RDATALIB)
  ID(PKISRVD) ACCESS(READ)
  ```

RACDCERT ADD (Add certificate)

Purpose

Use the RACDCERT ADD command to define a digital certificate using a certificate or certificate package contained in the specified data set.

Each user ID can be associated with more than one digital certificate but they must be added individually. The specified data set should contain only one digital certificate. The command reads the certificate from the data set, updates the user's profile, and creates the DIGTCERT profile.

If the data set contains a PKCS#7 or PKCS#12 package, the data set can contain more than one certificate and the processing will be as described in PKCS #7 and PKCS #12 processing details.

See "UTF-8 and BMP character restrictions" on page 251 for information about how UTF-8 and BMP characters in certificate names and labels are processed by RACDCERT functions.

Details about DIGTCERT profile names

The name of a DIGTCERT profile is derived from the certificate's serial number and the issuer's distinguished name (IDN). Any character in either value that would not be valid in a RACF profile name, such as a blank, is replaced with the ¢ character (X'4A').

The maximum length of a DIGTCERT profile name is 246 characters. The format of the profile name is based on the combined length of the certificate's serial number and the issuer's distinguished name (IDN), including the period.

When the combined length of the value of *serial-number.issuer's-distinguished-name* is 246 characters or less, the name of the DIGTCERT profile uses the following format:

```
serial-number.issuer's-distinguished-name
```

When the combined length of the value of *serial-number.issuer's-distinguished-name* exceeds 246 characters, the name of the DIGTCERT profile uses the following format, where the *certificate-hash* value is a hexadecimal representation of the certificate in a hashed form:

```
serial-number.<first-portion-of-IDN><certificate-hash><last-portion-of-IDN>
```

When a DIGTCERT profile name contains a certificate hash value, each occurrence of the equal sign (=) delimiter is replaced with a colon (`:`).

For examples of DIGTCERT profile names, see DIGTCERT profile names in *z/OS Security Server RACF Security Administrator's Guide*.

Processing details

This topic contains additional information about the following subjects:

- Re-adding a certificate
- Renewing a certificate
- Adding a certificate with an existing key in the PKDS
- Supported certificate package formats
- Details about adding new certificates
- PKCS #12 format details
- PKCS #7 and PKCS #12 processing details

Re-adding a certificate:

If the certificate being added already exists in the RACF database, RACF will accept the certificate and refresh its stored information if all of the following conditions are true:

- The certificate is being added to the same user ID, SITE, or CERTAUTH as before.
- The label specified for the certificate matches the old value or no label is specified.
- The certificate being added has the same public key as the existing certificate.

Otherwise, an informational message is issued, and the certificate is not re-added.

Renewing a certificate:

The RACDCERT ADD function also supports certificate replacement, for cases of certificate renewal and fulfillment by an external certificate authority. When a certificate is replaced, all existing information, including key ring associations, are updated to reflect the new certificate. In addition, a new certificate label can be specified using the WITHLABEL parameter. In this case, the certificate will be renamed to the specified *label-name* in the WITHLABEL parameter.

The certificate in the RACF database is replaced if the following conditions are true.

- If the existing certificate has a private key associated with it:
  - The certificate is being added to the same user ID, SITE, or CERTAUTH as before.
  - The certificate being added is not a duplicate. (You are not re-adding the certificate.)
  - The certificate being added is not expired.
  - The certificate being added has the same public key as the existing certificate.
- If the existing certificate does *not* have a private key associated with it:

  - The certificate is being added to the same user ID, SITE, or CERTAUTH as before.
  - The certificate being added is not a duplicate. (You are not re-adding the certificate.)
  - The certificate being added is not expired.
  - The certificate being added has a later expiration date than that of the existing certificate.
  - The certificate being added has the same subject's distinguished name, issuer's distinguished name, and public key as the existing certificate.

Adding a certificate with an existing key in the PKDS:

- If the certificate you are adding has an existing public or private key in the PKDS, and the key is already associated with this certificate, the following rules apply:
  - If the public key already exists in the PKDS and you add its matching private key certificate, you must specify the PKDS keyword. This upgrades the PKDS entry to include the new RSA or ECC private key.
  - The PKDS label of the existing public or private key is not changed when you respecify the label with the PKDS keyword.
  - If the private key already exists in the PKDS as an RSA Modulus-Exponent (ME) key token, specifying PKDS does not convert the key to an RSA Chinese Remainder Theorem (CRT) key token.
  - If the private key already exists in the PKDS as a CRT key token, specifying ICSF does not convert the key to an ME key token.
- If the certificate you are adding has an existing public or private key in the PKDS but the key is *not* already associated with this (or another) RACF certificate, RACF associates the key with this certificate when all of the following conditions are true:
  - You specify the PKDS label of the existing key using the PKDS keyword.
  - The existing key is either an RSA or ECC private key (an ICSF internal key token) or an RSA or ECC public key.

Supported certificate package formats:

The certificate package must be in one of the following formats:

1. A single BER encoded X.509 certificate.
2. A single Base64 encoded X.509 certificate.
3. A Privacy Enhanced Mail (PEM) encoded X.509 certificate. If the input is in this format, only the Originator Certificate is used.
4. One or more X.509 certificates contained within a PKCS #7 DER encoding package.
5. One or more X.509 certificates and private keys contained within a PKCS #12 DER encoding package. If the input is in this format, all certificates are processed but only the first user private key is used. PKCS #12 is also known as Private Information Exchange (PFX). The obsolete PFX V0.02 standard is not supported.

Details about adding new certificates:

The following are additional details regarding RACDCERT's certificate processing:

1. All fields as defined for X.509 version 1 certificates must be present and must have a length greater than zero (non-null).
2. X.509 certificates with version numbers greater than 3 are not supported.
3. Noncritical extensions are ignored. Critical extensions that are supported include:
   - keyUsage - { 2 5 29 15 }
   - basicConstraints - { 2 5 29 19 }
   - subjectAltname - { 2 5 29 17 }
   - issuerAltName - { 2 5 29 18 }
   - certificatePolicies - { 2 5 29 32 }

- policyMappings - { 2 5 29 33 }
- policyConstraints - { 2 5 29 36 }
- nameConstraints - { 2 5 29 30 }
- extKeyUsage - { 2 5 29 37 }
- hostIdMapping - { 1 3 18 0 2 18 1 }
- subjectKeyIdentifier - { 2 5 29 14 }
- authorityKeyIdentifier - { 2 5 29 35 }

4. Subject and issuer names can contain only the following string types:

   - UTF8 - TAG 12
   - PRINTABLESTRING - TAG 19
   - T61STRING - TAG 20
   - IA5STRING - TAG 22
   - VISIBLESTRING - TAG 26
   - GENERALSTRING - TAG 27
   - BMPString - TAG 30

5. Because certificates can be encoded differently, be aware when transporting the different certificate encodings to and from z/OS systems. Both the BER encoded X.509 and PKCS #7 formats are binary formats and must be transported in their exact binary format. For example, binary formats, such as BER and X.509, cannot have any ASCII to EBCDIC translation performed on them, therefore, they must be transported in their exact binary format. In contrast, text formats, such as PEM and Base64, must be transported as text. When transporting for an ASCII system, the ASCII to EBCDIC translation must be performed for the PEM format and Base64 format certificate.

PKCS #12 format details:

PKCS #12 certificate packages can be processed. These certificates are encrypted with a password when received and must be decrypted with the same password before being added to the RACF database. For additional information, see the PASSWORD ('pkcs12-password') keyword.

When adding a certificate package that contains a private key, if ICSF is being used to store private keys and no label is specified for the ICSF key, ADD generates a default label in the format IRR.DIGTCERT.*certificate-owner.cvtsname.ebcdic-stck-value*, where *certificate-owner* is the owning user ID, *cvtsname* is the system name, as taken from the CVT, and *ebcdic-stck-value* is an EBCDIC version of the current store-clock value. See "**PKCS #7 and PKCS #12 processing details**" for information on how the multiple certificates are processed.

PKCS #7 and PKCS #12 processing details:

The ADD function of RACDCERT can accept PKCS #7 and PKCS #12 certificate packages. For PKCS #7, if there is more than one certificate in the package, the set consisting of the second through last certificate is the hierarchy of CAs. For PKCS #12, every certificate in the package other than the first one that has a `'local key ID'` that matches the first private key in the package, is considered to be a CA certificate. If the command issuer is authorized to add CERTAUTH certificates, the CA certificates will be sorted to determine the hierarchy chain. The resulting set is then added to the CERTAUTH category in the hierarchy order (highest CA down to lowest CA). Thus each certificate in the package may be verified using its previously added parent. If the command issuer is not authorized to add CERTAUTH certificates, an informational message will be issued. In either case, processing will then continue with the first certificate in the package (the end-entity certificate).

Rules: For each CERTAUTH certificate in the PKCS #7 or PKCS #12 package, the following rules apply in determining trust status. The rules are listed in priority order. For rules that conflict, the first matching rule wins.

1. If the certificate is already defined to RACF with status HIGHTRUST, the certificate retains its HIGHTRUST status.

2. The trust status specified by the command issuer will apply to the upper CA certificate. This primes the chain with a trust value which may be inherited down. (See the next rule.) The HIGHTRUST keyword is ignored if the target user ID on the ADD is not CERTAUTH (`irrcerta`).
3. For all lower CA certificates in the package and for the upper CA certificate when no trust status is specified, the trust status is determined dynamically as follows:
   a. If NOTRUST is specified by the command issuer, the certificate is added with status NOTRUST.
   b. If the certificate has one or more of the following inconsistencies, the certificate is added with NOTRUST status:
      i) The certificate is expired.
      ii) The certificate has an incorrect date range relative to the issuing CA certificate. (The validity period is not completely contained within the validity period of the issuing CA certificate).
      iii) The issuer of the certificate is missing from the package and is not already installed under CERTAUTH.
      iv) The certificate has an unknown signature algorithm to RACF. The supported signature algorithms are: SHA1RSA, SHA224RSA, SHA256RSA, SHA384RSA, SHA512RSA, SHA1RSAPSS, SHA224RSAPSS, SHA256RSAPSS, SHA384RSAPSS, SHA512RSAPSS, SHA1ECDSA, SHA224ECDSA, SHA256ECDSA, SHA384ECDSA, SHA512ECDSA, SHA1DSA, SHA256DSA, SHA224DSA, MD2RSA and MD5RSA.
   c. If no inconsistencies are detected, the certificate is added and inherits the trust status of its parent. If the certificate's parent has not previously been added (either as a part of this package or otherwise), the certificate is added with TRUST status if it is self-signed, NOTRUST status if it is not self-signed. If the self-signed certificate has already been added, its trust status is not changed.
4. HIGHTRUST will be inherited from the parent as per the previous rule only if the target user ID on the ADD is CERTAUTH (`irrcerta`) and HIGHTRUST was specified on the command. In all other cases, HIGHTRUST reverts to TRUST when inheriting from the parent.
5. The LABEL value will not be used. The label will be generated.

The authority required to add the CERTAUTH certificates from a PKCS #7 or PKCS #12 package is the same authority required to add CERTAUTH certificates directly, either CONTROL authority to IRR.DIGTCERT.ADD in the FACILITY class or RACF SPECIAL.

Note: PKCS #7 and PKCS #12 add error processing that has no backout support. If a terminating error is encountered during processing, any CERTAUTH certificates previously added are not removed. Unless otherwise stated in the error message description, any error messages issued are relative to the certificate where the error occurred. This may be the end-entity certificate or one of the CERTAUTH certificates.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT ADD command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules: The following rules apply when issuing this command.

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.
- The updates made to the RACF database by RACDCERT are eligible for propagation with automatic direction of application updates based on the RRSFDATA profiles AUTODIRECT.*target-node*.DIGTNMAP.APPL and, if keyword CRITERIA is used, AUTODIRECT.*target-node*.DIGTRING.APPL, where *target-node* is the remote node to which the update is to be propagated.

Authorization required

To issue the RACDCERT ADD command, you must have the following authorizations:

- The SPECIAL attribute, or
- Sufficient authority to the IRR.DIGTCERT.ADD resource in the FACILITY class, as shown in Table 3 on page 262, or
- Sufficient authority to the appropriate resources in the RDATALIB class, as shown in Table 4 on page 262, if Granular Authority Checking has been enabled by defining the IRR.RACDCERT.GRANULAR resource in the RDATALIB class.
- READ access to the data set that contains the certificate you are adding.

When your installation controls access to ICSF services and the CSFSERV class is active, additional access to resources in the CSFSERV class might be required as follows:

- When specifying PKDS you must have READ access to the CSFIQF, CSFPKI, CSFPKRC, and CSFPKRW resources.
- If the certificate you are adding has an ECC key, you must *also* have the following access authorities:
  - When you specify PKDS, you must have READ access to the CSFDSV and CSFOWH resources.
  - When you omit PKDS, you must have READ access to the CSF1PKV, CSF1TRC, CSF1TRD, and CSFOWH resources.

  For details about the CSFSERV resources, see *z/OS Cryptographic Services ICSF Administrator's Guide*.

Table 3. Authority required for the RACDCERT ADD function under the FACILITY class

Access level	Purpose
READ	Add a certificate to your own user ID.
UPDATE	Add a certificate for another user ID.
CONTROL	Add a SITE or CERTAUTH certificate.

Table 4. Authority required for the RACDCERT ADD function under the RDATALIB class when IRR.RACDCERT.GRANULAR is defined

READ access to the resource based on cert owner and cert label *	Purpose
IRR.DIGTCERT.<cert owner>.<cert label>.UPD.ADD	Add a certificate under <cert owner> with specified <cert label>
IRR.DIGTCERT.<cert owner>.LABEL*.UPD.ADD	Add a certificate under <cert owner> with no label specified
IRR.DIGTCERT.<cert owner>.<cert label>.UPD.ADD, and IRR.DIGTCERT.CERTIFAUTH.LABEL*.UPD.ADD	Add a certificate chain under <cert owner> with specified <cert label>
IRR.DIGTCERT.<cert owner>.LABEL*.UPD.ADD, and IRR.DIGTCERT.CERTIFAUTH.LABEL*.UPD.ADD	Add a certificate chain under <cert owner> with no label specified
IRR.DIGTCERT.<cert owner>.<friendly name>.UPD.ADD, and IRR.DIGTCERT.CERTIFAUTH.LABEL*.UPD.ADD	Add a certificate chain under <cert owner> with the <friendly name> label from the PKCS#12 package

***** 'cert owner' is the RACF user ID, or CERTIFAUTH (for CERTAUTH), or SITECERTIF (for SITE)

Activating your changes

If the DIGTCERT or DIGTRING class is RACLISTed, refresh the classes to activate your changes.

Example:

```
SETROPTS RACLIST(DIGTCERT, DIGTRING) REFRESH
```

Related commands

- To alter a certificate, see "RACDCERT ALTER (Alter certificate)" on page 271.
- To delete a certificate, see "RACDCERT DELETE (Delete certificate)" on page 290.
- To list a certificate, see "RACDCERT LIST (List certificate)" on page 325.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the RACDCERT ADD command is:

RACDCERT ADD(*data-set-name*)

[ID(*certificate-owner*) | SITE | CERTAUTH]
[TRUST | NOTRUST | HIGHTRUST]
[WITHLABEL('*label-name*')]
[PASSWORD('*pkcs12-password*')]
[PKDS[(*pkds-label* | *)]

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

Parameters

ADD(*data-set-name*)

Specifies the data set containing one digital certificate or certificate package in binary or Base64 format. You must specify a cataloged sequential data set. The record format (RECFM) expected by RACDCERT is variable blocked (VB). When you specify the ADD function, RACDCERT opens the specified data set, and reads in the content to add the certificate(s).

If the certificate package you are adding has an associated ECC private key, the ICSF subsystem must be operational and configured for PKCS #11 operations.

To add certificate with an RSA key that is longer than 1024 bits and is to be stored in the RACF database, the CP Assist for Cryptographic Function (CPACF) must be enabled.

Restriction: When ICSF is operating in FIPS mode, you cannot add a certificate that has a Brainpool ECC key.

ID(*certificate-owner*) | SITE | CERTAUTH

Specifies that the new certificate is either a user certificate associated with the specified user ID, a site certificate, or a certificate-authority certificate. If you do not specify ID, SITE, or CERTAUTH, the default is ID, and *certificate-owner* defaults to the user ID of the command issuer. If more than one keyword is specified, the last specified keyword is processed and the others are ignored by TSO command parse processing.

If the new certificate has an ECC private key and keyAgreement is the only key usage, the certificate cannot be used for signing. Therefore, you cannot add it as a CERTAUTH certificate.

TRUST | NOTRUST | HIGHTRUST

Specifies whether the status of the certificate being added is trusted, not trusted, or highly trusted. Whether a certificate is not trusted or trusted depends on whether or not the certificate is valid and whether the private key has been compromised or not.

Because highly trusted certificates are by definition trusted certificates, any certificate usage that was enabled by marking the certificate trusted will also be enabled by marking the certificate highly trusted. However, only certificate-authority certificates can be highly trusted. The trust status is stored in the UACC field of the certificate profile:

- X'00' indicates the status is trusted
- X'80' indicates the status is not trusted
- X'C0' indicates the status is highly trusted

When a certificate is trusted, it can be used by RACF for its intended purpose (map to a user ID, or treat as a trusted certificate authority or trusted site).

For a personal certificate, TRUST indicates that the certificate can be used to authenticate a user ID.

For a certificate-authority certificate, a trusted certificate is one that can be used to authenticate a user's certificate by indicating that the entity identified in the certificate (for example, the certificate authority) can issue certificates that this system honors. This implies that a user can gain access to the system based on the information contained in the certificate if the user's certificate was signed by a trusted certificate authority.

For site certificates, a trusted certificate is one indicating that the entity identified in the certificate (for example, the site) can gain access to the system based on information contained within the certificate. Because the authority that issued the certificate might not be defined to the system as a certificate authority, this certificate information might not be able to be authenticated.

TRUST should only be specified if the command issuer knows:

- This is a valid certificate for this user, site, or certificate authority.
- The private key related to this certificate has not been compromised.

If no trust value is specified on the command, the following processing will take place to determine the trust status:

- If the certificate's signature can be verified, the certificate has not expired, and the certificate's validity date range is within the validity date range of the certifying authority's certificate, the trust status is set to the trust status of the certifying authority's certificate. For self-signed certificates the certificate being added is set to TRUST by default. If the self-signed certificate has already been added, its trust status is not changed.
- If the certificate has expired, has an incorrect validity date range, or cannot be verified because it either has an unknown encryption algorithm or RACF cannot locate its certifying authority's certificate, the status is set to NOTRUST by default.
- If the trust status is to be set from the status of the certifying certificate and the certifying certificate is highly trusted, the status will be trusted.

If the certificate's signature is incorrect, the certificate is not added.

The TRUST keyword is *unrelated* to the TRUSTED attribute as defined for started procedures.

WITHLABEL('*label-name*')

Specifies the label to be associated with the certificate. Up to 32 characters can be specified. The *label-name* can contain blanks and mixed-case characters.

This label is used as a *handle* instead of the serial number and issuer's distinguished name. It can be used to store a descriptive text.

If the value specified in WITHLABEL already exists, RACDCERT returns a message indicating that the label has already been used. The certificate is not added.

If the user did not specify WITHLABEL, and the data set being processed is PKCS #12, RACF generates the label based on the certificate's friendly name, which is extracted from the PKCS #12 package and truncated to 32 characters if required.

If WITHLABEL is not specified, or extracted from the PKCS #12 package, RACDCERT generates a label for the certificate. The generated label is of the form LABEL*nnnnnnnn*, where *nnnnnnnn* is the first integer value, starting at `00000001` that generates a unique label name.

The *label-name* is stripped of leading and trailing blanks. If a single quotation mark is intended to be part of the *label-name*, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

PASSWORD('*pkcs12-password*')

Specifies the password that is associated with the PKCS #12 certificate package. This keyword is required if the data set is PKCS #12 and it must not be specified if the data set is not PKCS #12.

The PKCS#12 certificate package password must be DES-encrypted.

Note: The password specified will be visible on the screen, so care should be taken to prevent it from being viewed when entered. Because PKCS #12 passwords do not follow the normal TSO/E rules for password content, they cannot be suppressed as they normally would be.

The *'pkcs12-password'* can be up to 255 characters in length, is case-sensitive, and can contain blanks.

PKDS | PCICC | ICSF

Specifies that RACF should attempt to store the RSA or ECC public or private key associated with this certificate in the ICSF PKA key data set (PKDS). This applies when the key is introduced to RACF by issuing the ADD function, and when an existing certificate profile is replaced by issuing the ADD function.

The default action for a new key is for RACF to store it as a software key in the RACF database, not in the ICSF PKDS. The default action for an existing key is to leave it unchanged.

These keywords cannot be specified when the key already exists as a secure key in the ICSF token key data set (TKDS).

Guidelines for choosing PKDS, PCICC, or ICSF: The PCICC and ICSF keywords are deprecated. IBM discourages the use of these parameters.

- The PKDS keyword supports both ECC and RSA private keys. For RSA keys, PKDS is equivalent to PCICC and stores the key as an RSA Chinese Remainder Theorem (CRT) key token. RACDCERT LIST will display this key with key type RSA along with a PKDS label.
- The ICSF keyword supports only RSA keys and stores the key as an RSA Modulus-Exponent (ME) key token. RACDCERT LIST will display this key with key type RSA Mod-Exp along with a PKDS label.

For details about specifying or allowing RACF to generate the PKDS label, see “PKDS label considerations” on page 253.

For the hardware requirements for storing or accessing a key in the ICSF PKA key data set (PKDS), see “Hardware requirements” on page 253.

PKDS[(*pkds-label* | *)]

Specifies that RACF should attempt to store the public or private key associated in the ICSF PKDS as follows, based on key type.

- **For an RSA key**:

  When you specify a PKDS label or an asterisk (*):

  - If the certificate has a private key, the private key is converted using a PCI-class cryptographic coprocessor to an RSA Chinese Remainder Theorem (CRT) key token. The resulting private key is stored in the ICSF PKDS.
  - If the certificate has no private key, the public key is stored as an RSA Modulus-Exponent (ME) key token.

  If the data set contains only a certificate, you must specify a *pkds-label* value or an asterisk (*). Otherwise, the PKDS keyword is ignored and no PKDS entry is created. The public key is stored in the ICSF PKDS as an RSA Modulus-Exponent (ME) key token with the specified label.

  If the certificate has no private key and you specify PKDS *without* a PKDS label and *without* an asterisk (*), the PKDS keyword is ignored and no PKDS entry is created.

  If the data set contains a PKCS #12 package, the private key is stored in the ICSF PKDS an RSA Chinese Remainder Theorem (CRT) key token with either a system-generated label, a label specified by *pkds-label*, or a label copied from the certificate label.

  Note: If you want to store the RSA private key in the PKDS as an RSA Modulus-Exponent (ME) key token, specify ICSF instead of this keyword.

- **For an ECC key**:

  If the data set contains only a certificate, you must specify a *pkds-label* value or an asterisk (*). Otherwise, the PKDS keyword is ignored and no PKDS entry is created. The public key is stored in the ICSF PKDS with the specified label.

  If the certificate has no private key and you specify PKDS *without* a PKDS label and *without* an asterisk (*), the PKDS keyword is ignored and no PKDS entry is created.

  If the data set contains a PKCS #12 package, the private key is stored in the ICSF PKDS with either a system-generated label, a label specified by *pkds-label*, or a label copied from the certificate label.

- **For a DSA key:** The PKDS keyword is ignored.

PCICC[(*pkds-label* | *)]

This parameter is deprecated. IBM recommends that you use `RSA(PKDS[`*`pkds-label`*` | *)])` instead of `PCICC[(`*`pkds-label`*` | *)]`.

It specifies the same option as the PKDS keyword for an RSA key. See the PKDS keyword of the RACDCERT ADD function for details.

ICSF[(*pkds-label* | *)]

This parameter is deprecated. IBM discourages the use of this parameter, as it is only applicable to RSA keys that are limited to 1024 bits.

It specifies that the public or private key is to be converted to an RSA Modulus-Exponent (ME) key token. The resulting key is stored in the ICSF PKDS.

If the certificate has no private key and you specify ICSF *without* a PKDS label and *without* an asterisk (*), the ICSF keyword is ignored and no PKDS entry is created.

Examples

Example	Activity label	Description
1	*Operation*	User RACFADM with SPECIAL authority requests the addition of a digital certificate for user NETBOY. User RACFADM has placed the digital certificate in data set `'RACFADM.NETB0Y.CERT'` and wants the status of the certificate to be trusted.
	Known	User RACFADM has SPECIAL authority. RACFADM has placed the digital certificate in data set `'RACFADM.NETB0Y.CERT'`.

	Command	`RACDCERT ADD('RACFADM.NETB0Y.CERT')`
		`   ID(NETB0Y)`
		`   TRUST WITHLABEL('Savings Account')`

	Output	IRRD199I Certificate with label ‘Savings Account’ is added for ’NETB0Y’
2	*Operation*	User WENTING exports her new certificate using the RACDCERT EXPORT command and sends it to her business partner Yun. When he receives it, Yun adds it to his company's RACF data base as a SITE certificate using the RACDCERT ADD command and calls it `WenTing`.
	Known	The exported certificate does not contain the private key so the data set Wen Ting transmits to Yun need not be protected in any way.

	Commands	Wen Ting's RACDCERT EXPORT command:
		`RACDCERT EXPORT(LABEL('Wen Ting''s certificate')) DSN(FOR.YUN.CRT)`
		Yun's RACDCERT ADD command:
		`RACDCERT SITE ADD(WENTING.CRT) WITHLABEL('WenTing') ICSF(*)`

	Output	IRRD199I Certificate with label 'WenTing' is added for SITE.
3	*Operation*	User RACFADM wants to add a certificate for user NETBOY and protect the ECC private key by storing it in the ICSF PKDS. User RACFADM has placed the digital certificate in data set `'RACFADM.NETB0Y.ECC.CERT'` and wants the status of the certificate to be trusted.
	Known	User RACFADM has SPECIAL authority and sufficient access to the appropriate resources in the CSFSERV class. The system contains an operational ICSF subsystem and Crypto Express3 coprocessor (CEX3C).

	Command	`RACDCERT ADD('RACFADM.NETB0Y.ECC.CERT')`
		`   ID(NETB0Y)`
		`   TRUST WITHLABEL('Savings Account ECC PKDS')`
		`   PKDS(ECC4NETB0Y)`

	Output	IRRD199I Certificate with label ‘Savings Account ECC PKDS’ is added for ‘NETB0Y’

RACDCERT ADDRING (Add key ring)

Purpose

Use the RACDCERT ADDRING command to create a new key ring.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT ADDRING command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules:

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.
- The updates made to the RACF database by RACDCERT are eligible for propagation with automatic direction of application updates based on the RRSFDATA profiles AUTODIRECT.*target-node.*DIGTCERT.APPL and AUTODIRECT.*target-node.*DIGTRING.APPL, where *target-node* is the remote node to which the update is to be propagated.

Authorization required

To issue the RACDCERT ADDRING command, you must have the following authorizations:

- The SPECIAL attribute, or
- Sufficient authority to the IRR.DIGTCERT.ADDRING resource in the FACILITY class, as shown in Table 5 on page 268, or
- Sufficient authority to the appropriate resources in the RDATALIB class, as shown in Table 6 on page 268, if Granular Authority Checking has been enabled by defining the IRR.RACDCERT.GRANULAR resource in the RDATALIB class.

Table 5. Authority required for the RACDCERT ADDRING function under the FACILITY class

Access level	Purpose
READ	Create a key ring for your own user ID.
UPDATE	Create a key ring for another user.

Table 6. Authority required for the RACDCERT ADDRING function under the RDATALIB class when IRR.RACDCERT.GRANULAR is defined

READ access to the resource based on ring owner and ring name *	Purpose
<ring owner>.<ring name>.UPD.ADDRING	Add a key ring under <ring owner> with specified <ring name>

***** 'ring owner' is the RACF user ID

Activating your changes

If the DIGTRING class is RACLISTed, refresh the class to activate your changes.

Example:

```
SETROPTS RACLIST(DIGTRING) REFRESH
```

Related commands

- To delete a key ring, see RACDCERT DELRING.
- To list a key ring, see RACDCERT LISTRING.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the RACDCERT ADDRING command is:

RACDCERT ADDRING(*ring-name*)
[ID(*ring-owner*)]

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

Parameters

ADDRING(*ring-name*)

Specifies the name of the new key ring. This key ring must not already exist for this user. The new key ring belongs to the user ID specified or defaulted by the ID(*ring-owner*) keyword.

The key ring name can be up to 237 characters in length. Lowercase characters are permitted. Key ring names become names of RACF profiles in the DIGTRING class, and can contain only characters that are allowed in RACF profile names, with the following restrictions.

Restrictions: The *ring-name* cannot contain any of the following characters:

- an ampersand (X'50')
- an asterisk (X'5C')
- a percent sign (X'6C')

Because only user IDs can have key rings, neither CERTAUTH nor SITE can be specified with ADDRING.

ID(*ring-owner*)

Specifies the user ID of the key ring owner. (Only a user ID can have a key ring.) If not specified, the key ring owner defaults to the command issuer's user ID.

Examples

Example	Activity label	Activity description
1	*Operation*	User RACFADM wants to add a key ring for the local FTP server. The user ID of the FTP is FTPD. The keys that will be connected to the new ring will be shared by multiple users and the ring will represent the installation's FTP trust policy.
	Known	User RACFADM has SPECIAL authority.
	Command	`RACDCERT ID(FTPD) ADDRING(FTPring)`
	Output	None.

Example	Activity label	Activity description
2	*Operation*	User RACFADM wants to add a key ring for a new Web server application. The user ID of the Web server application is WEBSRV02. The keys that will be connected to the new ring will be shared by multiple users and the ring will represent the installation's trust policy for this Web server application.
	Known	User RACFADM has SPECIAL authority.
	Command	`RACDCERT ADDRING(SSLring) ID(WEBSRV02)`
	Output	None.

RACDCERT ADDTOKEN (Add token)

Purpose

Use the RACDCERT ADDTOKEN command to create a new z/OS PKCS #11 token.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT ADDTOKEN command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules:

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.
- The updates made to the RACF database by RACDCERT are eligible for propagation with automatic direction of application updates based on the RRSFDATA profiles AUTODIRECT.*target-node.*DIGTCERT.APPL and AUTODIRECT.*target-node.*DIGTRING.APPL, where *target-node* is the remote node to which the update is to be propagated.

Authorization required

To issue the RACDCERT ADDTOKEN command, you must have sufficient authority to the appropriate resource in the CRYPTOZ class. (No authority to resources in the FACILITY class is required.) If you do not have authority to create the specified token as determined by ICSF, the command stops and an error message is displayed.

For example, if you want userid JOHN to create a token with the name MYTOKEN and manage the objects in this token, you can enter commands such as the following:

1. RDEFINE CRYPTOZ SO.MYTOKEN UACC(NONE)
2. PERMIT SO.MYTOKEN CLASS(CRYPTOZ) ID(JOHN) ACCESS(CONTROL)
3. RDEFINE CRYPTOZ USER.MYTOKEN UACC(NONE)
4. PERMIT USER.MYTOKEN CLASS(CRYPTOZ) ID(John) ACCESS(CONTROL)

When your installation controls access to ICSF services and the CSFSERV class is active, you must also have READ access to the CSF1TRC resource in the CSFSERV class.

For authorization details about the CRYPTOZ and CSFSERV classes, see *z/OS Cryptographic Services ICSF Administrator's Guide*.

Related commands

- To delete a token, see RACDCERT DELTOKEN.
- To list a token, see RACDCERT LISTTOKEN.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the RACDCERT ADDTOKEN command is:

RACDCERT ADDTOKEN(*token-name*)

Note: The `ID(certificate-owner) | SITE | CERTAUTH` parameter is ignored for this RACDCERT function.

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

Parameters

ADDTOKEN(*token-name*)
The *token-name* value is the name of the token being created. This token must not already exist. For token name rules, see the Tokens subsection in the Overview of z/OS support for PKCS #11 in *z/OS Cryptographic Services ICSF Writing PKCS #11 Applications*.

Examples

Example	Activity label	Activity description
1	*Operation*	User RACFADM wants to create tokens for two servers that have existing RACF certificates.
	Known	User RACFADM has SPECIAL authority. The RACF certificate for each server already exists.

	Commands	`RACDCERT ADDTOKEN(ftpsrv.ftp.server.pkcs11.token)`
		`RACDCERT ADDTOKEN(websrv.web.server.pkcs11.token)`

	Output	None.

RACDCERT ALTER (Alter certificate)

Purpose

Use the RACDCERT ALTER command to change the status or the label of a digital certificate for the specified user ID, certificate-authority certificate, or site certificate.

Restriction: Because PKCS #11 tokens are managed by ICSF, not RACF, when you use the RACDCERT ALTER command to alter a certificate that is bound in a token, the change is not reflected on the corresponding certificate object in the token.

See "UTF-8 and BMP character restrictions" on page 251 for information about how UTF-8 and BMP characters in certificate names and labels are processed by RACDCERT functions.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT ALTER command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules: The following rules apply when issuing this command.

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.
- The updates made to the RACF database by RACDCERT are eligible for propagation with automatic direction of application updates based on the RRSFDATA profiles AUTODIRECT.*target-node.*DIGTCERT.APPL and AUTODIRECT.*target-node.*DIGTRING.APPL, where *target-node* is the remote node to which the update is to be propagated.

Authorization required

To issue the RACDCERT ALTER command, you must have the following authorizations:

- The SPECIAL attribute, or
- Sufficient authority to the IRR.DIGTCERT.ALTER resource in the FACILITY class, as shown in Table 7 on page 272, or
- Sufficient authority to the appropriate resources in the RDATALIB class, as shown in Table 8 on page 272, if Granular Authority Checking has been enabled by defining the IRR.RACDCERT.GRANULAR resource in the RDATALIB class.

Table 7. Authority required for the RACDCERT ALTER function under the FACILITY class

Access level	Purpose
READ	Change the trust status or label of your own certificate.
UPDATE	Change the trust status or label of another user's certificate.
CONTROL	Change the trust status or label of a SITE or CERTAUTH certificate.

Table 8. Authority required for the RACDCERT ALTER function under the RDATALIB class when IRR.RACDCERT.GRANULAR is defined

READ access to the resource based on cert owner and cert label *	Purpose
IRR.DIGTCERT.<cert owner>.<cert label>.UPD.ALTER	Alter a certificate status under <cert owner> with specified <cert label>
IRR.DIGTCERT.<cert owner>.<source cert label>.UPD.ALTER, and IRR.DIGTCERT.<cert owner>.<target cert label>.UPD.ALTER	Alter a certificate label under <cert owner> with specified <source cert label> and <target cert label>

***** 'cert owner' is the RACF user ID, or CERTIFAUTH (for CERTAUTH), or SITECERTIF (for SITE)

Activating your changes

If the DIGTCERT or DIGTRING class is RACLISTed, refresh the classes to activate your changes.

Example:

```
SETROPTS RACLIST(DIGTCERT, DIGTRING) REFRESH
```

Related commands

- To add a certificate, see “RACDCERT ADD (Add certificate)” on page 257.
- To delete a certificate, see “RACDCERT DELETE (Delete certificate)” on page 290.
- To list a certificate, see “RACDCERT LIST (List certificate)” on page 325.

Syntax

For the key to the symbols used in the command syntax diagrams, see “Syntax of RACF commands and operands” on page 11. The complete syntax of the RACDCERT ALTER command is:

RACDCERT ALTER

[(LABEL('*label-name*'))]
 | [(SERIALNUMBER(*serial-number*) [ISSUERSDN('*issuer's-dn*')])]
[ID(*certificate-owner*) | SITE | CERTAUTH]
[TRUST | NOTRUST | HIGHTRUST]
[NEWLABEL('*label-name*')]

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

Parameters

ALTER(LABEL('*label-name*'))
ALTER(SERIALNUMBER(*serial-number*) ISSUERSDN('*issuer's-dn*'))

The TRUST, NOTRUST, or NEWLABEL keyword must be specified with the ALTER keyword. If the user has only one certificate, the SERIALNUMBER and ISSUERSDN keywords, or the LABEL keyword, and their associated values can be omitted. If the user has more than one certificate the LABEL, SERIALNUMBER, or SERIALNUMBER and ISSUERSDN must be used to specify which certificate to alter.

When specifying the issuer's distinguished name or the label, you must specify any mixed-case or blank characters exactly as they appear in the output of the RACDCERT LIST command for the certificate.

Restriction: The ISSUERSDN keyword is not supported for lengthy issuer's distinguished names when the name of the certificate's DIGTCERT profile contains a certificate hash value. For more information about DIGTCERT profile names, see the "Purpose" topic of RACDCERT ADD.

For a description of *label-name*, see the WITHLABEL keyword for RACDCERT ADD.

Note that the only alterable certificate information is the TRUST status or the label of a certificate.

ID(*certificate-owner*) | SITE | CERTAUTH

Specifies that the certificate to alter is either a user certificate associated with the specified user ID, a site certificate, or a certificate-authority certificate. If you do not specify ID, SITE, or CERTAUTH, the default is ID, and *certificate-owner* defaults to the user ID of the command issuer. If more than one keyword is specified, the last specified keyword is processed and the others are ignored by TSO command parse processing.

TRUST | NOTRUST | HIGHTRUST

Specifies whether the status of the certificate being altered is trusted, not trusted, or highly trusted. If TRUST, NOTRUST, or HIGHTRUST is not specified with the ALTER keyword, no change to the status of the certificate is attempted.

For a detailed description, see the TRUST, NOTRUST, HIGHTRUST keyword for RACDCERT ADD.

NEWLABEL('*new-label-name*')

Specifies the label replacing the previous label (if there was one specified) that is assigned to a certificate.

See the WITHLABEL keyword for RACDCERT ADD for information on label rules.

If *new-label-name* is the same as *label-name*, the label is not changed and no message is issued.

Examples

Example	Activity label	Description
1	*Operation*	User CADUDE with CONTROL access to FACILITY class profile IRR.DIGTCERT.* wants to mark the local certificate authority highly trusted.
	Known	User CADUDE has CONTROL authority to the profile IRR.DIGTCERT.* in the FACILITY class.
	Command	`RACDCERT CERTAUTH ALTER(LABEL('Local PKIX CA')) HIGHTRUST`
	Output	None.

RACDCERT ALTMAP (Alter mapping)

Purpose

Use the RACDCERT ALTMAP command to change the label, trust status, or criteria associated with the specified mapping.

See "UTF-8 and BMP character restrictions" on page 251 for information about how UTF-8 and BMP characters in certificate names and labels are processed by RACDCERT functions.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT ALTMAP command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules:

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.
- The updates made to the RACF database by RACDCERT are eligible for propagation with automatic direction of application updates based on the RRSFDATA profiles AUTODIRECT.*target-node.*DIGTNMAP.APPL and, if keyword NEWCRITERIA is used, AUTODIRECT.*target-node.*DIGTCRIT.APPL, where *target-node* is the remote node to which the update is to be propagated.

Authorization required

To issue the RACDCERT ALTMAP command, you must have the SPECIAL attribute or sufficient authority to the IRR.DIGTCERT.ALTMAP resource in the FACILITY class for your intended purpose.

Table 9. Authority required for the RACDCERT ALTMAP function

IRR.DIGTCERT.ALTMAP	
Access level	**Purpose**
READ	Alter a mapping associated with your own user ID.
UPDATE	Alter a mapping associated with another user ID or MULTIID.

Activating your changes

If the DIGTNMAP or DIGTCRIT class is RACLISTed, refresh the classes to activate your changes.

Example:

```
SETROPTS RACLIST(DIGTNMAP, DIGTCRIT) REFRESH
```

Related commands

- To define a user ID mapping, see RACDCERT MAP.
- To delete a user ID mapping, see RACDCERT DELMAP.
- To list a user ID mapping, see RACDCERT LISTMAP.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the RACDCERT ALTMAP command is:

RACDCERT ALTMAP[(LABEL('*label-name*'))]
[ID(*mapping-owner*) | MULTIID] [NEWCRITERIA(*criteria-profile-name-template*)] [NEWLABEL('*label-name*')] [TRUST | NOTRUST]

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

Parameters

ALTMAP
ALTMAP(LABEL('*label-name*'))
Specifying *label name* is required if more than one mapping is associated with the user ID. If NEWLABEL, NEWCRITERIA, or TRUST/NOTRUST is not specified, the mapping is not altered.

ID(*mapping-owner*) | MULTIID
Specifies the user ID associated with the mapping. If you do not specify ID or MULTIID, the default is ID, and *mapping-owner* defaults to the user ID of the command issuer. If more than one keyword is specified, the last specified keyword is processed and the others are ignored by TSO command parse processing.

ID(*mapping-owner*)
Specifies the user ID associated with the mapping.

MULTIID
Specifies that additional criteria is used to determine the user ID associated with the mapping.

NEWCRITERIA(*criteria-profile-name-template*)
Changes the template associated with this mapping when specified with MULTIID. New DIGTCRIT profiles must be created to match the new template profile names. NEWCRITERIA can only be set for MULTIID.

NEWLABEL(*'new-label-name'*)
Specifies the label replacing the previous label assigned to a certificate mapping.

See the WITHLABEL keyword for RACDCERT ADD for information on label rules.

If *new-label-name* is the same as *label-name*, the label is not changed and no message is issued.

TRUST | NOTRUST
When specified with ALTMAP, indicates whether this mapping can be used to associate a user ID to a certificate presented by a user accessing the system.

Examples

Example	Activity label	Description
1	*Operation*	User RACFADM with SPECIAL authority has been notified by the network administrator that the users in department BWVA can begin using their certificates to access the system. The mapping previously created with the label BWVA USERS can now be marked trusted.
	Known	User RACFADM has SPECIAL authority.
	Command	`RACDCERT ID(BWVAUSR) ALTMAP(LABEL('BWVA USERS')) TRUST`
	Output	None.

RACDCERT BIND (Bind certificate to token)

Purpose

Use the RACDCERT BIND command to bind a digital certificate to a z/OS PKCS #11 token.

Rule: The certificate must be added to the RACF database by a RACDCERT ADD or RACDCERT GENCERT command *prior* to issuing the RACDCERT BIND command.

When a certificate is bound to a token, RACF creates the following objects in the token:

- a certificate object
- a public key object
- a private key object, if the certificate has an associated private key and the BIND USAGE is PERSONAL.
- If the private key is secure, it will already have a private key object in the token specified on GENCERT request. In this case, BIND will create a certificate object, a public key object, and, if the BIND USAGE is PERSONAL, will link the existing private key object to the certificate and public key objects.

Restrictions on the private key: The following restrictions apply to the private key of the certificate to be bound. Command processing stops and an error message is displayed.

- The private key must not be stored in the ICSF PKA key data set (PKDS).
- The private key must not be a DSA key longer than 1024 bits.

See “UTF-8 and BMP character restrictions” on page 251 for information about how UTF-8 and BMP characters in certificate names and labels are processed by RACDCERT functions.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT BIND command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules:

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.
- The updates made to the RACF database by RACDCERT are eligible for propagation with automatic direction of application updates based on the RRSFDATA profiles AUTODIRECT.*target-node*.DIGTCERT.APPL and AUTODIRECT.*target-node*.DIGTRING.APPL, where *target-node* is the remote node to which the update is to be propagated.

Authorization required

To issue the RACDCERT BIND command, you must have the following authorizations:

- The SPECIAL attribute, or sufficient authority to the IRR.DIGTCERT.BIND resource in the FACILITY class based on the USAGE value, as shown in Table 10 on page 277.
- The SPECIAL attribute, or sufficient authority to the IRR.DIGTCERT.ADD resource in the FACILITY class based on the certificate owner.
- When your installation controls access to ICSF services and the CSFSERV class is active, READ access to the CSF1GAV, CSF1SAV, CSF1TRC, and CSF1TRL resources in the CSFSERV class.
- Sufficient authority to the appropriate resources in the CRYPTOZ class.

  For details about CRYPTOZ and CSFSERV resources, see *z/OS Cryptographic Services ICSF Administrator's Guide*.

If you are not authorized by ICSF (through the CRYPTOZ class) to add the object to the specified token or not authorized by RACF (through the FACILITY class) to reference the specified RACF certificate, the command stops and an error message is displayed.

Table 10. Authority required for the RACDCERT BIND function

USAGE value	Your own certificate	Another user's certificate	SITE or CERTAUTH certificate
PERSONAL	Sufficient authority to CRYPTOZ resources and READ authority to IRR.DIGTCERT.BIND	Sufficient authority to CRYPTOZ resources and UPDATE authority to IRR.DIGTCERT.BIND	Sufficient authority to CRYPTOZ resources and CONTROL authority to IRR.DIGTCERT.BIND
SITE **CERTAUTH**	Sufficient authority to CRYPTOZ resources, CONTROL authority to IRR.DIGTCERT.ADD and READ authority to IRR.DIGTCERT.BIND	Sufficient authority to CRYPTOZ resources, CONTROL authority to IRR.DIGTCERT.ADD and UPDATE authority to IRR.DIGTCERT.BIND	Sufficient authority to CRYPTOZ resources and UPDATE authority to IRR.DIGTCERT.BIND

Related commands

- To unbind a certificate from a token, see RACDCERT UNBIND.
- To add a token, see RACDCERT ADDTOKEN.
- To list a token, see RACDCERT LISTTOKEN.

Syntax

For the key to the symbols used in the command syntax diagrams, see “Syntax of RACF commands and operands” on page 11. The complete syntax of the RACDCERT BIND command is:

RACDCERT BIND([TOKEN(*token-name*)]
LABEL('*label-name*') [ID(*certificate-owner*) | SITE | CERTAUTH] [DEFAULT] [USAGE(PERSONAL | SITE | CERTAUTH)])

Note: Unless specified as a subkeyword of the BIND parameter, the `ID(certificate-owner) | SITE | CERTAUTH` parameter is ignored for the RACDCERT BIND function.

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

Parameters

BIND(TOKEN(*token-name*) ID(*certificate-owner*) LABEL('*label-name*'))
BIND(TOKEN(*token-name*) SITE LABEL('*label-name*'))
BIND(TOKEN(*token-name*) CERTAUTH LABEL('*label-name*'))

You must uniquely identify both the token and the certificate to be bound.

TOKEN(*token-name*)

Specifies the name of the token to which the certificate is to be bound. If it is not specified, the token, in which the private key associated with the binding certificate resides, will be used.

If the certificate has an associated ECC private key, the ICSF subsystem must be operational and configured for PKCS #11 operations.

ID(*certificate-owner*) | SITE | CERTAUTH

Specifies that the certificate being bound to the token is either a user certificate associated with the specified user ID, a site certificate, or a certificate-authority certificate. If the ID, SITE, and CERTAUTH keywords are omitted, the default is ID, and *certificate-owner* defaults to the user ID of the command issuer. If more than one keyword is specified, the last specified keyword is processed and the others are ignored by TSO command parse processing.

LABEL('*label-name*')

Specifies the certificate being bound to the token. For RACDCERT BIND, you must specify the LABEL operand.

DEFAULT

Specifies that the certificate is the default certificate for the token. Only one certificate within the token is the default certificate. If a default certificate already exists, its DEFAULT status is removed, and the specified certificate becomes the default certificate.

You must specify the DEFAULT keyword when you want the specified certificate to be the default certificate for this token.

To remove the DEFAULT status of a certificate without defining another certificate as the default certificate, reissue the RACDCERT BIND command for the certificate and omit the DEFAULT keyword.

USAGE(PERSONAL | SITE | CERTAUTH)

Specifies how this certificate is used within the specified token. If no usage is specified, it defaults to the usage of the certificate being bound.

Specify the USAGE keyword to alter the trust policy of the certificate for a specific token. For example, if you operate your own certificate authority, your certificate server application has its own certificate. Because the certificate represents your certificate authority, it is defined as CERTAUTH, which sets its default usage for all applications and users. Your certificate server application requires use of the certificate's private key for signing purposes but the default usage of CERTAUTH does not allow this use. To allow it, specify USAGE(PERSONAL) when you bind this certificate to the token of the certificate server application. This allows you to alter the trust policy for this token only without affecting the default usage for all other applications and users.

Important: Carefully control use of the USAGE keyword. RACDCERT processing ensures that the command issuer is authorized to define SITE or CERTAUTH certificates and cannot bypass the installation security policy using the USAGE keyword.

See Table 10 on page 277 for authorization requirements for users without the SPECIAL attribute to allow them to bind a certificate to a token with the PERSONAL, SITE, or CERTAUTH usage.

Examples

Table 11. RACDCERT BIND command examples

Example	Activity label	Description
1	*Operation*	User SECADM wants to bind an existing root CA certificate to two existing tokens.

	Known	User SECADM has the SPECIAL attribute.
		The root CA certificate is installed under CERTAUTH with the label `Local Root CA for Servers`.
		The following tokens are already defined to RACF:
		`ftpsrv.ftp.server.pkcs11.token`
		`websrv.web.server.pkcs11.token`

	Commands	`RACDCERT BIND(CERTAUTH LABEL('Local Root CA for Servers')`
		`   TOKEN(ftpsrv.ftp.server.pkcs11.token))`
		`RACDCERT BIND(CERTAUTH LABEL('Local Root CA for Servers')`
		`   TOKEN(websrv.web.server.pkcs11.token))`

	Output	None.

Table 11. RACDCERT BIND command examples (continued)

Example	Activity label	Description
Example 2	*Operation*	User SECADM wants to bind end-entity certificates to their respective tokens and define each certificate as the default in its token.

	Known	User SECADM has the SPECIAL attribute.
		The following tokens are already defined to RACF:
		`ftpsrv.ftp.server.pkcs11.token`
		`websrv.web.server.pkcs11.token`
		An end-entity certificate and private key labeled `FTP key` is already defined to RACF and installed under the user ID FTPSRV.
		An end-entity certificate and private key labeled `Web key` is already defined to RACF and installed under the user ID WEBSRV.
		Both end-entity certificates are signed by the existing root CA certificate labeled `Local Root CA for Servers`.

	Commands	`RACDCERT BIND(ID(FTPSRV) LABEL('FTP key') DEFAULT`
		`   TOKEN(ftpsrv.ftp.server.pkcs11.token))`
		`RACDCERT BIND(ID(WEBSRV) LABEL('Web key') DEFAULT`
		`   TOKEN(websrv.web.server.pkcs11.token))`

	Output	None.

RACDCERT CHECKCERT (Check certificate or certificate chain)

Purpose

Use the RACDCERT CHECKCERT command to check if the digital certificate (or certificates) contained in the specified data set has (or have) already been added to the RACF database and associated with a user ID.

For authorized users, CHECKCERT lists additional information about certificates in the RACF database including the certificates Mapping Label and Mapping Status if defined. It also provides a summary of certificate chain information.

The output will look like the LISTCHAIN output, except that it will not contain the ring information.

If the certificate is not in the RACF database or the user is not authorized, the output will not show the RACF related information.

If there is no error encountered, the certificates will be displayed with the end-entity certificate listed first, followed by the subsequent issuers', and the following information about the chain:

- the number of certificates in the chain
- whether the dataset contains the complete chain
  - chain is complete
  - chain is incomplete
- indication of expired certificate(s), if any
  - chain contains expired certificate(s)

If an error is encountered, the output may show the chain up to the problem certificate, in the same order as in the valid chain. IRRD302I will be issued followed by another specific message on the cause. See the following examples.

See “UTF-8 and BMP character restrictions” on page 251 for information about how UTF-8 and BMP characters in certificate names are displayed using RACDCERT functions.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT CHECKCERT command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules: The following rules apply when issuing this command.

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.
- The updates made to the RACF database by RACDCERT are eligible for propagation with automatic direction of application updates based on the RRSFDATA profiles AUTODIRECT.*target-node*.DIGTCERT.APPL and AUTODIRECT.*target-node*.DIGTRING.APPL, where *target-node* is the remote node to which the update is to be propagated.

Authorization required

To issue the RACDCERT CHECKCERT command, you must have the SPECIAL attribute or sufficient authority to the IRR.DIGTCERT.LIST resource in the FACILITY class for your intended purpose, as shown in Table 12 on page 281.

You must also have READ access to the specified data set that contains the certificate to prevent an authorization abend from occurring when the data set is read.

If any certificate involved in CHECKCERT has the ECC key type, you must have READ authority to CSF1PKV, CSF1TRC, CSF1TRD and CSFOWH resources in the CSFSERV class.

Table 12. Authority required for the RACDCERT CHECKCERT function

IRR.DIGTCERT.LIST	
Access level	**Purpose**
READ	Check your own certificate.
UPDATE	Check another user's certificate.
CONTROL	Check a SITE or CERTAUTH certificate.

Related commands

- To add a certificate, see “RACDCERT ADD (Add certificate)” on page 257.
- To list a certificate, see “RACDCERT LIST (List certificate)” on page 325.
- To list a certificate, see “RACDCERT LISTCHAIN (List certificate chain)” on page 332.

Syntax

For the key to the symbols used in the command syntax diagrams, see “Syntax of RACF commands and operands” on page 11. The complete syntax of the RACDCERT CHECKCERT command is:

```
RACDCERT CHECKCERT(data-set-name)
```

```
[ PASSWORD('pkcs12-password') ]
```

Note: The `ID(certificate-owner) | SITE | CERTAUTH` parameter is ignored for this RACDCERT function.

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

Parameters

CHECKCERT(*data-set-name*)

CHECKCERT lists the certificate (or the chain of certificates) in the specified data set. If the certificate request is made by a user with proper authority, information in the RACF database pertaining to that certificate (or certificate chain) is also displayed. Additionally, an authority check is performed by data management when the data set is opened.

The CHECKCERT keyword also supports the evaluation of site certificates and certificate authority certificates. It indicates if the certificate is defined and to whom it is defined after checking the resource IRR.DIGTCERT.LIST in the FACILITY class. READ authority is required if the certificate is associated with the user issuing the command. UPDATE authority is required if the certificate is associated with a user other than the issuer of the command. CONTROL authority is required if the certificate is a certificate authority or a site certificate.

The CHECKCERT keyword can be used on the same set of certificate packages that is allowed by RACDCERT ADD. See RACDCERT ADD for more information.

Note:

1. The issuer of the RACDCERT command must have READ access to the *data-set-name* data set to prevent an authorization abend from occurring when the data set is read.
2. No certificate ID is displayed if the certificate is not installed. If the certificate is installed, the certificate ID is displayed only if the certificate has a label and the user is authorized to list the specific certificate information.

PASSWORD('*pkcs12-password*')

Specifies the password that is associated with the PKCS #12 certificate package. It is required if the data set contains a PKCS #12 certificate package and it must not be specified if the data set contents are not PKCS #12.

Note: The password specified will be visible on the screen, so care should be taken to prevent it from being viewed when entered. Because PKCS #12 passwords do not follow the normal TSO/E rules for password content, they cannot be suppressed as they normally would be.

The *'pkcs12-password'* can be up to 255 characters in length, is case-sensitive, and can contain blanks.

Examples

Example	Activity label	Description
1	*Operation*	User NETADMN wishes to check the certificates of another user. Either NETADMN is not authorized to perform that function or none of the user's certificate are in RACF.
	Known	User NETADMN has UPDATE access to profile IRR.DIGTCERT.LIST in the FACILITY class.
	Command	`RACDCERT CHECKCERT('TEST.FILE')`
	Output	See Figure 38 on page 284
2	*Operation*	User NETADMN wishes to check the certificates of another user and is authorized to perform that function. Only the end-entity certificate is in RACF, and it is expired.
	Known	User NETADMN has UPDATE access to profile IRR.DIGTCERT.LIST in the FACILITY class.
	Command	`RACDCERT CHECKCERT('TEST.FILE')`
	Output	See Figure 39 on page 285
3	*Operation*	User NETADMN wishes to check the certificates of another user and is authorized to perform that function. Not all certificates are in RACF, and the signature on certificate is bad.
	Known	User NETADMN has CONTROL access to profile IRR.DIGTCERT.LIST in the FACILITY class.
	Command	`RACDCERT CHECKCERT('TEST.FILE')`
	Output	See Figure 40 on page 286
4	*Operation*	User NETADMN wishes to check the certificates of another user and is authorized to perform that function. Not all certificates are in RACF, and the subject name on certificate 2 has an invalid character (certificate 2 is not displayed).
	Known	User NETADMN has CONTROL access to profile IRR.DIGTCERT.LIST in the FACILITY class.
	Command	`RACDCERT CHECKCERT('TEST.FILE')`
	Output	See Figure 41 on page 286

```
RACDCERT CHECKCERT('TEST.FILE')

Certificate 1:
  Start Date: 2011/10/20 00:00:00
  End Date:   2022/10/20 23:59:59
  Serial Number:
       >05<
  Issuer's Name:
       >CN=sampleCA.O=Test.SP=Poughkeepsie.C=US<
  Subject's Name:
       >CN=samplecert.O=Test.SP=Poughkeepsie.C=US<
  Subject's AltNames:
    IP: 127.0.0.5
    EMail: choi at us.ibm.com
    Domain: www.ibm.com
  Signing Algorithm: sha256RSA
  Key Usage: HANDSHAKE
  Key Type: RSA
  Key Size: 2048
  Certificate Fingerprint (SHA256):
     D7:3B:4A:FC:C4:91:DF:D2:32:F3:08:9B:85:42:E9:46:
     17:D8:93:D7:FE:94:5E:10:A7:93:7E:E2:9D:76:E0:B0

Certificate 2:
  Start Date: 2010/03/22 00:00:00
  End Date:   2025/10/22 23:59:59
  Serial Number:
       >02<
  Issuer's Name:
       >CN=MasterCA.O=Test.SP=Poughkeepsie.C=US<
  Subject's Name:
       >CN=sampleCA.O=Test.SP=Poughkeepsie.C=US<
  Signing Algorithm: sha256RSA
  Key Usage: CERTSIGN
  Key Type: RSA
  Key Size: 2048
  Certificate Fingerprint (SHA256):
     8D:3E:5A:DC:C4:91:DF:D3:32:B3:A8:9B:75:42:E9:46:
     17:D8:93:D7:FE:94:4E:10:A7:93:7E:E2:9D:26:83:AE

Certificate 3:
  Start Date: 2008/04/20 00:00:00
  End Date:   2038/04/20 23:59:59
  Serial Number:
       >00<
  Issuer's Name:
       >CN=MasterCA.O=Test.SP=Poughkeepsie.C=US<
  Subject's Name:
       >CN=MasterCA.O=Test.SP=Poughkeepsie.C=US<
  Signing Algorithm: sha256RSA
  Key Usage: CERTSIGN
  Key Type: RSA
  Key Size: 4096
  Certificate Fingerprint (SHA256):
     02:9A:CB:FC:C4:91:DF:D3:32:F3:08:9B:85:42:E9:46:
     17:D8:93:D7:FE:94:4E:10:A7:93:7E:E2:9D:B6:2A:F8

  Chain information:
  Chain contains 3 certificate(s), chain is complete
```

Figure 38. Output for the RACDCERT CHECKCERT command where none of the user’s certificates are in RACF.

```
RACDCERT CHECKCERT('TEST.FILE')

  Certificate 1:
Digital certificate information for user CHOI:

  Label: samplecert
  Certificate ID: 2QbmxsPI1smJl4OFmaPy
  Status: TRUST
  Start Date: 2010/10/20 00:00:00
  End Date:   2011/10/20 23:59:59
  Serial Number:
       >05<
  Issuer's Name:
       >CN=sampleCA.O=Test.SP=Poughkeepsie.C=US<
  Subject's Name:
       >CN=samplecert.O=Test.SP=Poughkeepsie.C=US<
  Subject's AltNames:
    IP: 127.0.0.5
    EMail: choi at us.ibm.com
    Domain: www.ibm.com
  Signing Algorithm: sha256RSA
  Key Usage: HANDSHAKE
  Key Type: RSA
  Key Size: 2048
  Private Key: Yes
  PKDS Label: SAMPLECERT
  Certificate Fingerprint (SHA256):
     CA:E6:4A:2C:C4:91:DF:D3:32:F3:08:9B:85:42:E9:46:
     17:D8:93:D7:BE:94:4E:10:A7:93:7E:E2:9D:D6:63:27

  Certificate 2:
  Start Date: 2010/03/22 00:00:00
  End Date:   2022/10/22 23:59:59
  Serial Number:
       >02<
  Issuer's Name:
       >CN=MasterCA.O=Test.SP=Poughkeepsie.C=US<
  Subject's Name:
       >CN=sampleCA.O=Test.SP=Poughkeepsie.C=US<
  Signing Algorithm: sha256RSA
  Key Usage: CERTSIGN
  Key Type: RSA
  Key Size: 2048
  Certificate Fingerprint (SHA256):
     E3:F2:2A:FC:C4:91:DF:D3:32:F3:08:9B:85:42:E9:46:
     17:D8:93:D7:FE:94:4E:10:A7:93:7E:E2:9D:FF:13:63

  Certificate 3:
  Start Date: 2008/04/20 00:00:00
  End Date:   2038/04/20 23:59:59
  Serial Number:
       >00<
  Issuer's Name:
       >CN=MasterCA.O=Test.SP=Poughkeepsie.C=US<
  Subject's Name:
       >CN=MasterCA.O=Test.SP=Poughkeepsie.C=US<
  Signing Algorithm: sha256RSA
  Key Usage: CERTSIGN
  Key Type: RSA
  Key Size: 4096
  Certificate Fingerprint (SHA256):
     85:A6:1A:FC:C4:91:DF:D3:32:F3:18:9B:85:42:E9:46:
     17:D8:93:D7:FE:94:1E:10:A3:93:7E:E2:9D:2E:73:0F

  Chain information:
  Chain contains 3 certificate(s), chain is complete
  Chain contains expired certificate(s)
```

Figure 39. Output for the RACDCERT CHECKCERT command from an authorized issuer, only the end-entity certificate is in RACF, and it expired.

```
RACDCERT CHECKCERT('TEST.FILE')

Certificate 1:
  Start Date: 2011/10/20 00:00:00
  End Date:   2022/10/20 23:59:59
  Serial Number:
       >05<
  Issuer's Name:
       >CN=sampleCA.O=Test.SP=Poughkeepsie.C=US<
  Subject's Name:
       >CN=samplecert.O=Test.SP=Poughkeepsie.C=US<
  Subject's AltNames:
    IP: 127.0.0.5
    EMail: choi at us.ibm.com
    Domain: www.ibm.com
  Signing Algorithm: sha256RSA
  Key Usage: HANDSHAKE
  Key Type: RSA
  Key Size: 2048
  Private Key: No
  Certificate Fingerprint (SHA256):
     45:CC:04:AC:D4:71:DF:D3:32:F3:08:BB:85:A2:C9:26:
     37:D8:63:D7:FE:94:4E:11:A7:93:7E:E2:40:7D:1E:5C

Certificate 2:
  Start Date: 2010/03/22 00:00:00
  End Date:   2025/10/22 23:59:59
  Serial Number:
       >02<
  Issuer's Name:
       >CN=MasterCA.O=Test.SP=Poughkeepsie.C=US<
  Subject's Name:
       >CN=sampleCA.O=Test.SP=Poughkeepsie.C=US<
  Signing Algorithm: sha256RSA
  Key Usage: CERTSIGN
  Key Type: RSA
  Key Size: 2048
  Private Key: No
  Certificate Fingerprint (SHA256):
     7E:6A:79:FA:B4:81:DF:D3:32:F3:18:9B:85:42:E9:36:
     15:D8:93:D7:EE:94:4E:10:A7:93:4E:F2:6D:96:63:DA

IRRD302I Processing terminated. Problem found in certificate 2 in the dataset.
IRRD112I The certificate that you are processing does not have a valid signature.
```

Figure 40. Output for the RACDCERT CHECKCERT command from an authorized issuer, all the certificates are not in RACF, signature on certificate 2 is not good.

```
RACDCERT CHECKCERT('TEST.FILE')

 Certificate 1:
  Start Date: 2011/10/20 00:00:00
  End Date:   2028/10/20 23:59:59
  Serial Number:
       >05<
  Issuer's Name:
       >CN=sampleCA.O=Test.SP=Poughkeepsie.C=US<
  Subject's Name:
       >CN=samplecert.O=Test.SP=Poughkeepsie.C=US<
  Subject's AltNames:
    IP: 127.0.0.5
    EMail: choi at us.ibm.com
    Domain: www.ibm.com
  Signing Algorithm: sha256RSA
  Key Usage: HANDSHAKE
  Key Type: RSA
  Key Size: 2048
  Private Key: No
  Certificate Fingerprint (SHA256):
     90:3E:4A:FC:C4:91:AF:D3:32:F2:08:9B:85:42:E9:46:
     18:B8:93:C7:FE:94:4E:20:A7:93:7E:E3:9E:65:C2:FE

IRRD302I Processing terminated. Problem found in certificate 2 in the dataset.
IRRD182I Unexpected character encountered.
```

Figure 41. Output for the RACDCERT CHECKCERT command from an authorized issuer, all the certificates are not in RACF, subject name on certificate 2 has invalid character (certificate 2 is not displayed)

RACDCERT CONNECT (Connect a certificate to key ring)

Purpose

Use the RACDCERT CONNECT command to add a digital certificate to a key ring.

See "UTF-8 and BMP character restrictions" on page 251 for information about how UTF-8 and BMP characters in certificate names and labels are processed by RACDCERT functions.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT CONNECT command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules: The following rules apply when issuing this command.

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.
- The updates made to the RACF database by RACDCERT are eligible for propagation with automatic direction of application updates based on the RRSFDATA profiles AUTODIRECT.*target-node.*DIGTCERT.APPL and AUTODIRECT.*target-node.*DIGTRING.APPL, where *target-node* is the remote node to which the update is to be propagated.

Authorization required

To issue the RACDCERT CONNECT command, you must have the following authorizations:

- The SPECIAL attribute, or
- Sufficient authority to the following resources in the FACILITY class, based on the certificate owner, key ring owner, and the USAGE value:
  - IRR.DIGTCERT.CONNECT
  - IRR.DIGTCERT.ADD

  , as shown in Table 13 on page 287 or Table 14 on page 288, or
- Sufficient authority to the appropriate resources in the RDATALIB class, as shown in Table 15 on page 288, if Granular Authority Checking has been enabled by defining the IRR.RACDCERT.GRANULAR resource in the RDATALIB class.

The USAGE keyword allows a certificate to be connected to a ring and used in a manner that differs from the certificate's original use. For example, by changing the USAGE value, a certificate defined as a user certificate might be used as a certificate-authority certificate.

The USAGE keyword is powerful, and must be controlled. The rules for connection are shown in Table 13 on page 287, which shows the access control checks that are performed when connecting to your own key ring, and Table 14 on page 288, which shows the access control checks that are performed when connecting to another user's key ring.

Table 13. Authority required for the RACDCERT CONNECT function under the FACILITY class - Connecting to your own key ring

USAGE value	Your own certificate	Another user's certificate	SITE or CERTAUTH certificate
PERSONAL	READ authority to IRR.DIGTCERT.CONNECT	UPDATE authority to IRR.DIGTCERT.CONNECT	CONTROL authority to IRR.DIGTCERT.CONNECT

Table 13. Authority required for the RACDCERT CONNECT function under the FACILITY class - Connecting to your own key ring (continued)

USAGE value	Your own certificate	Another user's certificate	SITE or CERTAUTH certificate
SITE **CERTAUTH**	CONTROL authority to IRR.DIGTCERT.ADD and READ authority to IRR.DIGTCERT.CONNECT	CONTROL authority to IRR.DIGTCERT.ADD and UPDATE authority to IRR.DIGTCERT.CONNECT	UPDATE authority to IRR.DIGTCERT.CONNECT

Table 14. Authority required for the RACDCERT CONNECT function under the FACILITY class - Connecting to another user's key ring

USAGE value	Your own certificate	Another user's certificate	SITE or CERTAUTH certificate
PERSONAL	CONTROL authority to IRR.DIGTCERT.CONNECT	CONTROL authority to IRR.DIGTCERT.CONNECT	CONTROL authority to IRR.DIGTCERT.CONNECT
SITE **CERTAUTH**	CONTROL authority to IRR.DIGTCERT.ADD and CONTROL authority to IRR.DIGTCERT.CONNECT	CONTROL authority to IRR.DIGTCERT.ADD and CONTROL authority to IRR.DIGTCERT.CONNECT	CONTROL authority to IRR.DIGTCERT.CONNECT

Table 15. Authority required for the RACDCERT CONNECT function under the RDATALIB class when IRR.RACDCERT.GRANULAR is defined

READ access to the resource based on cert owner and cert label, ring owner and ring name *	Purpose
IRR.DIGTCERT.<cert owner>.<cert label>.LST.CONNECT and <ring owner>.<ring name>.UPD.CONNECT	Connect a certificate with specified <cert label> owned by <cert owner> to a key ring with specified <ring name> owned by <ring owner> with no USAGE keyword specified.
IRR.DIGTCERT.<cert owner>.<cert label>.UPD.CONNECT and <ring owner>.<ring name>.UPD.CONNECT	Connect a certificate with specified <cert label> owned by <cert owner> to a key ring with specified <ring name> owned by <ring owner> with USAGE keyword specified.

***** 'cert owner' is the RACF user ID, or CERTIFAUTH (for CERTAUTH), or SITECERTIF (for SITE); ring owner is the RACF user ID

See the USAGE subkeyword for additional information on the authority required to change a certificate's usage.

Activating your changes

If the DIGTCERT or DIGTRING class is RACLISTed, refresh the classes to activate your changes.

Example:

```
SETROPTS RACLIST(DIGTCERT, DIGTRING) REFRESH
```

Related commands

- To add a key ring, see RACDCERT ADDRING.
- To remove a certificate from a key ring, see RACDCERT REMOVE.
- To list a key ring, see RACDCERT LISTRING.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the RACDCERT CONNECT command is:

```
RACDCERT CONNECT([ ID(certificate-owner) | SITE | CERTAUTH ]

    LABEL('label-name')
    RING(ring-name)
    [ DEFAULT ]
    [ USAGE(PERSONAL | SITE | CERTAUTH) ]
    )
    [ ID(ring-owner) ]
```

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

Parameters

CONNECT(ID(*certificate-owner*) LABEL('*label-name*') RING(*ring-name*))
CONNECT(SITE LABEL('*label-name*') RING(*ring-name*))
CONNECT(CERTAUTH LABEL('*label-name*') RING(*ring-name*))

Specifies the digital certificate to be added to the key ring. The specified certificate must be added to the RACF database by a RACDCERT ADD or RACDCERT GENCERT command prior to issuing the CONNECT command.

ID(*certificate-owner*) indicates that the certificate being connected is a user certificate, and *certificate-owner* is the user ID associated with this certificate. SITE indicates that the certificate being connected is a site certificate, and CERTAUTH indicates that it is a certificate authority certificate. If ID, SITE or CERTAUTH are not specified, ID(*certificate-owner*) defaults to the key ring owner as specified or defaulted by the ID(*ring-owner*) keyword.

LABEL('*label-name*')

Specifies the certificate that is being connected to the key ring. You must specify a label.

RING(*ring-name*)

Specifies the key ring to which this certificate is being connected. You must specify a ring name. **Note:** The key ring belongs to the ID specified or defaulted by the ID(*ring-owner*) keyword.

ID(*ring-owner*)

Specifies the user ID of the key ring owner. (Only a user ID can have a key ring.) If not specified, the key ring owner defaults to the command issuer's user ID.

DEFAULT

Specifies that the certificate is the default certificate for the ring. Only one certificate within the key ring can be the default certificate. If a default certificate already exists, its DEFAULT status is removed, and the specified certificate becomes the default certificate. If you want the specified certificate to be the default, DEFAULT must be explicitly specified.

If you have a key ring with a default certificate and you want to remove the default status of the certificate without defining another certificate as the default certificate, CONNECT the certificate again without specifying the DEFAULT keyword.

USAGE(PERSONAL | SITE | CERTAUTH)

Specifies how this certificate is used within the specified ring. If no usage is specified, it defaults to the usage of the certificate being connected.

The USAGE keyword allows the altering of the trust policy within the confines of a specific key ring. For example, if you are operating your own certificate authority, your certificate server application would have its own certificate. Because the certificate does represent a certificate authority, it should be installed under CERTAUTH, thus setting its default usage for all other applications and users. However, your certificate server application would need to use the certificate's private key for signing. The default usage of CERTAUTH does not allow this. So, for the certificate server application's key ring only, the certificate should be connected with USAGE(PERSONAL). Note, in addition to the preceding, the user ID assigned to your certificate server application needs to be granted permission to operate as a certificate authority. This is done by giving the user ID CONTROL access to FACILITY class resource IRR.DIGTCERT.GENCERT.

For the sake of consistency, other certificate and USAGE variations are supported. However, there is currently no practical application for them.

When using the USAGE keyword to change the usage of a certificate, such as is done when a PERSONAL certificate is being used as a SITE or CERTAUTH certificate, RACDCERT must ensure that you have the ability to define a SITE or CERTAUTH certificate by authenticating that the command issuer has CONTROL authority to the resource IRR.DIGTCERT.ADD in the FACILITY class. This ensures that a user cannot bypass the installation security policy through the use of USAGE.

Examples

Example	Activity label	Description
1	*Operation*	User RACFADM wants to connect an existing SITE certificate labeled `Shared Server` to the `RING01` key ring of server INVSERV. The certificate will be added to the key ring as the default certificate.
	Known	User RACFADM has SPECIAL authority.

	Command	`RACDCERT ID(INVSERV) CONNECT(SITE LABEL('Shared Server')`
		`   RING(RING01) USAGE(PERSONAL) DEFAULT)`

	Output	None.

RACDCERT DELETE (Delete certificate)

Purpose

Use the RACDCERT DELETE command to delete a digital certificate.

When you delete a certificate that is connected to a key ring, the certificate is automatically removed from the key ring.

Restriction: Because PKCS #11 tokens are managed by ICSF, not RACF, when you use the RACDCERT DELETE command to delete a certificate that is bound in a token, the corresponding certificate object remains in the token.

The DELETE function also supports site and certificate-authority certificates, and the deletion of the private key and other certificate data that is stored when the certificate was created.

When a user profile is deleted with the DELUSER command, related DIGTCERT, DIGTRING, and DIGTNMAP profiles are deleted as a part of DELUSER processing. However, under some circumstances, residual profiles might not be deleted. The DELETE, DELRING and DELMAP keywords for RACDCERT support the specification of a user ID in order to allow residual certificate information related to the user ID to be deleted. However, the other RACDCERT functions require the user ID to be defined to RACF.

See "UTF-8 and BMP character restrictions" on page 251 for information about how UTF-8 and BMP characters in certificate names and labels are processed by RACDCERT functions.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT DELETE command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules: The following rules apply when issuing this command.

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.
- The updates made to the RACF database by RACDCERT are eligible for propagation with automatic direction of application updates based on the RRSFDATA profiles AUTODIRECT.*target-node.*DIGTCERT.APPL and AUTODIRECT.*target-node.*DIGTRING.APPL, where *target-node* is the remote node to which the update is to be propagated.

Authorization required

To issue the RACDCERT DELETE command, you must have the SPECIAL attribute or sufficient authority to the IRR.DIGTCERT.DELETE resource in the FACILITY class for your intended purpose, as shown in Table 16 on page 291.

To issue the RACDCERT DELETE command, you must have the following authorizations:

- The SPECIAL attribute, or
- Sufficient authority to the IRR.DIGTCERT.DELETE resource in the FACILITY class, as shown in Table 16 on page 291, or
- Sufficient authority to the appropriate resources in the RDATALIB class, as shown in Table 17 on page 291, if Granular Authority Checking has been enabled by defining the IRR.RACDCERT.GRANULAR resource in the RDATALIB class.

When your installation controls access to ICSF services and the CSFSERV class is active, additional access to CSFSERV resources might be required as follows:

- If the certificate you are deleting has a key stored in the ICSF PKA key data set (PKDS), you must have READ access to the CSFIQF and CSFPKRD resources.
- If the certificate you are deleting has a key stored in the ICSF Token Data Set (TKDS), you must have READ access to the CSFIQF and CSF1TRD resources.

For details about the CSFSERV resources, see *z/OS Cryptographic Services ICSF Administrator's Guide*.

Table 16. Authority required for the RACDCERT DELETE function under the FACILITY class

Access level	Purpose
READ	Delete your own certificate.
UPDATE	Delete another user's certificate.
CONTROL	Delete a SITE or CERTAUTH certificate.

Table 17. Authority required for the RACDCERT DELETE function under the RDATALIB class when IRR.RACDCERT.GRANULAR is defined

READ access to the resource based on cert owner and cert label *	Purpose
IRR.DIGTCERT.<cert owner>.<cert label>.UPD.DELETE	Delete a certificate under <cert owner> with specified <cert label>

***** 'cert owner' is the RACF user ID, or CERTIFAUTH (for CERTAUTH), or SITECERTIF (for SITE)

Activating your changes

If the DIGTCERT or DIGTRING class is RACLISTed, refresh the classes to activate your changes.

Example:

```
SETROPTS RACLIST(DIGTCERT, DIGTRING) REFRESH
```

Related commands

- To add a certificate, see "RACDCERT ADD (Add certificate)" on page 257.
- To alter a certificate, see "RACDCERT ALTER (Alter certificate)" on page 271.
- To list a certificate, see "RACDCERT LIST (List certificate)" on page 325.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the RACDCERT DELETE command is:

RACDCERT DELETE
[(LABEL('*label-name*'))] | [(SERIALNUMBER(*serial-number*) [ISSUERSDN('*issuer's-dn*')])] [ID(*certificate-owner*) | SITE | CERTAUTH] [FORCE]

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

Parameters

DELETE(LABEL('*label-name*'))
DELETE(SERIALNUMBER(*serial-number*) ISSUERSDN('*issuer's-dn*'))

If the user has only one certificate, the SERIALNUMBER and ISSUERSDN keywords, or the LABEL keyword, and their associated values can be omitted. If the user has more than one certificate the LABEL, SERIALNUMBER, or SERIALNUMBER and ISSUERSDN must be used to select which certificate to delete.

When specifying the issuer's distinguished name or the label, you must specify any mixed-case or blank characters exactly as they appear in the output of the RACDCERT LIST command for the certificate.

Restriction: The ISSUERSDN keyword is not supported for lengthy issuer's distinguished names when the name of the certificate's DIGTCERT profile contains a certificate hash value. For more information about DIGTCERT profile names, see the "Purpose" topic of RACDCERT ADD.

For a description of *label-name*, see the description of the WITHLABEL keyword for RACDCERT ADD.

FORCE

Specifies that RACF should bypass the following error checking and unconditionally perform the delete operation.

If you do not specify FORCE to bypass these conditions, an error message is issued and the command ends:

- The certificate being deleted has been used to generate a request through RACDCERT GENREQ.
- The private key associated with the certificate is a secure key in the PKDS or TKDS, but it no longer exists.

Note: Use this keyword with caution to force the deletion of a certificate.

ID(*certificate-owner*) | SITE | CERTAUTH

Specifies that the specified certificate is either a user certificate associated with the specified user ID, a site certificate, or a certificate-authority certificate. If you do not specify ID, SITE, or CERTAUTH, the default is ID, and *certificate-owner* defaults to the user ID of the command issuer. If more than one keyword is specified, the last specified keyword is processed and the others are ignored by TSO command parse processing.

Examples

Example	Activity label	Description
1	*Operation*	User RACFADM wants to delete the digital certificate labeled `Savings Account` for user NETB0Y.
	Known	User RACFADM has SPECIAL authority.
	Command	`RACDCERT DELETE(LABEL('Savings Account')) ID(NETB0Y)`
	Output	None.
2	*Operation*	User RACFADM does a GENREQ for certificate labeled Savings Account for user NETB0Y to have it sent and signed by a Certificate Authority. In order to not allow the certificate deleted along with its private key until the Certificate Authority returns the signed certificate, the certificate cannot be deleted without the FORCE function.
	Known	User RACFADM has SPECIAL authority.

	Command	`RACDCERT ID (NETB0Y) GENREQ (LABEL('Savings Account'))`
		`dsn('Request.cert')`
		`RACDCERT ID (NETB0Y) DELETE (LABEL('Savings Account'))`

	Output	IRRD198I The certificate has been used for generating a request. It was not deleted.

RACDCERT DELMAP (Delete mapping)

Purpose

Use the RACDCERT DELMAP command to delete a mapping for a user ID.

See "UTF-8 and BMP character restrictions" on page 251 for information about how UTF-8 and BMP characters in certificate names and labels are processed by RACDCERT functions.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT DELMAP command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules: The following rules apply when issuing this command.

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.
- The updates made to the RACF database by RACDCERT are eligible for propagation with automatic direction of application updates based on the RRSFDATA profiles AUTODIRECT.*target-node*.DIGTNMAP.APPL, where *target-node* is the remote node to which the update is to be propagated.

Authorization required

To issue the RACDCERT DELMAP command, you must have the SPECIAL attribute or sufficient authority to the IRR.DIGTCERT.DELMAP resource in the FACILITY class for your intended purpose.

Table 18. Authority required for the RACDCERT DELMAP function

IRR.DIGTCERT.DELMAP	
Access level	**Purpose**
READ	Delete a mapping associated with your own user ID.
UPDATE	Delete a mapping associated with another user ID or MULTIID.

Activating your changes

If the DIGTNMAP or DIGTCRIT class is RACLISTed, refresh the classes to activate your changes.

Example:

```
SETROPTS RACLIST(DIGTNMAP, DIGTCRIT) REFRESH
```

Related commands

- To define a user ID mapping, see RACDCERT MAP.
- To alter a user ID mapping, see RACDCERT ALTMAP.
- To list a user ID mapping, see RACDCERT LISTMAP.

The RACDCERT DELMAP command is *unrelated* to the RACMAP DELMAP command.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the RACDCERT DELMAP command is:

RACDCERT DELMAP[(LABEL('*label-name*'))]
[ID(*mapping-owner*) | MULTIID]

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

Parameters

DELMAP
DELMAP(LABEL('*label-name*'))

Specifying *label-name* is required if more than one mapping is associated with the user ID. Note that mappings might also be deleted as part of DELUSER processing.

Important: If the user profile for the specified user ID no longer exists and you specify a label name, RACF searches all profiles in the DIGTNMAP class to locate and delete the orphaned DIGTNMAP profile. (An orphaned DIGTNMAP profile might result when a DELUSER command is issued from a downlevel system for a user ID that has an associated mapping.) This search might take an extended period of time.

ID(*mapping-owner*) | MULTIID

Specifies the user ID associated with the mapping. If you do not specify ID or MULTIID, the default is ID, and *mapping-owner* defaults to the user ID of the command issuer. If more than one keyword is specified, the last specified keyword is processed and the others are ignored by TSO command parse processing.

ID(*mapping-owner*)

Specifies the user ID associated with the mapping.

MULTIID

Specifies that additional criteria is used to determine the user ID associated with the mapping.

Examples

Example	Activity label	Description
1	*Operation*	User RACFADM with SPECIAL authority has been notified that departments BWVB and BWVA have merged. The members of BWVA will be issued new digital certificates.
	Known	User RACFADM has SPECIAL authority.

	Command	`RACDCERT DELMAP(LABEL('BWVA USERS'))`
		`    ID(BWVAUSR)`

	Output	None.

RACDCERT DELRING (Delete key ring)

Purpose

Use the RACDCERT DELRING command to delete a key ring.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT DELRING command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules: The following rules apply when issuing this command.

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.

- The updates made to the RACF database by RACDCERT are eligible for propagation with automatic direction of application updates based on the RRSFDATA profiles AUTODIRECT.*target-node.*DIGTCERT.APPL and AUTODIRECT.*target-node.*DIGTRING.APPL, where *target-node* is the remote node to which the update is to be propagated.

Authorization required

To issue the RACDCERT DELRING command, you must have the following authorizations:

- The SPECIAL attribute, or
- Sufficient authority to the IRR.DIGTCERT.DELRING resource in the FACILITY class, as shown in Table 19 on page 296, or
- Sufficient authority to the appropriate resources in the RDATALIB class, as shown in Table 20 on page 296, if Granular Authority Checking has been enabled by defining the IRR.RACDCERT.GRANULAR resource in the RDATALIB class, and

Table 19. Authority required for the RACDCERT DELRING function under the FACILITY class

Access level	Purpose
READ	Delete your own key ring.
UPDATE	Delete another user's key ring.

Table 20. Authority required for the RACDCERT DELRING function under the RDATALIB class when IRR.RACDCERT.GRANULAR is defined

READ access to the resource based on cert owner and cert label *	Purpose
<ring owner>.<ring name>.UPD.DELRING	Delete a key ring under <ring owner> with specified <ring name>

***** 'ring owner' is the RACF user ID

Activating your changes

If the DIGTRING class is RACLISTed, refresh the class to activate your changes.

Example:

```
SETROPTS RACLIST(DIGTRING) REFRESH
```

Related commands

- To add a key ring, see RACDCERT ADDRING.
- To list a key ring, see RACDCERT LISTRING.

Syntax

For the key to the symbols used in the command syntax diagrams, see “Syntax of RACF commands and operands” on page 11. The complete syntax of the RACDCERT DELRING command is:

RACDCERT DELRING(*ring-name*)
[ID(*ring-owner*)]

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

Parameters

DELRING(*ring-name*)
The *ring-name* value is the name of the key ring. Because only user IDs can have key rings, neither CERTAUTH nor SITE can be specified with DELRING.

Note that when a DELUSER command is issued against a user ID, all of the key rings that are owned by that user ID are also deleted.

ID(*ring-owner*)
Specifies the user ID of the key ring owner. (Only a user ID can have a key ring.) If not specified, the key ring owner defaults to the command issuer's user ID.

Examples

Example	Activity label	Description
1	*Operation*	User RACFADM wants to delete the key ring for the local FTP server. The user ID of the FTP is FTPD. The name of the key ring to be deleted is `FTPring`.
	Known	User RACFADM has SPECIAL authority.
	Command	`RACDCERT ID(FTPD) DELRING(FTPring)`
	Output	None.

RACDCERT DELTOKEN (Delete token)

Purpose

Use the RACDCERT DELTOKEN command to delete a z/OS PKCS #11 token.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT DELTOKEN command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules: The following rules apply when issuing this command.

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.
- The updates made to the RACF database by RACDCERT are eligible for propagation with automatic direction of application updates based on the RRSFDATA profiles AUTODIRECT.*target-node.*DIGTCERT.APPL and AUTODIRECT.*target-node.*DIGTRING.APPL, where *target-node* is the remote node to which the update is to be propagated.

Authorization required

Authorization to delete z/OS PKCS #11 tokens is controlled by ICSF based on profiles in the CRYPTOZ class. (No authority in the FACILITY class is required.) If you do not have authority to delete the specified token as determined by ICSF, the command stops and an error message is displayed.

When your installation controls access to ICSF services and the CSFSERV class is active, you must also have READ access to the CSF1GAV, CSF1TRD, and CSF1TRL resources in the CSFSERV class.

For authorization details about the CRYPTOZ and CSFSERV classes, see *z/OS Cryptographic Services ICSF Administrator's Guide*.

Related commands

- To add a token, see RACDCERT ADDTOKEN.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the RACDCERT DELTOKEN command is:

RACDCERT DELTOKEN(*token-name*)
[FORCE]

Note: The ID(*certificate-owner*) | SITE | CERTAUTH parameter is ignored for this RACDCERT function.

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

Parameters

DELTOKEN(*token-name*)
The *token-name* value is the name of the token being deleted. If any object within the token is not currently defined to RACF, you must also specify FORCE or else an error message is issued and the command ends. (This error message prevents you from inadvertently deleting a certificate object that is not defined to RACF.)

FORCE
Specifies that RACF should bypass some error checking and unconditionally perform the delete token operation.

If you do not specify FORCE, the following condition must be true or an error message is issued and the command ends:

- The certificate (or its associated private key, if any) must be currently defined to RACF.

If you specify FORCE, this condition is not checked.

Examples

Example	Activity label	Description
1	*Operation*	User ICSFADM has been notified that the z/OS PKCS #11 token named `WEBSRV.NETTOKEN` is no longer needed and should be deleted.
	Known	User ICSFADM has CONTROL authority to the `SO.*` generic profile in the CRYPTOZ class. The token to be deleted is empty.
	Commands	`RACDCERT DELTOKEN(WEBSRV.NETTOKEN)`
	Output	None.

RACDCERT EXPORT (Export certificate package)

Purpose

Use the RACDCERT EXPORT command to write a digital certificate to a data set.

Restriction: The private key of the exported certificate must not be stored in the ICSF PKA key data set (PKDS) or command processing stops and an error message is displayed.

See "UTF-8 and BMP character restrictions" on page 251 for information about how UTF-8 and BMP characters in certificate names and labels are processed by RACDCERT functions.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT EXPORT command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules: The following rules apply when issuing this command.

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.
- The updates made to the RACF database by RACDCERT are eligible for propagation with automatic direction of application updates based on the RRSFDATA profiles AUTODIRECT.*target-node.*DIGTCERT.APPL and AUTODIRECT.*target-node.*DIGTRING.APPL, where *target-node* is the remote node to which the update is to be propagated.

Authorization required

To issue the RACDCERT EXPORT command, you must have the following authorizations:

- The SPECIAL attribute, or
- Sufficient authority to the IRR.DIGTCERT.EXPORT or IRR.DIGTCERT.EXPORTKEY resource in the FACILITY class based on the certificate owner and format of the exported certificate package, as shown in Table 21 on page 300, or
- Sufficient authority to the appropriate resources in the RDATALIB class, as shown in Table 22 on page 300, if Granular Authority Checking has been enabled by defining the IRR.RACDCERT.GRANULAR resource in the RDATALIB class.

When your installation controls access to ICSF services and the CSFSERV class is active, additional access to CSFSERV resources might be required as follows:

- If one or more certificates in the certificate chain you are exporting has an ECC key, you must have READ access to the CSF1PKV, CSF1TRC, CSF1TRD, CSFDSV, and CSFOWH resources.

Exception: When the Crypto Express3 coprocessor (CEX3C), or later, is operational, no access to CSF1PKV, CSF1TRC, or CSF1TRD is required.

For details about the CSFSERV resources, see *z/OS Cryptographic Services ICSF Administrator's Guide*.

Table 21. Authority required for the RACDCERT EXPORT function

Format	Your own certificate	Another user's certificate	SITE or CERTAUTH certificate
Export in CERT format	Export your own certificate: READ authority to IRR.DIGTCERT.EXPORT	Export another user's certificate: UPDATE authority to IRR.DIGTCERT.EXPORT	Export SITE or CERTAUTH certificates: CONTROL authority to IRR.DIGTCERT.EXPORT
Export in PKCS #7 format	Export your own certificate, but not the parent CA chain: READ authority to IRR.DIGTCERT.EXPORT	Export another user's certificate, but not the parent CA chain: UPDATE authority to IRR.DIGTCERT.EXPORT	Export SITE or CERTAUTH certificates and/or the entire parent CA chain: CONTROL authority to IRR.DIGTCERT.EXPORT
Export in PKCS #12 format	Export your own certificate and the private key: READ authority to IRR.DIGTCERT.EXPORTKEY	Export another user's certificate and the private key: CONTROL authority to IRR.DIGTCERT.EXPORTKEY	Export SITE or CERTAUTH certificate and the private key: CONTROL authority to IRR.DIGTCERT.EXPORTKEY

Table 22. Authority required for the RACDCERT EXPORT function under the RDATALIB class when IRR.RACDCERT.GRANULAR is defined

READ access to the resource based on cert owner and cert label *	Purpose
IRR.DIGTCERT.<cert owner>.<cert label>.LST.EXPORT	Export a certificate with specified <cert label> owned by <cert owner>
IRR.DIGTCERT.<cert owner>.<cert label>.UPD.EXPORT	Export a certificate and the private key with specified <cert label> owned by <cert owner> with or without its parent chain in PKCS#12 format
IRR.DIGTCERT.<cert owner>.<cert label>.LST.EXPORT and IRR.DIGTCERT.CERTIFAUTH.<cert label>.LST.EXPORT	Export a certificate with specified <cert label> owned by <cert owner> together with its parent chain in a PKCS#7 format

***** 'cert owner' is the RACF user ID, or CERTIFAUTH (for CERTAUTH), or SITECERTIF (for SITE)

Related commands

- To list a certificate, see “RACDCERT LIST (List certificate)” on page 325.

Syntax

For the key to the symbols used in the command syntax diagrams, see “Syntax of RACF commands and operands” on page 11. The complete syntax of the RACDCERT EXPORT command is:

```
RACDCERT EXPORT(LABEL('label-name'))
```

```
[ ID(certificate-owner) | SITE | CERTAUTH ]
DSN(output-data-set-name)
[ FORMAT(
     CERTDER
     | CERTB64
     | PKCS7DER
     | PKCS7B64
     | PKCS12DER
     | PKCS12B64
     ) ]
[ PASSWORD('pkcs12-password') ]
```

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

Parameters

EXPORT(LABEL('*label-name*'))
The *label-name* value identifies the certificate that is being exported. Depending on which keyword you specify, you can export a certificate, a certificate and its CA chain, or a certificate and private key.

Restriction: When ICSF is operating in FIPS mode, you cannot export the certificate if one or more certificates in the certificate chain has a Brainpool ECC key.

ID(*certificate-owner*) | SITE | CERTAUTH
Specifies that the specified certificate is either a user certificate associated with the specified user ID, a site certificate, or a certificate-authority certificate. If you do not specify ID, SITE, or CERTAUTH, the default is ID, and *certificate-owner* defaults to the user ID of the command issuer. If more than one keyword is specified, the last specified keyword is processed and the others are ignored by TSO command parse processing.

DSN(*output-data-set-name*)
Specifies the data set that is to contain the certificate. The data set *output-data-set-name* is deleted and reallocated if it exists. If EXPORT is specified, DSN must be specified.

FORMAT
Specifies the format of the exported certificate package. Valid values for FORMAT are:

- **CERTB64** - specifies a DER encoded X.509 certificate that has been encoded using Base64.
- **CERTDER** - specifies a DER encoded X.509 certificate.
- **PKCS7B64** - specifies a DER encoded PKCS #7 package that has been encoded using Base64.
- **PKCS7DER** - specifies a DER encoded PKCS #7 package.
- **PKCS12B64** - specifies a DER encoded PKCS #12 package that has been encoded using Base64.
- **PKCS12DER** - specifies a DER encoded PKCS #12 package.

Note:

1. PKCS12DER is the default if PASSWORD is specified; otherwise, CERTB64 is the default.
2. The PKCS12B64 format might not be supported by non-IBM applications. These applications often issue messages indicating incorrect passwords. In this case, reissue the command specifying a format supported by the application.

The CERT keywords indicate that only a certificate is to be exported.

The PKCS #7 keywords indicate to export a certificate and its CA chain. If the command issuer is authorized to export CERTAUTH certificates PKCS #7 processing will attempt to package any certificate authority certificate necessary to complete the basing chain to the exported certificate. If a certificate in the chain cannot be found under CERTAUTH or is expired or the command issuer is not authorize to export CERTAUTH certificates, an informational message will be issued. Processing continues creating an incomplete PKCS #7 package. An incomplete PKCS #7 package can still be processed by RACF but might or might not be useful for OEM products.

The PKCS #12 keywords indicate to export the certificate and the private key (which must exist and must not be stored in the ICSF PKDS). The package produced by specifying one of the PKCS #12 keywords is encrypted using the password specified according to the PKCS #12 standard.

PKCS #12 processing requires a software private key. If the private key is stored in the ICSF PKDS, the PKCS #12 package cannot be created, and processing stops.

PKCS #12 processing will attempt to package any certificate-authority certificate necessary to complete the basing chain to the exported certificate. If a certificate in the chain cannot be found under CERTAUTH, an informational message will be issued. Processing continues and an incomplete PKCS #12 package is created that can still be processed by RACF but might or might not be useful for OEM products.

PASSWORD('*pkcs12-password*')
Specifies the password to use for PKCS #12 package encryption. The string is converted before being used, so any characters entered must be translatable to 7-bit ASCII. However, RACF does not enforce this.

Note: RACF assumes the current host code page is IBM-1047 and translates to ASCII accordingly.

Examples

Example	Activity label	Description
1	*Operation*	User WENTING wants to export a certificate and send it to her business partner Yun.
	Known	The exported certificate does not contain the private key so the data set Wen Ting transmits to Yun need not be protected in any way.

	Commands	`RACDCERT EXPORT(LABEL('Wen Ting''s certificate'))`
		`   DSN(FOR.YUN.CRT)`

	Output	None.

RACDCERT GENCERT (Generate certificate)

Purpose

Use the RACDCERT GENCERT command to create a digital certificate and potentially a public/private key pair.

See "UTF-8 and BMP character restrictions" on page 251 for information about how UTF-8 and BMP characters in certificate names and labels are processed by RACDCERT functions.

Processing details

When you specify an optional request data set containing the PKCS #10 request data, and extensions are present in the request data (not overridden by other keywords that are specified with the RACDCERT command), they are copied to the certificate being created. These extensions and the logic involved with using them are described in the following tables:

- For subjectKeyIdentifier, see Table 23 on page 303.
- For authorityKeyIdentifier, see Table 24 on page 303.
- For keyUsage, see Table 25 on page 303.
- For basicConstraints, see Table 26 on page 304.
- For subjectAltName, see Table 27 on page 304.
- For issuerAltName, see Table 28 on page 304.

Table 23. Logic for the subjectKeyIdentifier extension for GENCERT

When the request data set is specified	When the request data set is not specified
The extension is encoded using the subjectKeyIdentifier value from the request data set if present, if not present the extension is encoded by generating the `keyIdentifier` according to the Public Key Infrastructure Standards.	The extension is encoded by generating the `keyIdentifier` according to Public Key Infrastructure Standards.

Table 24. Logic for the authorityKeyIdentifier extension for GENCERT

When SIGNWITH is specified	When SIGNWITH is not specified
The extension is encoded using the subjectKeyIdentifier value of the signing certificate if present, if not present the extension is not created.	The authorityKeyIdentifier extension is not created.

Table 25. Logic for the keyUsage extension for GENCERT

Situation	keyUsage is present in the request data set	keyUsage is not present in the request data set
When KEYUSAGE is specified and the target ID is CERTAUTH	If the certSign bit is turned off in the request data set, the request fails. Otherwise the extension is encoded as requested by the RACDCERT invoker. Additionally, the certSign and cRLSign bits are turned on if not already specified by the CERTSIGN keyword.	The extension is encoded as requested by the RACDCERT invoker. Additionally, the certSign and cRLSign bits are turned on.
When KEYUSAGE is specified and the target ID is SITE or ID(*cert-owner*)	The extension is encoded as requested by the RACDCERT invoker.	The extension is encoded as requested by the RACDCERT invoker.
When KEYUSAGE is not specified and the target ID is CERTAUTH	If the certSign bit is turned off this command fails, otherwise the extension is encoded as specified in the request data set.	The extension is encoded by turning the certSign and cRLSign bits on.
When KEYUSAGE is not specified and the target ID is SITE or ID(*cert-owner*)	The extension is encoded using the request data set values.	The keyUsage extension is not created.

Table 26. Logic for the basicConstraints extension for GENCERT

Situation	basicConstraints is present in the request data set	basicConstraints is not present in the request data set
When the target ID is CERTAUTH	If the cA boolean value is false, the command fails. Otherwise the extension is encoded turning the cA bit on. The pathLength value is not included.	The extension is encoded turning the cA bit on. The pathLength value is not included.
When the target ID is SITE or ID(*cert-owner*)	The extension is encoded using the request data set values, including the pathLength value.	The basicConstraints extension is not created.

Table 27. Logic for the subjectAltName extension for GENCERT

Situation	subjectAltName is present in the request data set	subjectAltName is not present in the request data set
When ALTNAME is specified	The extension is encoded as requested by the RACDCERT invoker.	The extension is encoded as requested by the RACDCERT invoker.
When ALTNAME is not specified	The extension is encoded using the request data set values.	The subjectAltName extension is not created.

Table 28. Logic for the issuerAltName extension for GENCERT

When SIGNWITH is specified	When SIGNWITH is not specified
The extension is encoded using the subjectAltName value of the signing certificate if the extension is present. Otherwise, the issuerAltName extension is not created.	The IssuerAltName extension is not created.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT GENCERT command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules: The following rules apply when issuing this command.

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.
- The updates made to the RACF database by RACDCERT are eligible for propagation with automatic direction of application updates based on the RRSFDATA profiles AUTODIRECT.*target-node.*DIGTCERT.APPL and AUTODIRECT.*target-node.*DIGTRING.APPL, where *target-node* is the remote node to which the update is to be propagated.

Authorization required

To issue the RACDCERT GENCERT command, you must have the following authorizations:

- The SPECIAL attribute, or

- Sufficient authority to the IRR.DIGTCERT.ADD and IRR.DIGTCERT.GENCERT resource in the FACILITY class, based on the certificate owner and the SIGNWITH value, as shown in Table 29 on page 306, or
- Sufficient authority to the appropriate resources in the RDATALIB class, as shown in Table 30 on page 306, if Granular Authority Checking has been enabled by defining the IRR.RACDCERT.GRANULAR resource in the RDATALIB class.

When you specify the name of the request data set that contains the PKCS #10 request data, you must also have READ access to the specified data set.

When your installation controls access to ICSF services and the CSFSERV, CSFKEYS and CRYPTOZ classes are active, additional access to CSFSERV, CSFKEYS, and CRYPTOZ resources might be required as follows:

- When you specify RSA(PKDS), you must have READ authority to the CSFDSG, CSFDSV, CSFIQF, CSFOWH, CSFPKG, CSFPKRC, and CSFPKX resources.
- When you specify RSA(TOKEN(token-name)), you must have READ authority to the CSF1GAV, CSF1GKP, CSF1PKV, CSF1TRC, CSF1TRD, CSFDSG, CSFOWH, and CSFIQF resources.
- When you specify RSA (or omit key type) and omit PKDS and TOKEN, you must have READ authority to the CSFIQF resource.
- When you specify NISTECC or BPECC, you must have the following access authorities:
  - When you specify PKDS, you must have:
    - READ access to the CSFDSG, CSFDSV, CSFOWH, CSFPKG, CSFPKRC, and CSFPKX resources in the CSFSERV class.
    - READ access to key label resource in the CSFKEYS class. Note that if a system-generated key label is used, it starts with IRR.DIGTCERT.*<cert owner>*).

    Example: If you want user ID JOHN to be able to create a certificate with a key stored in PKDS with a system-generated key label, you can enter commands such as the following:

    1. RDEFINE CSFSERV CSF* UACC(NONE)
    2. PERMIT CSF* CLASS(CSFSERV) ID(John) ACCESS(READ)
    3. RDEFINE CSFKEYS IRR.DIGTCERT.JOHN.* UACC(NONE)
    4. PERMIT IRR.DIGTCERT.JOHN.* CLASS(CSFKEYS) ID(JOHN) ACCESS(READ)
  - When you specify TOKEN, you must have:
    - READ access to the CSF1GAV, CSF1GKP, CSF1PKV, CSF1TRC, CSF1TRD, CSFDSG, and CSFOWH resources in the CSFSERV class.
    - UPDATE or CONTROL access to the token resource with format USER.*<token name>* in the CRYPTOZ class

    Example: If you want user ID JOHN to be able to create a certificate with a key that is stored in an existing token called MYTOKEN in TKDS, you can create profiles in CSFSERV and CRYPTOZ, as follows:

    1. RDEFINE CSFSERV CSF* UACC(NONE)
    2. PERMIT CSF* CLASS(CSFSERV) ID(John) ACCESS(READ)
    3. RDEFINE CRYPTOZ USER.MYTOKEN UACC(NONE)
    4. PERMIT USER.MYTOKEN CLASS(CRYPTOZ) ID(John) ACCESS(CONTROL)
  - When you omit PKDS and TOKEN, you must have READ access to the CSF1GAV, CSF1GKP, CSF1PKS, CSF1PKV, CSF1TRC, CSF1TRD, and CSFOWH resources.
- When you specify ICSF, you must have READ authority to the CSFIQF, CSFPKI, and CSFPKRC resources.
- When you specify FROMICSF, you must have READ authority to the CSFIQF and CSFPKX resources.
- When you specify SIGNWITH, you must have the following access authorities:
  - If the private key of the signing certificate is an ECC key that is stored in the RACF database, you must have READ authority to the CSF1PKS, CSF1PKV, CSF1TRC, CSF1TRD, and CSFOWH resources.

- If the private key of the signing certificate is stored in the ICSF PKA key data set (PKDS) or in the ICSF Token Data Set (TKDS), you require additional access based on the key type, as follows:
  - When the key is an RSA type, you must have READ authority to the CSFDSG resource.
  - When the key is an ECC type, you must have READ authority to the CSF1PKV, CSF1TRC, CSF1TRD, CSFDSG, and CSFOWH resources.

For details about the CSFSERV resources, see *z/OS Cryptographic Services ICSF Administrator's Guide*.

Important: The GENCERT function allows a user to generate and sign a certificate. Carefully consider which users are authorized to use GENCERT, which user ID is associated with the generated certificate, and which certificate is used to sign the generated certificate.

Table 29. Authority required for the RACDCERT GENCERT function under the FACILITY class

SIGNWITH	Your own certificate	Another user's certificate	SITE or CERTAUTH certificate
SIGNWITH your own certificate	READ authority to IRR.DIGTCERT.ADD and READ authority to IRR.DIGTCERT.GENCERT	UPDATE authority to IRR.DIGTCERT.ADD and READ authority to IRR.DIGTCERT.GENCERT	CONTROL authority to IRR.DIGTCERT.ADD and READ authority to IRR.DIGTCERT.GENCERT
SIGNWITH a SITE or CERTAUTH certificate	READ authority to IRR.DIGTCERT.ADD and CONTROL authority to IRR.DIGTCERT.GENCERT	UPDATE authority to IRR.DIGTCERT.ADD and CONTROL authority to IRR.DIGTCERT.GENCERT	CONTROL authority to IRR.DIGTCERT.ADD and CONTROL authority to IRR.DIGTCERT.GENCERT
SIGNWITH not specified	READ authority to IRR.DIGTCERT.ADD and READ authority to IRR.DIGTCERT.GENCERT	UPDATE authority to IRR.DIGTCERT.ADD and UPDATE authority to IRR.DIGTCERT.GENCERT	CONTROL authority to IRR.DIGTCERT.ADD and CONTROL authority to IRR.DIGTCERT.GENCERT

Table 30. Authority required for the RACDCERT GENCERT function under the RDATALIB class when IRR.RACDCERT.GRANULAR is defined

READ access to the resource based on cert owner and cert label *	Purpose
IRR.DIGTCERT.<cert owner>.<cert label>.UPD.GENCERT	Create a certificate under <cert owner> with specified <cert label>
IRR.DIGTCERT.<cert owner>.LABEL*.UPD.GENCERT	Create a certificate under <cert owner> with no label specified.
IRR.DIGTCERT.<cert owner>.<cert label>.UPD.GENCERT and IRR.DIGTCERT.<signer ID>.<signer cert label> .UPD.GENCERT	Create a certificate under <cert owner> with specified <cert label> signed by <signer cert label> owned by <signer ID>

***** 'cert owner' is the RACF user ID, or CERTIFAUTH (for CERTAUTH), or SITECERTIF (for SITE); 'signer ID' is CERTIFAUTH or SITECERTIF.

Authority processing details under the Facility class: RACF performs two checks that determine the authority that is required for the GENCERT command:

1. How the certificate is being signed, specified with the SIGNWITH keyword.

   Users with SPECIAL authority can use the SIGNWITH keyword with any value. Users without SPECIAL authority must have authority to the IRR.DIGTCERT.GENCERT resource in the FACILITY class. If SIGNWITH is specified without the CERTAUTH or SITE keyword, the certificate is signed with the certificate that is identified with the LABEL keyword for the user who is issuing the RACDCERT command. This requires READ access to the resource IRR.DIGTCERT.GENCERT in the FACILITY class.

If either SIGNWITH(CERTAUTH...) or SIGNWITH(SITE) is specified, CONTROL authority is required to the resource IRR.DIGTCERT.GENCERT in the FACILITY class.

Not specifying SIGNWITH indicates that the certificate is to be self-signed. The signing key is owned by the certificate itself. Thus the authority that is needed for signing is determined by the owner of the generated certificate.

2. What type of certificate is being generated, which is specified with the ID(), SITE or CERTAUTH keywords.

   Users with SPECIAL authority can generate a digital certificate for any RACF-defined user or for any certificate-authority or site certificate. Users without SPECIAL authority can generate certificate authority or site certificates if they have CONTROL authority to the resource IRR.DIGTCERT.ADD in the FACILITY class. Users without SPECIAL authority can generate certificates for other users if they have UPDATE authority to the resource IRR.DIGTCERT.ADD in the FACILITY class. Users without SPECIAL authority can generate certificates for themselves if they have READ authority to the resource IRR.DIGTCERT.ADD in the FACILITY class.

Activating your changes

If the DIGTCERT class is RACLISTed, refresh the class to activate your changes.

Example:

```
SETROPTS RACLIST(DIGTCERT) REFRESH
```

Related commands

- To add a certificate, see “RACDCERT ADD (Add certificate)” on page 257.
- To generate a certificate request, see “RACDCERT GENREQ (Generate request)” on page 317.
- To rekey an expiring certificate, see “RACDCERT REKEY (Rekey certificate)” on page 349.

Syntax

For the key to the symbols used in the command syntax diagrams, see “Syntax of RACF commands and operands” on page 11. The complete syntax of the RACDCERT GENCERT command is:

```
    RACDCERT GENCERT [ (request-data-set-name) ]

        [ ID(certificate-owner) | SITE | CERTAUTH ]
        [ SUBJECTSDN(
              [ CN('common-name') ]
              [ T('title') ]
              [ OU('organizational-unit-name1' [  , 'organizational-unit-name2', ...] ) ]

              [ O('organization-name') ]
              [ L('locality') ]
              [ SP('state-or-province') ]
              [ C('country') ]
              ) ]
        [ SIZE(key-size) ]
        [ NOTBEFORE( [ DATE(yyyy-mm-dd) ] [ TIME(hh:mm:ss) ] ) ]
        [ NOTAFTER( [ DATE(yyyy-mm-dd) ] [ TIME(hh:mm:ss) ] ) ]
        [ WITHLABEL('label-name') ]
        [ SIGNWITH( [ CERTAUTH | SITE ] LABEL('label-name') ) ]
    [ { RSA [ (PKDS [ (pkds-label / * ) ] | TOKEN(token-name) ) ]
          | NISTECC [ (PKDS [ (pkds-label / * ) ] | TOKEN(token-name)  ) ]
          | BPECC [ (PKDS [ (pkds-label / * ) ]  |  TOKEN(token-name)  ) ]
          | DSA
          | FROMICSF(pkds-label) }
]
 [ SIGATTR [ (RSAPSS) ] ]
            [ KEYUSAGE(
                [ CERTSIGN ]
                [ DATAENCRYPT ]
                [ DOCSIGN ]
                 [ HANDSHAKE ]
                [ KEYAGREE ]
              ) ]
        [ ALTNAME(
            [ IP(numeric-IP-address) ]
            [ DOMAIN('internet-domain-name') ]
            [ EMAIL('email-address') ]
            [ URI('universal-resource-identifier') ]
            )
 ]
```

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

Parameters

GENCERT
GENCERT(*request-data-set-name*)

Request-data-set-name is the name of an optional data set that contains the PKCS #10 certificate request data. The request data contains the user's generated public key and X.509 distinguished name. The request data must be signed, DER-encoded, and then Base64 encoded according to the PKCS #10 standard.

The subkeywords of the GENCERT function specify the information that is to be contained within the certificate that is being created.

Request-data-set-name has characteristics (for example, RECFM) identical to the data set that can be specified with the ADD and CHECKCERT keywords. If *request-data-set-name* is specified, SIGNWITH must also be specified because the *request-data-set-name* data set does not contain a private key. If SIGNWITH is not specified, an informational message is issued. Note that the issuer of the RACDCERT command must have READ access to the *request-data-set-name* data set to prevent an authorization abend from occurring when the data set is read.

When GENCERT is issued with a request data set: The following conditions apply:

- No key-pair is generated. This is because the request data set contains the user's public key.
- The public key from the request data set is used in the generated certificate.
- If FROMICSF is specified, the GENCERT command fails.
- If the RSA, NISTECC, BPECC, or DSA keyword is specified, it is ignored.
- If the RSA(PKDS), NISTECC(PKDS), or BPECC(PKDS) keyword is specified, it is ignored *unless* one of the following conditions is true:
  - The certificate profile (containing the private key of the corresponding public key) in the request data set exists *and* the private key is not yet stored in the PKDS. When this occurs, RACF stores the private key in the ICSF PKDS.
  - There is no corresponding private key profile *and* you specified a PKDS label value. When this occurs, RACF stores the public key in the ICSF PKDS.

ID(*certificate-owner*) | SITE | CERTAUTH
Specifies that the new certificate that is associated is either a user certificate with the specified user ID, a site certificate, or a certificate-authority certificate. If you do not specify ID, SITE, or CERTAUTH, the default is ID, and *certificate-owner* defaults to the user ID of the command issuer. If more than one keyword is specified, the last specified keyword is processed, and the others are ignored by TSO command parse processing.

SUBJECTSDN
Specifies the subject's X.509 distinguished name, which consists of the following components:

- **CommonName** - specified with the CN subkeyword.
- **Title**—specified with the T subkeyword.
- **Organizational Unit**—specified with the OU subkeyword. Multiple values can be specified for the organizational unit.
- **Organization**—specified with the O subkeyword.
- **Locality**—specified with the L subkeyword.
- **State/Province**—specified with the SP subkeyword.
- **Country**—specified with the C subkeyword.

SUBJECTSDN completely overrides the values that are contained in the certificate request in the data set specified with the GENCERT function.

The length of the value you specify for each component of the SUBJECTSDN is limited to 64 characters. Each SUBJECTSDN subkeyword can be specified only once. The total length of the subject's distinguished name is limited to 1024 characters, including the X.509 identifiers (such as C= and CN=) and the dot qualifiers.

If the SUBJECTSDN name is too long, an informational message is issued, and the certificate is not added.

Any printable character that can be mapped to an ASCII character can be specified. Characters that cannot be mapped, such as X'4A' (¢) and X'00' are shown by RACDCERT LIST as blanks.

If SUBJECTSDN and *request-data-set-name* are not specified, the programmer name data from the ID() user (either specified or defaulted), or the programmer name from the SITE or CERTAUTH anchor user IDs (`irrsitec` or `irrcerta`) is used as the common name (CN). If the programmer name is all blanks (X'40'), nulls (X'00'), # characters (X'7B'), or X'FF' characters, the common name is set to the user ID that is to be associated with this certificate.

SIZE(*key-size*)

Specifies the size of the private key expressed in decimal bits. This keyword is ignored if GENCERT is specified with *request-data-set-name*.

If SIZE is not specified, it defaults to 2048 for RSA and DSA keys, or 192 for NISTECC and BPECC keys.

For NISTECC keys, valid key sizes are 192, 224, 256, 384, and 521 bits. For BPECC keys, valid key sizes are 160, 192, 224, 256, 320, 384, and 512 bits.

For DSA keys, the minimum key size is 512.

For RSA keys, the minimum key size for clear keys and secure keys in the PKDS (PKA key data set) is 512; the minimum key size for secure keys in the TKDS (token key data set) is 1024 and the size must be a multiple of 256.

- The maximum key size for RSA and DSA keys is determined by United States export regulations and is controlled by RACF and non-RACF code in z/OS. Depending on the installation, non-RACF code may enforce a lower maximum size.
- Rounding up to the next appropriate key size might occur. Therefore, the key size of the generated key might be longer than the value you specify with SIZE but the generated key is never shorter than requested.

Maximum key sizes: The maximum key size for a private key depends on key type, as follows:

Private key type	Maximum key size
RSA key stored in the RACF database	4096 bits
RSA key stored in the ICSF TKDS as secure key	4096 bits
RSA key stored in the ICSF PKDS as a CRT key token	4096 bits
DSA key	2048 bits
RSA key stored in the ICSF PKDS as an ME key token	1024 bits
NISTECC key	521 bits
BPECC key	512 bits

Note: To generate an RSA key that is longer than 1024 bits and is to be stored in the RACF database, the CP Assist for Cryptographic Function (CPACF) must be enabled.

Standard key sizes: Currently, standard sizes for RSA keys are as follows:

Key size	Key strength
512 bits	Low-strength key
1024 bits	Medium-strength key
2048 bits	High-strength key
4096 bits	Very high-strength key

Key strength considerations: Shorter keys of the ECC type, which are generated when you specify NISTECC or BPECC, achieve comparable key strengths when compared with longer RSA keys.

RSA, NISTECC, and BPECC keys of the following sizes are comparable in strength:

RSA key size	NISTECC key size	BPECC key size
1024 bits	192 bits	160 or 192 bits
2048 bits	224 bits	224 bits
3072 bits	256 bits	256 or 320 bits
7680 bits	384 bits	384 bits
15360 bits	521 bits	512 bits

Hashing algorithm used for signing: RACF signs certificates using a set of secure hash algorithms based on the SHA-1 or SHA-2 hash functions. The size of the signing key determines the hashing algorithm used for signing, as follows:

Hashing algorithm used for signing	Signing key size			
	RSA / DSA	RSAPSS for RSA signing key	NISTECC	BPECC
SHA-1	Less than 2048 bits	—	—	—
SHA-256	2048 bits or longer	2048 bits or longer and less than 3072 bits	192, 224, or 256 bits	160, 192, 224, 256, or 320 bits
SHA-384	—	3072 bits or longer and less than 4096 bits	384 bits	384 bits
SHA-512	—	4096 bits	521 bits	512 bits

NOTBEFORE(DATE(*yyyy-mm-dd*) TIME(*hh:mm:ss*))

Specifies the local date and time from which the certificate is valid. If DATE is not specified, it defaults to the current local date. If TIME is not specified, it defaults to TIME(00:00:00).

If DATE is specified, the value of *yyyy* must be 1950 - 9997.

Note that the use of the date format *yyyy-mm-dd* is valid. However, to aid installations familiar with the RACF date format, the value can be specified in the format *yyyy/mm/dd*.

The time and date values are stored in the certificate as a universal time coordinated (UTC) value. The calculated UTC value might be incorrect if the date and time values for NOTBEFORE and NOTAFTER represent a time that has a different local offset from UTC.

NOTAFTER(DATE(*yyyy-mm-dd*) TIME(*hh:mm:ss*))

Specifies the local date and time after which the certificate is no longer valid. If DATE is not specified, it defaults to one year from the NOTBEFORE date value. If TIME is not specified, it defaults to TIME(23:59:59).

If DATE is specified, the value of *yyyy* must be 1950 - 9997. If DATE is defaulted, the value must be 1951 - 9998.

The NOTBEFORE value must be earlier than the NOTAFTER value or an informational message is issued.

Note the use of the date format *yyyy-mm-dd* is valid. However, to aid installations familiar with the RACF date format, the value can be specified as *yyyy/mm/dd*.

The time and date values are stored in the certificate as a universal time coordinated (UTC) value. The calculated UTC value might be incorrect if the date and time values for NOTBEFORE and NOTAFTER represent a time that has a different local offset from UTC.

WITHLABEL('*label-name*')

Specifies the label assigned to this certificate. If specified, this must be unique to the user ID with which the certificate is associated. If not specified, it defaults in the same manner as the WITHLABEL keyword on the RACDCERT ADD command.

The *label-name* is stripped of leading and trailing blanks. If a single quotation mark is intended to be part of the *label-name*, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

See the WITHLABEL keyword for RACDCERT ADD for information on label rules.

SIGNWITH(CERTAUTH LABEL('*label-name*'))
SIGNWITH(SITE LABEL('*label-name*'))
SIGNWITH(LABEL('*label-name*'))

Specifies the certificate with a private key that is signing the certificate. If not specified, the default is to sign the certificate with the private key of the certificate that is being generated. This creates a self-signed certificate. The signing certificate must belong to the user ID running the command, or SITE or CERTAUTH. If SITE and CERTAUTH keywords are omitted, the signing certificate owner defaults to the user ID of the command issuer.

If SIGNWITH is specified, it must refer to a certificate that has a private key associated with it. If no private key is associated with the certificate, an informational message is issued and processing stops.

If you specify either *request-data-set-name* or FROMICSF, you must specify SIGNWITH.

Note that self-signed certificates are always trusted, while all other certificates are created with the trust status of the certificate specified in the SIGNWITH keyword. If the certificate specified in the SIGNWITH keyword is not trusted, an informational message is issued but the certificate is still generated.

Note: Prior to z/OS V2R4, the RSA private key was stored in the PKDS under the RSA master key. This key cannot be used to sign with the RSAPSS algorithm without converting it to be an ECC master key protected key. You can use this tool to convert it: Translate and replace an RSA key for RSA PSS (community.ibm.com/community/user/ibmz-and-linuxone/blogs/bob-petti1/2021/03/10/translate-and-replace-an-rsa-key-for-rsa-pss?CommunityKey=6593e27b-caf6-4f6c-a8a8-10b62a02509c&tab=recentcommunityblogsdashboard).

RSA | PCICC | ICSF | DSA | NISTECC | BPECC | FROMICSF

Specifies if RACF should generate a new key pair, and if so, how to generate the key pair and where to store the private key for future use. The default action for a new key is to store it as a software key. If no keyword is specified, the key pair is generated using software with the RSA algorithm and the private key is stored in the RACF database as an RSA key.

Guidelines:

The PCICC and ICSF keywords are deprecated. IBM discourages the use of these parameters.

The following guidelines apply when choosing key options:

- Choose RSA(PKDS), ICSF, PCICC or RSA(TOKEN) when the private key to be generated is an RSA type and you need hardware protection for the key.
  - The RSA(PKDS) keyword is equivalent to the PCICC keyword and stores the key as an RSA Chinese Remainder Theorem (CRT) key token. RACDCERT LIST will display this key with key type RSA along with a PKDS label.
  - The ICSF keyword stores the key as an RSA Modulus-Exponent (ME) key token. RACDCERT LIST will display this key with key type RSA Mod-Exp along with a PKDS label.
- Specify RSA when the key to be generated is an RSA type but no hardware protection is needed. Such software keys can be up to 4096 bits in size.
- Choose NISTECC or BPECC when the key to be generated is an ECC type.
- Specify NISTECC(PKDS), BPECC(PKDS),NISTECC(TOKEN) or BPECC(TOKEN) when hardware protection is needed.

- Choose DSA when the key to be generated is a DSA type. Note that no hardware protection is available for DSA keys.

When you issue GENCERT with a request data set: If the certificate you are generating is associated with a public or private key that is already stored in the PKDS, the following restriction applies:

- **Restriction:** Respecifying the PKDS label with the RSA(PKDS), ICSF, PCICC, NISTECC(PKDS), or BPECC(PKDS) keyword does *not* change the existing PKDS label or key type. For example:
  - If the private key already exists in the PKDS as an RSA Modulus-Exponent (ME) key token, specifying RSA(PKDS) or PCICC does not convert the key to an RSA Chinese Remainder Theorem (CRT) key token.
  - If the private key already exists in the PKDS as an RSA Chinese Remainder Theorem (CRT) key token, specifying ICSF does not convert the key to an RSA Modulus-Exponent (ME) key token.

For details about specifying or allowing RACF to generate the PKDS label, see "PKDS label considerations" on page 253.

For the hardware requirements for storing or accessing a key in the ICSF PKA key data set (PKDS), see "Hardware requirements" on page 253.

RSA

Specifies that the key pair is to be generated using software with the RSA algorithm and the private key is to be stored in the RACF database as an RSA key. RSA is the default key type.

When you specify RSA without the PKDS option or accept RSA as the default key type, the CP Assist for Cryptographic Function (CPACF) must be enabled to generate a key that is longer than 1024 bits.

PKDS[(*pkds-label* / *)]

Specifies that the key pair is to be generated using a a CCA cryptographic coprocessor. The resulting private key is stored in the ICSF PKA key data set (PKDS) as an RSA Chinese Remainder Theorem (CRT) key token with either a system-generated label, a label specfied by pkds-label, or a label copied from the certificate label.

TOKEN (*token-name*)

Specifies that the key pair is to be generated using an Enterprise PKCS#11 cryptographic coprocessor. The resulting private key is stored in the specified existing token-name token in the ICSF token key data set (TKDS) as an RSA Chinese Remainder Theorem (CRT) key token.

PCICC[(*pkds-label* | *)]

This parameter is deprecated. IBM recommends that you use `RSA(PKDS[`*`pkds-label`*` | *)])` instead of `PCICC[(`*`pkds-label`*` | *)]`.

It specifies the same function as the PKDS suboperand of the RSA operand. See the RSA operand of GENCERT for details.

ICSF[(*pkds-label* | *)]

This parameter is deprecated. IBM discourages the use of this parameter, as it is only applicable to RSA keys that are limited to 1024 bits.

It specifies that the key pair is to be generated using software. The resulting private key is generated with the RSA algorithm and stored in the ICSF PKA key data set (PKDS) as an RSA Modulus-Exponent (ME) key token.

DSA

Specifies that the key pair is to be generated using software with the DSA algorithm. The resulting private key is stored in the RACF database as a DSA key. **Note:** DSA key generation can be very slow, especially for keys longer than 1024 bits.

NISTECC

Specifies that the key pair is to be generated using software if clear key is not restricted in the system, with the elliptic curve cryptography (ECC) algorithm in accordance with the standard proposed by the National Institute of Standards and Technology (NIST). The resulting private key is stored in the RACF database as an ECC key.

When specifying NISTECC, the ICSF subsystem must be operational and configured for PKCS #11 operations.

PKDS[(*pkds-label* | *)]
Specifies that the key pair is to be generated using a CCA cryptographic coprocessor. The resulting private key is stored in the ICSF PKA data set (PKDS) in the PKA token with either a system-generated label, a label specified by *pkds-label*, or a label copied from the certificate label.

TOKEN (*token-name*)
Specifies that the key pair is to be generated using an Enterprise PKCS#11 cryptographic coprocessor. The resulting private key is stored in the specified existing token-name token in the ICSF token key data set (TKDS) as an RSA Chinese Remainder Theorem (CRT) key token.

BPECC
Specifies that the key pair is to be generated using software, if clear key is not restricted in the system, with the elliptic curve cryptography (ECC) algorithm in accordance with the standard proposed by the ECC Brainpool working group of the Internet Engineering Task Force (IETF). The resulting private key is stored in the RACF database as an ECC key.

When specifying BPECC, the ICSF subsystem must be operational and configured for PKCS #11 operations.

Restriction: When ICSF is operating in FIPS mode, you cannot generate a Brainpool ECC private key.

PKDS[(*pkds-label* | *)]
Specifies that the key pair is to be generated using a CCA cryptographic coprocessor. The resulting private key is stored in the ICSF PKA data set (PKDS) as an ECC key in the PKA token with either a system-generated label, a label specified by *pkds-label*, or a label copied from the certificate label.

TOKEN (*token-name*)
Specifies that the key pair is to be generated using an Enterprise PKCS#11 cryptographic coprocessor. The resulting private key is stored in the specified existing token-name token in the ICSF token key data set (TKDS) as an RSA Chinese Remainder Theorem (CRT) key token.

FROMICSF(*pkds-label*)
Specifies that no new key pair is to be generated for this new certificate. Instead, RACF uses an existing public key specified by its PKDS label. The public key must reside in the ICSF PKA key data set (PKDS).

When you specify FROMICSF, you must also specify SIGNWITH to sign the new certificate with an existing certificate. The new certificate will contain no private key and therefore cannot be self-signed.

You cannot specify both *request-data-set-name* and FROMICSF.

SIGATTR(*attribute*)
Specifies the signing attribute if the signing key is an RSA key. The only valid value for *attribute* is RSAPSS. If *attribute* is not specified, the default value is RSAPSS.

KEYUSAGE
Specifies the appropriate values for the keyUsage certificate extension, of which one or more of the values might be coded. For certificate authority certificates, the default is CERTSIGN and is *always* set. There is no default for certificates that are not certificate-authority certificates.

HANDSHAKE
Facilitates identification and key exchange during security handshakes, such as SSL, which set the digitalSignature and keyEncipherment indicators if the key algorithm is RSA. If key type is DSA, NISTECC, or BPECC, this usage sets only the digitalSignature indicator.

DATAENCRYPT
Encrypts data, which sets the dataEncipherment indicator. This usage is not valid for DSA, NISTECC, or BPECC keys.

DOCSIGN
Specifies a legally binding signature, which sets the nonRepudiation indicator.

CERTSIGN
Specifies a signature for other digital certificates and CRLs, which sets the keyCertSign and cRLSign indicators.

KEYAGREE
Facilitates key exchange, which sets the keyAgreement indicator. This usage is valid only for NISTECC and BPECC keys.

A certificate with no keyUsage value other than keyAgreement cannot be used for signing.

ALTNAME
Specifies the appropriate values for the subjectAltName extension, of which one or more of the values might be coded. If required for the extension, RACF converts the entered values to ASCII.

Note: RACF assumes the terminal code page is IBM-1047 and translates to ASCII accordingly.

IP(*numeric-IP-address*)
Specifies a fully qualified numeric IP address in IPv4 or IPv6 form.

IPv4 dotted decimal form consists of four decimal numbers (each number must be a value from 0 - 255) separated by periods:

Example: `9.117.2.45`

IPv6 form consists of eight 16-bit blocks of hexadecimal characters separated by colons:

Example: `ABCD:EF01:2345:6789:ABCD:EF01:2345:6789`

In IPv6 form, leading zeros in each block are optional. Successive blocks of zeros can be represented by a single occurrence of `::`.

Example: `2001:DB8::8:800:200C:417A`

An IPv6 address can contain an IPv4 address:

Example: `0:0:0:0:0:ABCD:1.2.3.4`

DOMAIN('*internet-domain-name*')
Specifies a quoted string containing a fully qualified *'internet-domain-name'* (such as `'www.widgits.com'`). RACF does not check this value's validity.

EMAIL('*email-address*')
Specifies a quoted string containing a fully qualified *'email-address'*, such as `'jasper at moes.bar.com'`. RACF replaces the word `at` with the @ symbol (X'7C') to conform with RFC822. If RACF cannot locate the word `at` it assumes the address is already in RFC822 form and makes no attempt to alter it other than converting it to ASCII.

URI('*universal-resource-identifier*')
Specifies the *'universal-resource-identifier'* (such as `'http://www.widgits.com'`). RACF does not check the validity of this value.

Examples

Example	Activity label	Description
1	*Operation*	User RACFADM requests the creation of a certificate-authority certificate, with values for the subjectAltName extension and the keyUsage extension, for the local certificate authority. The certificate will be self-signed and a SIGNWITH value need not be specified.
	Known	User RACFADM has CONTROL access authority to the IRR.DIGTCERT.* resource in the FACILITY class.

	Command	`RACDCERT GENCERT`
		`  CERTAUTH`
		`  SUBJECTSDN(CN('Local CA'))`
		`  ALTNAME(IP(9.117.170.150) DOMAIN('www.widgits.com')`
		`  EMAIL('localca@www.widgits.com')`
		`  URI('http://www.widgits.com/welcome.html'))`
		`  KEYUSAGE(HANDSHAKE DATAENCRYPT DOCSIGN CERTSIGN)`
		`  WITHLABEL('Local PKIX CA')`

	Output	None.
2	*Operation*	User WENTING wants to create a new certificate with a 2048-bit public/private key pair so she can share encrypted data with a business partner. She wants to call her certificate `Wen Ting's certificate`.
	Known	IBM Encryption Facility requires a PKDS label. RACF generates a default PKDS label when no value is specified with the PKDS keyword.

	Command	`RACDCERT GENCERT`
		`  SUBJECTSDN(CN('Wen Ting''s certificate'))`
		`  WITHLABEL('Wen Ting''s certificate')`
		`  SIZE(2048)`
		`  RSA(PKDS)`
		`  NOTAFTER(DATE(2030/10/10))`

	Output	None. (See the PKDS label generated by RACF using the RACDCERT LIST command in Figure 42 on page 329.)
3	*Operation*	User RACFADM wants to create a CA certificate that can be used to issue code-signing certificates for users who need to digitally sign programs.
	Known	User RACFADM has CONTROL access authority to the IRR.DIGTCERT.* resource in the FACILITY class, and appropriate authority in the CSFSERV and CSFKEYS classes to be able to use the PKDS option.

	Command	`RACDCERT CERTAUTH GENCERT`
		`  SUBJECTSDN(OU('MyCompany Code Signing CA') O('MyCompany')`
		`C('US'))`
		`  SIZE(2048) RSA(PKDS) WITHLABEL('MyCompany Code Signing CA')`

	Output	None.

Example	Activity label	Description
4	*Operation*	User RACFADM wants to issue a code-signing certificate to user RAMOS who needs to digitally sign programs. The new code-signing certificate will be signed by the CA certificate created in Example 3.
	Known	User RACFADM has CONTROL access authority to the IRR.DIGTCERT.* resource in the FACILITY class.

	Command	`RACDCERT ID(RAMOS) GENCERT`
		`  SUBJECTSDN(CN('Ramos Code Signing Cert') O('MyCompany') C('US'))`
		`  SIZE(1024) WITHLABEL('Ramos Code Signing Cert')`
		`  SIGNWITH(CERTAUTH LABEL('MyCompany Code Signing CA'))`
		`  KEYUSAGE(HANDSHAKE DOCSIGN)`

	Output	None.
5	*Operation*	User ANNA wants to create a new certificate with an ECC private key. The new certificate will be called `Anna's certificate`. The key requires hardware protection so she will store it in the ICSF PKDS.
	Known	User ANNA has sufficient authority to the appropriate resources in the FACILITY and CSFSERV classes. The system contains an operational ICSF subsystem and Crypto Express3 coprocessor (CEX3C).

	Command	`RACDCERT GENCERT`
		`  SUBJECTSDN(CN('COMPANY A'))`
		`  WITHLABEL('Anna''s certificate')`
		`  BPECC(PKDS(ECCKEY4ANNASCERTIFICATE))`

	Output	None. (See a listing of this certificate in Figure 49 on page 332.)
6	*Operation*	User CLAUSEN wants to create a new certificate with an RSA private key. The new certificate will be called `Christine Clausen's certificate`. The key requires secure hardware protection so she will create the key in the ICSF TKDS.
	Known	User CLAUSEN has sufficient authority to the appropriate resources in the FACILITY, CRYPTOZ and CSFSERV classes. The token labelled COMPANYA.TOKEN has been defined. The system contains an operational ICSF subsystem and Crypto Express4 coprocessor (CEX4X).

	Command	`RACDCERT GENCERT`
		`    SUBJECTSDN(CN('COMPANY A'))`
		`    WITHLABEL('Christine Clausen''s certificate')`
		`    RSA(TOKEN(COMPANYA.TOKEN))`

	Output	None

RACDCERT GENREQ (Generate request)

Purpose

Use the RACDCERT GENREQ command to create a PKCS #10 Base64-encoded certificate request based on the specified certificate and write the request to a data set.

The specified certificate must have a private key associated with it. Otherwise an informational message is issued and processing stops.

The GENREQ syntax is RACDCERT GENREQ(LABEL('*label-name*')) DSN('*output-data-set-name*'), where *label-name* is the name of the certificate the request is based on. The generated request does not have a name. No key pair is generated during the GENREQ processing. It takes the subject's distinguished name, some of the extensions and the public key from the specified certificate and signed with the private key associated with the specified certificate to form the certificate request.

GENREQ requires that the certificate have a private key associated with it. If no private key is associated with the certificate, an informational message is issued and processing stops.

The certificate request contains the subject's distinguished name and public key, and is signed with the private key associated with the specified certificate. These are the extensions copied to the certificate request if they are present in the specified certificate:

- subjectAltName
- subjectKeyIdentifier
- authorityKeyIdentifier
- basicConstraints
- keyUsage
- extKeyUsage

Typically, these requests are sent to a certificate authority; however, they can also be imported into and signed by RACF using the GENCERT function with a *request-data-set-name*.

See "UTF-8 and BMP character restrictions" on page 251 for information about how UTF-8 and BMP characters in certificate names and labels are processed by RACDCERT functions.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT GENREQ command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules: The following rules apply when issuing this command.

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.
- The updates made to the RACF database by RACDCERT are eligible for propagation with automatic direction of application updates based on the RRSFDATA profiles AUTODIRECT.*target-node.*DIGTCERT.APPL and AUTODIRECT.*target-node.*DIGTRING.APPL, where *target-node* is the remote node to which the update is to be propagated.

Authorization required

To issue the RACDCERT GENREQ command, you must have the following authorizations:

- The SPECIAL attribute, or
- Sufficient authority to the IRR.DIGTCERT.GENREQ resource in the FACILITY class for your intended purpose, as shown in Table 31 on page 319, or
- Sufficient authority to the appropriate resources in the RDATALIB class, as shown in Table 32 on page 319, if Granular Authority Checking has been enabled by defining the IRR.RACDCERT.GRANULAR resource in the RDATALIB class.

When your installation controls access to ICSF services and the CSFSERV class is active, additional access to CSFSERV resources might be required as follows:

- If the certificate that the request is based upon has a private key stored in the ICSF PKA key data set (PKDS) or in the ICSF Token Data Set (TKDS), you must have READ access to the CSFDSG resource.
- If the certificate that the request is based upon has an ECC private key stored in the RACF database, you must have READ access to the CSF1PKS, CSF1TRC, CSF1TRD, and CSFOWH resources.

For details about the CSFSERV resources, see *z/OS Cryptographic Services ICSF Administrator's Guide*.

Table 31. Authority required for the RACDCERT GENREQ function under the Facility class

Access level	Purpose
READ	Generate a request based on your own certificate.
UPDATE	Generate a request based on another user's certificate.
CONTROL	Generate a request based on a SITE or CERTAUTH certificate.

Table 32. Authority required for the RACDCERT GENREQ function under the RDATALIB class when IRR.RACDCERT.GRANULAR is defined

READ access to the resource based on cert owner and cert label *	Purpose
IRR.DIGTCERT.<cert owner>.<cert label>.UPD.GENREQ	Generate a request based on a certificate with specified <cert label> owned by <cert owner>

***** 'cert owner' is the RACF user ID, or CERTIFAUTH (for CERTAUTH), or SITECERTIF (for SITE)

Related commands

- To add a certificate, see "RACDCERT ADD (Add certificate)" on page 257.
- To generate a certificate, see "RACDCERT GENCERT (Generate certificate)" on page 302.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the RACDCERT GENREQ command is:

RACDCERT GENREQ(LABEL('*label-name*'))
[ID(*certificate-owner*) | SITE | CERTAUTH] DSN(*output-data-set-name*)

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

Parameters

GENREQ(LABEL('*label-name*'))

Specifies the label of the certificate used to build the certificate request.

If the certificate has an associated ECC private key:

- The ICSF subsystem must be operational and configured for PKCS #11 operations.
- When keyAgreement is the only key usage, the certificate cannot be used for signing. Therefore, you cannot use GENREQ to create a certificate request based on the certificate nor create a self-signed certificate.

Restriction: When ICSF is operating in FIPS mode, you cannot use a certificate that has an associated Brainpool ECC private key.

ID(*certificate-owner*) | SITE | CERTAUTH
Specifies that the specified certificate is either a user certificate associated with the specified user ID, a site certificate, or a certificate-authority certificate. If you do not specify ID, SITE, or CERTAUTH, the default is ID, and *certificate-owner* defaults to the user ID of the command issuer. If more than one keyword is specified, the last specified keyword is processed and the others are ignored by TSO command parse processing.

DSN(*output-data-set-name*)
Specifies the data set that is to contain the certificate request. The data set *output-data-set-name* is deleted and reallocated if it exists. If you specify GENREQ, DSN must be specified.

Examples

Example	Activity label	Description
1	*Operation*	User WEBADM needs to create a certificate request based on the expiring certificate for a Web server application, and store it in an MVS data set called `'SYSADM.CERT.REQ'`. The user ID of the application is WEBSERV01 and its expiring certificate is labeled `'My Web Server Cert'`.
	Known	User WEBADM has UPDATE access authority to the IRR.DIGTCERT.GENREQ resource in the FACILITY class.

	Command	`RACDCERT GENREQ(LABEL('My Web Server Cert'))`
		`   ID(WEBSRV01)`
		`   DSN('SYSADM.CERT.REQ')`

	Output	None.

RACDCERT IMPORT (Import certificate)

Purpose

Use the RACDCERT IMPORT command to import a digital certificate (with its associated private key, if present) from a z/OS PKCS #11 token and add it to RACF.

The IMPORT function processes certificates in the same way as the ADD function with regard to re-adding and renewing certificates, replacing keys, and determining the trust status of certificates. For details, see "Processing details" on page 258 in the RACDCERT ADD function.

See "UTF-8 and BMP character restrictions" on page 251 for information about how UTF-8 and BMP characters in certificate names and labels are processed by RACDCERT functions.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT IMPORT command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules:

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.

- The updates made to the RACF database by RACDCERT are eligible for propagation with automatic direction of application updates based on the RRSFDATA profiles AUTODIRECT.*target-node.*DIGTCERT.APPL and AUTODIRECT.*target-node.*DIGTRING.APPL, where *target-node* is the remote node to which the update is to be propagated.

Authorization required

To issue the RACDCERT IMPORT command, you must have SPECIAL attribute, or sufficient authority to the IRR.DIGTCERT.ADD resource in the FACILITY class based on the certificate owner, as shown in Table 33 on page 321. You also must have sufficient authority to the appropriate resources in the CRYPTOZ class.

To issue the RACDCERT IMPORT command, you must have the following authorizations:

- The SPECIAL attribute, or
- Sufficient authority to the IRR.DIGTCERT.ADD resource in the FACILITY class based on the certificate owner, as shown in Table 33 on page 321, or
- Sufficient authority to the appropriate resources in the RDATALIB class, as shown in Table 34 on page 322, if Granular Authority Checking has been enabled by defining the IRR.RACDCERT.GRANULAR resource in the RDATALIB class.
- You also must have sufficient authority to the appropriate resources in the CRYPTOZ class.

When your installation controls access to ICSF services and the CSFSERV class is active, you must have READ authority to the CSF1GAV and CSF1TRL resources in the CSFSERV class.

Additional access to CSFSERV resources might be required as follows:

- If the certificate you are importing has an RSA key, you must *also* have the following access authorities:
  - When you specify PKDS, you must have READ access to the CSFIQF, CSFPKI, and CSFPKRC resources.
  - When you omit PKDS, you must have READ access to the CSFIQF resource.
- If the certificate you are importing has an ECC key, you must *also* have the following access authorities:
  - When you specify PKDS, you must have READ access to the CSFDSV, CSFOWH, CSFPKI, and CSFPKRC resources.
  - When you omit PKDS, you must have READ access to the CSF1PKV, CSF1TRC, CSF1TRD, and CSFOWH resources.

If you are not authorized by ICSF (through the CRYPTOZ class) to access the specified token or not authorized by RACF (through the FACILITY class) to add the specified RACF certificate, the command stops and an error message is displayed.

For details about CRYPTOZ and CSFSERV resources, see *z/OS Cryptographic Services ICSF Administrator's Guide*.

Table 33. Authority required for the RACDCERT IMPORT function under the Facility class

Your own certificate	Another user's certificate	SITE or CERTAUTH certificate
Sufficient authority to CRYPTOZ resources and READ authority to IRR.DIGTCERT.ADD	Sufficient authority to CRYPTOZ resources and UPDATE authority to IRR.DIGTCERT.ADD	Sufficient authority to CRYPTOZ resources and CONTROL authority to IRR.DIGTCERT.ADD

Table 34. Authority required for the RACDCERT IMPORT function under the RDATALIB class when IRR.RACDCERT.GRANULAR is defined

READ access to the resource based on cert owner and cert label *	**Purpose**
IRR.DIGTCERT.<cert owner>.<cert label>.UPD.IMPORT	Import a certificate under <cert owner> with specified <cert label>

***** 'cert owner' is the RACF user ID, or CERTIFAUTH (for CERTAUTH), or SITECERTIF (for SITE)

Activating your changes

If the DIGTCERT class is RACLISTed, refresh the class to activate your changes.

Example:

```
SETROPTS RACLIST(DIGTCERT) REFRESH
```

Related commands

- To add a certificate, see "RACDCERT ADD (Add certificate)" on page 257.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the RACDCERT IMPORT command is:

RACDCERT IMPORT(TOKEN(*token-name*) SEQNUM(*sequence-number*))
[ID(*certificate-owner*) | SITE | CERTAUTH] [WITHLABEL('*label-name*')] [TRUST | NOTRUST | HIGHTRUST] [PKDS[(*pkds-label* | *)]

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

Parameters

IMPORT TOKEN(*token-name*) SEQNUM(*sequence-number*)

Specifies the PKCS #11 token from which to import the specified certificate (and its associated private key, if present).

To import a certificate with an RSA key that is longer than 1024 bits and is to be stored in the RACF database, the CP Assist for Cryptographic Function (CPACF) must be enabled.

If the certificate in the token you are importing has an associated ECC private key, the ICSF subsystem must be operational and configured for PKCS #11 operations.

Restriction: When ICSF is operating in FIPS mode, you cannot import a certificate that has a Brainpool ECC key.

TOKEN(*token-name*)
Specifies the name of the token from which the certificate is being imported. When specifying the IMPORT operand, you must specify the TOKEN operand.

SEQNUM(*sequence-number*)
Specifies the sequence number of the certificate being imported from the token. When specifying the IMPORT operand, you must specify the SEQNUM operand.

ID(*certificate-owner*) | SITE | CERTAUTH
Specifies that the target owner for the imported certificate is the specified user ID, a site certificate, or a certificate-authority certificate. If you do not specify ID, SITE, or CERTAUTH, the default is ID, and *certificate-owner* defaults to the user ID of the command issuer. If more than one keyword is specified, the last specified keyword is processed and the others are ignored by TSO command parse processing.

If the imported certificate has an ECC private key and keyAgreement is the only key usage, the certificate cannot be used for signing. Therefore, you cannot import it as a CERTAUTH certificate.

WITHLABEL('*label-name*')
Specifies the label to be associated with the imported certificate. Up to 32 characters can be specified. The *label-name* can contain blanks and mixed-case characters.

This label is used as a *handle* instead of the serial number and issuer's distinguished name. It can be used to store a descriptive text.

If the value specified in WITHLABEL already exists, RACDCERT returns a message indicating that the label has already been used. The certificate is not added.

If WITHLABEL is not specified, RACDCERT generates a label for the certificate. The generated label is of the form LABEL*nnnnnnnn*, where *nnnnnnnn* is the first integer value, starting at `00000001` that generates a unique label name.

The *label-name* is stripped of leading and trailing blanks. If a single quotation mark is intended to be part of the *label-name*, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

TRUST | NOTRUST | HIGHTRUST
Specifies whether the status of the imported certificate is trusted, not trusted, or highly trusted.

For a detailed description, see the TRUST, NOTRUST, HIGHTRUST keyword for RACDCERT ADD.

PKDS | PCICC | ICSF
Specifies that RACF should store the public or private key associated with this certificate in the ICSF PKA key data set (PKDS). This applies when the key is introduced to RACF and when an existing certificate profile is replaced.

The default action for a new key is for RACF to store it as a software key in the RACF database, not in the ICSF PKDS. The default action for an existing key is to leave it unchanged.

If the private key already exists as a secure key in the token key data set (TKDS), you cannot import the private key and the certificate will be imported without the private key.

Guidelines for choosing PKDS, PCICC, or ICSF: The PCICC and ICSF keywords are deprecated. IBM discourages the use of these parameters.

- The PKDS keyword supports both ECC and RSA private keys. For RSA keys, PKDS is equivalent to PCICC and stores the key as an RSA Chinese Remainder Theorem (CRT) key token. RACDCERT LIST will display this key with key type RSA along with a PKDS label.
- The ICSF keyword supports only RSA keys and stores the key as an RSA Modulus-Exponent (ME) key token. RACDCERT LIST will display this key with key type RSA Mod-Exp along with a PKDS label.

For details about specifying or allowing RACF to generate the PKDS label, see “PKDS label considerations” on page 253.

For the hardware requirements for storing or accessing a key in the ICSF PKA key data set (PKDS), see “Hardware requirements” on page 253.

PKDS[(*pkds-label* | *)]

Specifies as follows, based on the key type of the public or private key:

- **For an RSA key**:

  If the token contains only a certificate, you must specify a *pkds-label* value or an asterisk (*). Otherwise the PKDS keyword is ignored and no PKDS entry is created. The public key is stored in the ICSF PKDS as an RSA Modulus-Exponent (ME) key token with the specified label.

  If the certificate has no private key and you specify PKDS *without* a PKDS label and *without* an asterisk (*), the PKDS keyword is ignored and no PKDS entry is created.

  If the token contains a PKCS #12 package, the private key is stored in the ICSF PKDS as an RSA Chinese Remainder Theorem (CRT) key token with either a system-generated label, a label specified by *pkds-label*, or a label copied from the certificate label.

  Note: If you want to store the RSA private key in the PKDS as an RSA Modulus-Exponent (ME) key token, specify ICSF instead of PKDS.

- **For an ECC key**:

  If the token contains only a certificate, you must specify a *pkds-label* value or an asterisk (*). Otherwise the PKDS keyword is ignored and no PKDS entry is created. The public key is stored in the ICSF PKDS with the specified label.

  If the certificate has no private key and you specify PKDS *without* a PKDS label and *without* an asterisk (*), the PKDS keyword is ignored and no PKDS entry is created.

  If the token contains a PKCS #12 package, the private key is stored in the ICSF PKDS with either a system-generated label, a label specified by *pkds-label*, or a label copied from the certificate label.

- **For a DSA key:** The PKDS keyword is ignored.

PCICC[(*pkds-label* | *)]

This parameter is deprecated. IBM recommends that you use `RSA(PKDS[`*`pkds-label`*` | *)])` instead of `PCICC[(`*`pkds-label`*` | *)]`.

It specifies the same function as the PKDS operand for an RSA key. See the PKDS operand of IMPORT for details.

ICSF[(*pkds-label* | *)]

This parameter is deprecated. IBM discourages the use of this parameter, as it is only applicable to RSA keys that are limited to 1024 bits.

It specifies that the public or private key is to be converted to an RSA Modulus-Exponent (ME) key token. The resulting key is stored in the ICSF PKDS.

If the certificate has no private key and you specify ICSF *without* a PKDS label and *without* an asterisk (*), the ICSF keyword is ignored and no PKDS entry is created.

Examples

Example	Activity label	Activity description
1	*Operation*	User NETBOY wants to add a digital certificate to RACF and associate it with his own user ID. The certificate is labeled `Savings Account` and currently resides in the z/OS PKCS #11 token named `NETB0Y.TKN1`. The status of the certificate will be trusted.
	Known	User NETBOY has READ access to the discrete profile named `IRR.DIGTCERT.ADD` in the FACILITY class, and READ access to the discrete profile named `USER.NETB0Y.TKN1` in the CRYPTOZ class. Using RACDCERT LISTTOKEN, user NETBOY determined the sequence number of the certificate to be added is 3.

	Command	`RACDCERT IMPORT(TOKEN(NETB0Y.TKN1) SEQNUM(3))`
		`   ID(NETB0Y) TRUST WITHLABEL('Savings Account')`

	Output	None.
2	*Operation*	User RACFADM wants to add a digital certificate for NETB0Y and protect the 1024-bit RSA key by storing it in the ICSF PKDS. The certificate is labeled `RSA token` and currently resides in the z/OS PKCS #11 token named `NETB0Y.TKN2`. The status of the certificate will be trusted.
	Known	User RACFADM has SPECIAL authority, sufficient authority to resources in the CSFSERV class and READ access to the discrete profile named `USER.NETB0Y.TKN2` in the CRYPTOZ class. The system contains an operational ICSF subsystem and PCI-class cryptographic coprocessor. Using RACDCERT LISTTOKEN, user RACFADM determined the sequence number of the certificate to be added is 1.

	Command	`RACDCERT IMPORT(TOKEN(NETB0Y.TKN2) SEQNUM(1))`
		`   ID(NETB0Y) TRUST WITHLABEL('RSA token') PKDS`

	Output	None.

RACDCERT LIST (List certificate)

Purpose

Use the RACDCERT LIST command to display digital certificate information, including certificate authority and site certificate information. You can also use the RACDCERT LIST command to list all certificates owned by a user ID.

Because the virtual key ring for a user ID consists of all certificates owned by the user ID, using the RACDCERT LIST command to list all certificates owned by a user ID is the *same* as listing the contents of the virtual key ring for that user ID.

For each digital certificate defined, the following information is displayed:

- Label
- Certificate ID
- Status (trusted, not trusted, or highly trusted)
- Validity dates
- Serial number
- Issuer's distinguished name
- Up to 256 bytes of the subject's name, as found in the certificate itself
- Signing algorithm (md2RSA, md5RSA, sha1RSA, sha1DSA, sha256DSA, sha256RSA, sha224RSA, sha224DSA, sha384RSA, sha512RSA, sha1ECDSA, sha256ECDSA, sha224ECDSA, sha384ECDSA,

sha512ECDSA, sha1RSAPSS, sha224RSAPSS, sha256RSAPSS, sha384RSAPSS, sha512RSAPSS or UNKNOWN if none of the preceding)

- Extensions, if present (specifically, `keyUsage` and `subjectAltName`)
- Key type:
  - RSA (if the certificate was installed in RACF with no key type specified or with keyword RSA)
  - RSA Mod-Exp (if the certificate was installed in RACF with keyword ICSF)
  - DSA (if the certificate was installed in RACF with keyword DSA)
  - NIST ECC (if the certificate was installed in RACF with keyword NISTECC)
  - Brainpool ECC (if the certificate was installed in RACF with keyword BPECC)
- Key size
- Presence of a private key (YES or NO)
- PKDS label, if the public or private key is stored in the ICSF PKA key data set (PKDS); TKDS token and TKDS ID, if the private key is stored in the ICSF Token data set (TKDS)
- Certificate Fingerprint (SHA256)
- Ring associations, if present (the ring name to which this certificate is connected and the ring owner)

See "UTF-8 and BMP character restrictions" on page 251 for information about how UTF-8 and BMP characters in certificate names are displayed using RACDCERT functions.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT LIST command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules: The following rules apply when issuing this command.

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.
- The updates made to the RACF database by RACDCERT are eligible for propagation with automatic direction of application updates based on the RRSFDATA profiles AUTODIRECT.*target-node.*DIGTCERT.APPL and AUTODIRECT.*target-node.*DIGTRING.APPL, where *target-node* is the remote node to which the update is to be propagated.

Authorization required

To issue the RACDCERT LIST command, you must have the SPECIAL attribute or sufficient authority to the IRR.DIGTCERT.LIST resource in the FACILITY class for your intended purpose.

Table 35. Authority required for the RACDCERT LIST function

IRR.DIGTCERT.LIST	
Access level	**Purpose**
READ	List your own certificate.
UPDATE	List another user's certificate.
CONTROL	List SITE or CERTAUTH certificates.

Related commands

- To list a key ring, see RACDCERT LISTRING.
- To list a token, see RACDCERT LISTTOKEN.

Syntax

For the key to the symbols used in the command syntax diagrams, see “Syntax of RACF commands and operands” on page 11. The complete syntax of the RACDCERT LIST command is:

```
RACDCERT [ LIST

     [ (LABEL('label-name')) ]
          | [ (SERIALNUMBER(serial-number) [ ISSUERSDN('issuer's-dn') ]
               ) ] ]
     [ ID(certificate-owner) | SITE | CERTAUTH ]
```

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

Parameters

LIST(LABEL('*label-name*'))
LIST(SERIALNUMBER(*serial-number*) ISSUERSDN('*issuer's-dn*'))

If the RACDCERT command is issued with no other operands, LIST is the default and the RACDCERT command lists the command issuer's digital certificate information. If the RACDCERT command is issued with the ID keyword and no other operands, it lists the digital certificate information associated with the user ID specified with the ID keyword.

The issuer's distinguished name and the subject's distinguished name can contain blanks. If the name displayed in the output is subsequently entered with the ISSUERSDN keyword, the blanks must be included. In the output of LIST, the characters > and < are used to mark the beginning and end of the serial number, issuer's name, and subject's name. When information continues to the next line, < appears in column 79 of the output, and > appears in column 9 of the continuation line.

If the user has only one certificate, or if all certificates are to be displayed, the SERIALNUMBER and ISSUERSDN keywords, or the LABEL keyword, and their associated values can be omitted. If the user has more than one certificate the LABEL, SERIALNUMBER, or SERIALNUMBER and ISSUERSDN can be used to select which certificate to list.

When specifying the issuer's distinguished name or the label, you must specify any mixed-case or blank characters exactly as they are defined in the certificate.

Restriction: The ISSUERSDN keyword is not supported for lengthy issuer's distinguished names when the name of the certificate's DIGTCERT profile contains a certificate hash value. For more information about DIGTCERT profile names, see the "Purpose" topic of RACDCERT ADD.

For a description of *label-name*, see the description of the WITHLABEL keyword for RACDCERT ADD.

If present, the SubjectAltName values are displayed under the heading **Subject's AltNames**. The subheadings **IP**, **EMail**, **Domain**, and **URI** are followed by their first value. If more than one line is required to display the value, the additional lines will start in the same column. The word `at` replaces the @ symbol for *email-address*.

Example:

```
EMail: JRoenick at US.Mycompany.Com-More-Info-About-An-EMail-Addr
ess-follows-Some-More-Info-About-An-EMail-Address
```

If present, the `keyUsage` values are displayed next to the heading **Key Usage**. The possible values are:

- HANDSHAKE - indicates digitalSignature and keyEncipherment are on
- DATAENCRYPT—indicates dataEncipherment is on
- DOCSIGN—indicates nonRepudiation is on
- CERTSIGN—indicates keyCertSign and cRLSign is on
- KEYAGREE—indicates keyAgreement is on

The `keyUsage` values are displayed as GENCERT options separated by commas.

Example:

```
Key Usage: HANDSHAKE, CERTSIGN
```

Note: If the certificate was created using a previous z/OS release of RACF that did not support certificate labels, the certificate listing will contain the following output: `No label assigned`

ID(*certificate-owner*) | SITE | CERTAUTH

Specifies that the certificate to list is either a user certificate associated with the specified user ID, a site certificate, or a certificate-authority certificate. If you do not specify ID, SITE, or CERTAUTH, the default is ID, and *certificate-owner* defaults to the user ID of the command issuer. If more than one keyword is specified, the last specified keyword is processed and the others are ignored by TSO command parse processing.

Examples

Example	Activity label	Description
1	*Operation*	User NETB0Y requests the listing of his Savings Account digital certificate to ensure it has been defined, and that it is marked trusted. He has READ access to the FACILITY class profile IRR.DIGTCERT.LIST. He issues the RACDCERT command with the LIST keyword, specifying the label to identify his certificate.
	Known	User NETB0Y has been given READ access to profile IRR.DIGTCERT.LIST in the FACILITY class.
	Command	`RACDCERT LIST(LABEL('Savings Account'))`
	Output	See Figure 44 on page 330.
2	*Operation*	User GEORGEM requests the listing of all certificates associated with his user ID.
	Known	User ID GEORGEM has 3 certificates, one of which is not associated with any rings.
	Command	`RACDCERT LIST`
	Output	See Figure 45 on page 331.

Example	Activity label	Description
3	*Operation*	User CADUDE wants to list the information from the local certificate-authority certificate with HIGHTRUST status.
	Known	User CADUDE has CONTROL authority to the profile IRR.DIGTCERT.* in the FACILITY class.
	Command	`RACDCERT CERTAUTH LIST(LABEL('Local PKIX CA'))`
	Output	See Figure 46 on page 331.
4	*Operation*	User CADUDE wants to list information from the certificate of user MSURESH.
	Known	User CADUDE has CONTROL authority to the profile IRR.DIGTCERT.* in the FACILITY class. User SURESH has only one certificate. The certificate is self-signed and was issued by the `Show Me The € Bank`. Because the Euro symbol (€) does not map to the IBM-1047 code page, the certificate listing contains the Euro symbol represented by six characters in the format U+20AC, where 20AC is the hexadecimal form of the Unicode code point for the Euro symbol.
	Command	`RACDCERT ID(MSURESH) LIST`
	Output	See Figure 47 on page 332.
5	*Operation*	User CADUDE wants to list information from the certificate of user CHLOE.
	Known	User CADUDE has CONTROL authority to the profile IRR.DIGTCERT.* in the FACILITY class. User CHLOE has only one certificate. The private key of the certificate was generated with the elliptic curve cryptography (ECC) algorithm and the keyAgreement indicator is set on.
	Command	`RACDCERT ID(CHLOE) LIST`
	Output	See Figure 48 on page 332.

```
RACDCERT LIST(LABEL('Wen Ting''s certificate'))

Digital certificate information for user WENTING:
   Label: Wen Ting's certificate
   Certificate ID: 2QfHxdbZx8XUaqweQMOFmaNA46iXhUBgQOKFmUB7QPDw
   Status: TRUST
   Start Date: 2005/08/11 00:00:00
   End Date:   2030/10/10 23:59:59
   Serial Number:
       >00<
   Issuer's Name:
       >CN=Wen Ting's certificate<
   Subject's Name:
       >CN=Wen Ting's certificate<
   Signing Algorithm: sha256RSA
   Key Type: RSA
   Key Size: 2048
   Private Key: YES
   PKDS Label: IRR.DIGTCERT.WENTING.SY1.BD7103108611F42F
   Certificate Fingerprint (SHA256):
     7A:2B:6A:F3:C4:91:DF:D3:32:F3:08:9B:85:42:E9:46:
     17:D8:93:D7:FE:94:4E:10:A7:93:7E:E3:9F:86:53:D4
```

Figure 42. Output for the RACDCERT LIST command showing an assigned PKDS label (based on RACDCERT GENCERT: Example 2)

```
RACDCERT SITE LIST(LABEL('WenTing'))

Digital certificate information for SITE:
   Label: WenTing
   Certificate ID: egljcv8XUaqweQMOFmaNA46iXhUBgQOKFmUB7QPDw
   Status: TRUST
   Start Date: 2005/08/11 00:00:00
   End Date:   2028/08/10 23:59:59
   Serial Number:
       >00<
   Issuer's Name:
       >CN=Wen Ting's certificate<
   Subject's Name:
       >CN=Wen Ting's certificate<
   Signing Algorithm: sha256RSA
   Key Type: RSA
   Key Size: 2048
   Private Key: NO
   PKDS Label: WENTING
   Certificate Fingerprint (SHA256):
     8B:22:F2:FC:C4:91:DF:D3:32:F3:08:9B:85:42:C5:36:
     1A:68:93:A7:FE:94:4E:10:A3:93:7E:E1:9A:66:51:E3
```

Figure 43. Output for the RACDCERT LIST command showing a PKDS label that is derived from a specified certificate label (based on RACDCERT ADD: Example 2)

```
RACDCERT LIST(LABEL('Savings Account'))

Digital certificate information for user NETB0Y:
  Label: Savings Account
  Certificate ID: 2QbVxePC1ujigaWJlYeiQMGDg5aklaNA
  Status: TRUST
  Start Date: 2010/11/10 00:00:00
  End Date:   2030/11/10 23:59:59
  Serial Number:
    >5D666C20207A6638727A413872D8413B<
  Issuer's Name:
    >OU=BobsBank Savers.O=BobsBank.L=Internet<
  Subject's Name:
    >CN=S.S.Smith.OU=Digital ID Class 1 - NetScape.OU=BobsBank Class 1 - S<
    >avingsAcct.O=BobsBank.L=Internet<
    Signing Algorithm: sha256ECDSA
    Key Type: Brainpool ECC
    Key Size: 192
    Private Key: YES
    Certificate Fingerprint (SHA256):
     AC:2E:4A:BC:C4:71:DF:B3:31:D3:08:9B:85:42:E3:36:
     17:D8:93:D7:FE:54:BE:10:A7:93:7E:E2:6D:2A:92:AE
    Ring Associations:
    *** No rings associated ***
```

Figure 44. Output for the RACDCERT LIST command specifying the certificate by label

```
RACDCERT LIST

 Digital certificate information for user GEORGEM:

  Label: New Cert Type - Ser # 00
  Certificate ID: 2QfHxdbZx8XU1YWmQMOFmaNA46iXhUBgQOKFmUB7QPDw
  Status: TRUST
  Start Date: 2010/04/18 03:01:13
  End Date:  2025/02/13 03:01:13
  Serial Number:
    >00<
  Issuer's Name:
    >OU=Internet Demo CertAuth.O=The Cert Software Inc.<
  Subject's Name:
    >OU=Internet Demo CertAuth.O=The Cert Software Inc.<
  Signing Algorithm: sha256RSA
  Key Type: RSA Mod-Exp
  Key Size: 2048
  Private Key: YES
  PKDS Label: IRR.DIGTCERT.GEORGEM.SY1.BD7103108611F42F
  Certificate Fingerprint (SHA256):
     2A:2B:35:FC:C4:91:DF:D3:32:F3:08:9B:85:42:B9:36:
     17:B8:93:D2:FE:94:4E:10:A4:93:7E:E2:9D:96:75:B2
  Ring Associations:
  Ring Owner: GEORGEM
  Ring:
    >GEORGEMsNewRing01<
  Ring Owner: GEORGEM
  Ring:
    >GEORGEMsRing<

  Label: New Type Cert - VsignC1
  Certificate ID: 2QfHxdbZx8XU1YWmQOOol4VAw4WZo0BgQOWiiYeVw/FA
  Status: TRUST
  Start Date: 2010/04/22 23:23:26
  End Date:  2024/01/15 23:23:26
  Serial Number:
    >3511A552906FE7D029A44019D411FC3E<
  Issuer's Name:
    >OU=Class 1 Public Primary Certification Authority.O=VeriSign, Inc..C=US<
  Subject's Name:
    >CN=GWillink.OU=RedoakCA.L=Clymer.SP=NY.C=US<
  Signing Algorithm: sha256RSA
  Key Type: RSA
  Key Size: 512
  Private Key: YES
  Certificate Fingerprint (SHA256):
     20:3B:6A:AC:C4:91:DF:D3:32:F3:01:5B:83:42:F9:42:
     13:B8:83:D7:BE:94:4E:10:A7:93:7E:E2:9D:86:77:B2
  Ring Associations:
  Ring Owner: GEORGEM
  Ring:
    >GEORGEMsNewRing01<

  Label: New Type Cert - VsignC2
  Certificate ID: 2QfHxdbZx8XU1YWmQOOol4VAw4WZo0BgQOWiiYeVw/JA
  Status: NOTRUST
  Start Date: 2010/03/19 15:39:52
  End Date:  2025/03/19 15:39:52
  Serial Number:
    >50D35294912F79D315E32B31AC8548F0<
  Issuer's Name:
    >OU=Class 2 Public Primary Certification Authority.O=VeriSign, Inc..C=<
    >US<
  Subject's Name:
    >CN=Steve Rater.OU=StorageCA.L=Corry.SP=PA.C=US<
  Signing Algorithm: sha256ECDSA
  Key Type: NIST ECC
  Key Size: 256
  Private Key: NO
  Certificate Fingerprint (SHA256):
     7B:23:6A:FA:D4:91:DF:D3:32:F3:08:9B:85:42:E9:46:
     17:D8:93:B7:FE:94:4E:10:A4:93:7E:E2:7D:89:73:B2
  Ring Associations:
    *** No rings associated ***
```

Figure 45. Output for the RACDCERT LIST command listing all certificates owned by the command issuer

```
RACDCERT CERTAUTH LIST(LABEL('Local PKIX CA'))

 Digital certificate information for CERTAUTH:

  Label: Local PKIX CA
  Certificate ID: Sc9bjZwKwLNxKw2myumPlGy8iGzJQSYi/u35j0eyFe213XgGBMTsUvCW
  Status: HIGHTRUST
  Start Date: 2008/08/05 00:00:00
  End Date:  2028/08/05 23:59:59
  Serial Number:
      >00<
  Issuer's Name:
      >CN=Local CA<
  Subject's Name:
      >CN=Local CA<
  Subject's AltNames:
  IP: 9.117.170.150
  EMail: localca at www.widgits.com
  Domain: www.widgits.com
  URI: http://www.widgits.com/welcome.html
  Signing Algorithm: sha256RSA
  Key Usage: HANDSHAKE, DATAENCRYPT, DOCSIGN, CERTSIGN
  Key Type: RSA
  Key Size: 2048
  Private Key: YES
  Certificate Fingerprint (SHA256):
     26:3E:3A:FC:C4:91:DF:D3:32:F3:08:9B:85:42:F9:43:
     16:D7:93:D7:BE:94:4E:10:A3:93:7E:B2:9D:91:63:A2
  Ring Associations:
  *** No rings associated ***
```

Figure 46. Output for the RACDCERT LIST command showing a CERTAUTH certificate

```
RACDCERT ID(MSURESH) LIST

Digital certificate information for user MSURESH:
   Label: Euro
   Certificate ID: 2QfJwtTk4sXZxaSZlkBA
   Status: NOTRUST
   Start Date: 2008/10/04 00:00:00
   End Date: 2028/01/01 00:00:00
   Serial Number:
       >68655BB4D15CDF8D45ED01BC551E8ED7<
   Issuer's Name:
       >CN=Show Me The U+20AC Bank<
   Subject's Name:
       >CN=Show Me The U+20AC Bank<
   Signing Algorithm: sha256RSA
   Key Type: RSA
   Key Size: 512
   Private Key: NO
   Certificate Fingerprint (SHA256):
     3D:5E:8B:FC:C4:91:DF:E3:32:F3:08:9A:85:42:E5:48:
     17:D8:93:D7:FE:94:4E:10:A7:93:5B:E4:9A:2B:87:3A
   Ring Associations:
   *** No rings associated ***
```

Figure 47. Output for the RACDCERT LIST command showing a UTF-8 or BMP character that does not map to the IBM-1047 code page

```
RACDCERT ID(CHLOE) LIST

Digital certificate information for user CHLOE:
   Label: Joans Personal Certificate
   Certificate ID: 2QfJwtTk4sXZ0ZaBlaJA14WZopaVgZNAw4WZo4mGiYOBo4VA
   Status: TRUST
   Start Date: 2010/01/26 00:00:00
   End Date:   2025/01/26 23:59:59
   Serial Number:
       >01<
   Issuer's Name:
       >CN=Certificate Authority for First Savings Bank.OU=Mortgage Departmen<
       >t.O=First Savings Bank.C=US<
   Subject's Name:
       >CN=Joan Doe.OU=Mortgage.L=Red Hook.SP=NY.C=US<
   Signing Algorithm: sha256ECDSA
   Key Usage: KEYAGREE
   Key Type: NIST ECC
   Key Size: 192
   Private Key: YES
   Certificate Fingerprint (SHA256):
     8B:2A:5A:AC:C4:91:DF:D3:32:F3:08:9B:85:42:E8:46:
     17:D8:93:D7:EE:94:4E:10:A7:93:7E:E2:7D:46:8E:E6
   Ring Associations:
   *** No rings associated ***
```

Figure 48. Output for the RACDCERT LIST command for a certificate with an NIST ECC private key

```
RACDCERT LIST(LABEL('Anna's certificate'))

Digital certificate information for user ANNA

    Label: Anna's certificate
    Certificate ID: 2QfJwtTk4sXZ08HCxdNAwUBA
    Status: TRUST
    Start Date: 2010/09/16 00:00:00
    End Date:   2025/09/16 23:59:59
    Serial Number:
         >00<
    Issuer's Name:
         >CN=Company A<
    Subject's Name:
         >CN=Company A<
    Signing Algorithm: sha256ECDSA
    Key Type: Brainpool ECC
    Key Size: 192
    Private Key: YES
    PKDS Label: ECCKEY4ANNASCERTIFICATE
    Certificate Fingerprint (SHA256):
     45:E5:5A:FA:CD:91:DF:D3:32:F3:08:9B:85:42:E9:46:
     17:D8:93:D7:FE:94:4E:10:A7:93:7E:E2:9D:22:98:A5
    Ring Associations:
    *** No rings associated ***
```

Figure 49. Output for the RACDCERT LIST command for a certificate with a Brainpool ECC private key that is stored in the PKDS.

RACDCERT LISTCHAIN (List certificate chain)

Purpose

Use the RACDCERT LISTCHAIN command to display information about a digital certificate and its issuer chain of certificates in the RACF database.

The specified certificate, identified by the LABEL keyword, may be owned by SITE, CERTAUTH, or a user ID. After finding that certificate, RACF will search its database under the same owning user ID to locate the issuer's certificate. If it is not found, RACF will search under CERTAUTH for the issuer's certificate, and its issuers. A certificate chain is considered incomplete if RACF is unable to follow the chain back to a self-signed 'root' certificate.

The information displayed by LISTCHAIN, for each certificate, is similar to that displayed by LIST. The certificate identified by the specified label appears first, followed in order by its chain of issuers. At the end, LISTCHAIN includes the following summary information:

- The number of certificates in the displayed chain.
- The chain is complete or incomplete.
- The chain contains any NOTRUST or expired certificates.
- Any common rings to which all certificates in the chain are connected.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT LISTCHAIN command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules: The following rules apply when issuing this command.

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.
- The updates made to the RACF database by RACDCERT are eligible for propagation with automatic direction of application updates based on the RRSFDATA profiles AUTODIRECT.*target-node.*DIGTCERT.APPL and AUTODIRECT.*target-node.*DIGTRING.APPL, where *target-node* is the remote node to which the update is to be propagated.

Authorization required

To issue the RACDCERT LISTCHAIN command, you must have CONTROL access to the IRR.DIGTCERT.LIST resource in the FACILITY class.

If the user does not have CONTROL access to IRR.DIGTCERT.LIST, IRRD101I will be issued.

If any certificate in the chain has the ECC key type, READ access to CSF1PKV, CSF1TRC, CSF1TRD and CSFOWH resources in the CSFSERV class is required.

The RACDCERT LISTCHAIN command can be issued by a special user.

Related commands

- To list digital certificate information, see RACDCERT LIST.
- To list a key ring, see RACDCERT LISTRING.
- To list a token, see RACDCERT LISTTOKEN.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the RACDCERT LISTCHAIN command is:

RACDCERT [ID(*certificate-owner*)| SITE | CERTAUTH]
LISTCHAIN (LABEL('*label-name*'))

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

Parameters

LISTCHAIN(LABEL('*label-name*'))

If the user has only one certificate, the LABEL keyword and its associated value can be omitted.

For a description of *label-name*, see the description of the WITHLABEL keyword for RACDCERT ADD.

Note: If the certificate was created using a previous z/OS release of RACF that did not support certificate labels, the certificate listing will contain the following output: `No label assigned`

Examples

Example	Activity label	Description
1	*Operation*	User CHOI requests the listing of all certificates.
	Known	User CHOI has been given CONTROL access to profile IRR.DIGTCERT.LIST in the FACILITY class.
	Command	`RACDCERT LISTCHAIN(LABEL('samplecert'))`
	Output	See Figure 50 on page 335.
2	*Operation*	User CHOI requests the listing of all certificates: There are expired and NOTRUST certificates.
	Known	User CHOI has been given CONTROL access to profile IRR.DIGTCERT.LIST in the FACILITY class.
	Command	`RACDCERT LISTCHAIN(LABEL('samplecert'))`
	Output	See Figure 51 on page 336.

```
Certificate 1:
Digital certificate information for user CHOI:

  Label: samplecert
  Certificate ID: 2QbmxsPI1smJl4OFmaPy
  Status: TRUST
  Start Date: 2011/10/20 00:00:00
  End Date:   2025/10/20 23:59:59
  Serial Number:
       >05<
  Issuer's Name:
       >CN=sampleCA.O=Test.SP=Poughkeepsie.C=US<
  Subject's Name:
       >CN=samplecert.O=Test.SP=Poughkeepsie.C=US<
  Subject's AltNames:
    IP: 127.0.0.5
    EMail: choi at us.ibm.com
    Domain: www.ibm.com
  Signing Algorithm: sha256RSA
  Key Usage: HANDSHAKE
  Key Type: RSA
  Key Size: 2048
  Private Key: Yes
  PKDS Label: SAMPLECERT
  Certificate Fingerprint (SHA256):
     2C:6A:3A:BA:C4:81:DF:D3:32:F3:08:9B:85:42:E9:46:
     17:D8:93:D7:FE:94:2E:10:A7:83:7E:E2:9D:B4:63:FE
  Ring Associations:
    Ring Owner: CHOI
    Ring:
     >testring<


Certificate 2:
Digital certificate information for CERTAUTH:

  Label: sampleCA
  Certificate ID: 2PabcsPI1smJl4OFmaPx
  Status: TRUST
  Start Date: 2010/03/22 00:00:00
  End Date:   2028/10/22 23:59:59
  Serial Number:
       >02<
  Issuer's Name:
       >CN=MasterCA.O=Test.SP=Poughkeepsie.C=US<
  Subject's Name:
       >CN=sampleCA.O=Test.SP=Poughkeepsie.C=US<
  Signing Algorithm: sha256RSA
  Key Usage: CERTSIGN
  Key Type: RSA
  Key Size: 2048
  Private Key: Yes
  PKDS Label: SAMPLECA
  Certificate Fingerprint (SHA256):
     8A:2E:3A:AC:D4:91:DF:E3:32:F3:08:9B:85:42:E9:36:
     17:D8:93:D7:FE:94:4E:10:A7:93:7E:E2:9A:61:43:F0
  Ring Associations:
    Ring Owner: CHOI
    Ring:
     >testring<


Certificate 3:
Digital certificate information for CERTAUTH:

  Label: MasterCA
  Certificate ID: 2KbmxsPI1smJl4OFmaPm
  Status: TRUST
  Start Date: 2008/04/20 00:00:00
  End Date:   2038/04/20 23:59:59
  Serial Number:
       >00<
  Issuer's Name:
       >CN=MasterCA.O=Test.SP=Poughkeepsie.C=US<
  Subject's Name:
       >CN=MasterCA.O=Test.SP=Poughkeepsie.C=US<
  Signing Algorithm: sha256RSA
  Key Usage: CERTSIGN
  Key Type: RSA
  Key Size: 4096
  Private Key: Yes
  PKDS Label: MASTERCA
  Certificate Fingerprint (SHA256):
     8C:1F:2A:F4:C4:91:DF:D3:32:F3:08:9B:85:22:F9:46:
     16:D5:93:D7:FE:94:4E:10:A5:93:7E:E2:9D:26:63:E0
  Ring Associations:
    Ring Owner: CHOI
    Ring:
     >testring<

Chain information:
Chain contains 3 certificate(s), chain is complete
Chain contains ring in common: CHOI/testring
```

Figure 50. Output for the RACDCERT LISTCHAIN command showing all the certificates (based on RACDCERT LISTCHAIN: Example 1)

```
Certificate 1:
Digital certificate information for user CHOI:

  Label: samplecert
  Certificate ID: 2QbmxsPI1smJl4OFmaPy
  Status: TRUST
  Start Date: 2010/10/20 00:00:00
  End Date:   2011/10/20 23:59:59
  Serial Number:
       >05<
  Issuer's Name:
       >CN=sampleCA.O=Test.SP=Poughkeepsie.C=US<
  Subject's Name:
       >CN=samplecert.O=Test.SP=Poughkeepsie.C=US<
  Subject's AltNames:
    IP: 127.0.0.5
    EMail: choi at us.ibm.com
    Domain: www.ibm.com
  Signing Algorithm: sha256RSA
  Key Usage: HANDSHAKE
  Key Type: RSA
  Key Size: 2048
  Private Key: Yes
  PKDS Label: SAMPLECERT
  Certificate Fingerprint (SHA256):
     AC:2F:4A:FB:C4:81:DF:D3:32:F3:08:9B:75:22:E9:66:
     16:C8:93:D7:FE:94:4E:10:A7:83:7E:F2:5A:95:43:E3
  Ring Associations:
    Ring Owner: CHOI
    Ring:
     >testring<

Certificate 2:
Digital certificate information for CERTAUTH:

  Label: sampleCA
  Certificate ID: 2PabcsPI1smJl4OFmaPx
  Status: NOTRUST
  Start Date: 2010/03/22 00:00:00
  End Date:   2020/10/22 23:59:59
  Serial Number:
       >02<
  Issuer's Name:
       >CN=MasterCA.O=Test.SP=Poughkeepsie.C=US<
  Subject's Name:
       >CN=sampleCA.O=Test.SP=Poughkeepsie.C=US<
  Signing Algorithm: sha256RSA
  Key Usage: CERTSIGN
  Key Type: RSA
  Key Size: 2048
  Private Key: Yes
  PKDS Label: SAMPLECA
  Certificate Fingerprint (SHA256):
     AC:23:5A:CC:D4:61:DF:D3:32:F3:08:9B:85:42:E9:46:
     16:E8:93:D7:FE:94:4E:10:A7:93:7E:F2:9D:26:F2:A4
  Ring Associations:
    Ring Owner: CHOI
    Ring:
     >testring<

Certificate 3:
Digital certificate information for CERTAUTH:

  Label: MasterCA
  Certificate ID: 2KbmxsPI1smJl4OFmaPm
  Status: TRUST
  Start Date: 2008/04/20 00:00:00
  End Date:   2038/04/20 23:59:59
  Serial Number:
       >00<
  Issuer's Name:
       >CN=MasterCA.O=Test.SP=Poughkeepsie.C=US<
  Subject's Name:
       >CN=MasterCA.O=Test.SP=Poughkeepsie.C=US<
  Signing Algorithm: sha256RSA
  Key Usage: CERTSIGN
  Key Type: RSA
  Key Size: 4096
  Private Key: Yes
  PKDS Label: MASTERCA
  Certificate Fingerprint (SHA256):
     8A:2E:43:FC:C4:91:DF:D3:32:B3:18:9B:85:42:E9:47:
     15:D8:93:E7:FE:92:4E:12:A7:93:73:F2:9D:4B:77:E5
  Ring Associations:
    Ring Owner: CHOI
    Ring:
     >testring<

Chain information:
Chain contains 3 certificate(s), chain is complete
Chain contains ring in common: CHOI/testring
Chain contains NOTRUST certificate(s)
Chain contains expired certificate(s)
```

Figure 51. Output for the RACDCERT LISTCHAIN command showing all the certificates, there are expired and NOTRUST certificates (based on RACDCERT LISTCHAIN command: Example 2)

RACDCERT LISTMAP (List mapping)

Purpose

Use the RACDCERT LISTMAP command to display information about the specified mapping, or all mappings, for a user ID.

See “UTF-8 and BMP character restrictions” on page 251 for information about how UTF-8 and BMP characters in certificate names are displayed using RACDCERT functions.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT LISTMAP command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rule.)	No. (See rule.)	No

Rule: The following rule applies when issuing this command.

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.

Authorization required

To issue the RACDCERT LISTMAP command, you must have the SPECIAL attribute or sufficient authority to the IRR.DIGTCERT.LISTMAP resource in the FACILITY class for your intended purpose.

Table 36. Authority required for the RACDCERT LISTMAP function

IRR.DIGTCERT.LISTMAP	
Access level	**Purpose**
READ	List mapping information associated with your own user ID.
UPDATE	List mapping information associated with another user ID or MULTIID.

Related commands

- To define a user ID mapping, see RACDCERT MAP.
- To alter a user ID mapping, see RACDCERT ALTMAP.
- To delete a user ID mapping, see RACDCERT DELMAP.

The RACDCERT LISTMAP command is *unrelated* to the RACMAP LISTMAP command.

Syntax

For the key to the symbols used in the command syntax diagrams, see “Syntax of RACF commands and operands” on page 11. The complete syntax of the RACDCERT LISTMAP command is:

```
RACDCERT LISTMAP[ (LABEL('label-name')) ]

          [ ID(mapping-owner) | MULTIID ]
```

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

Parameters

LISTMAP
LISTMAP(LABEL('*label-name*'))

Tip: Omit LABEL to list all mappings associated with the specified user ID.

If the mapping cannot be listed because the DIGTNMAP profile containing it is missing or incomplete, the following error text appears in the LISTMAP output:

```
Filter with label label-name not found.
```

Guideline: When this error text appears in the LISTMAP output, issue a RACDCERT DELMAP command specifying this label name to remove residual filter information from the user's profile.

A missing or incomplete DIGTNMAP profile might result if a previous RACDCERT command failed to complete due to a system failure or early termination by the issuer. If the mapping or DIGTNMAP profile were not created before the failure, the resulting user profile might contain residual filter information indicating that the user ID is associated with a mapping.

ID(*mapping-owner*) | MULTIID

Specifies the user ID associated with the mapping. If you do not specify ID or MULTIID, the default is ID, and *mapping-owner* defaults to the user ID of the command issuer. If more than one keyword is specified, the last specified keyword is processed and the others are ignored by TSO command parse processing.

ID(*mapping-owner*)

Specifies the user ID associated with the mapping.

MULTIID

Specifies that additional criteria is used to determine the user ID associated with the mapping.

Examples

Example	Activity label	Description
1	*Operation*	User RACFADM with SPECIAL authority to the profile IRR.DIGTCERT.LISTMAP would like to list the mapping information for user ID NET1ID.
	Known	NET1ID has one mapping associated with it.
	Command	`RACDCERT ID(NET1ID) LISTMAP`
	Output	See Figure 52 on page 339.
2	*Operation*	User RACFADM with SPECIAL authority to the profile IRR.DIGTCERT.LISTMAP would like to list the mapping information for MULTIID.
	Known	MULTIID has several mappings associated with it, but only the one with this label name will be listed.
	Command	`RACDCERT MULTIID LISTMAP(LABEL('NewAPPL ID Mapping'))`
	Output	See Figure 53 on page 339.

```
Mapping information for user NET1ID:

 Label: General Internet ID Map
 Status: TRUST
 Issuer's Name Filter:
   >OU=Internet Demo CertAuth.O=BobsMart Software Inc.L=Internet<
 Subject's Name Filter:
   >L=Internet<
```

Figure 52. Output for the LISTMAP command

```
Mapping information for MULTIID:

 Label: NewAPPL ID Mapping
 Status: TRUST
 Issuer's Name Filter:
   >OU=Class 1 Public Primary Certification Authority.O=VeriSign, Inc..C=<
   >US<
 Subject's Name Filter:
   ><
 Criteria:
   APPLID=&APPLID
```

Figure 53. Output for the LISTMAP LABEL command

RACDCERT LISTRING (List key ring)

Purpose

Use the RACDCERT LISTRING command to display the specified key ring, or all key rings, associated with a user, certificate authority, or site certificate.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT LISTRING command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules: The following rules apply when issuing this command.

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.
- The updates made to the RACF database by RACDCERT are eligible for propagation with automatic direction of application updates based on the RRSFDATA profiles AUTODIRECT.*target-node.*DIGTCERT.APPL and AUTODIRECT.*target-node.*DIGTRING.APPL, where *target-node* is the remote node to which the update is to be propagated.

Authorization required

To issue the RACDCERT LISTRING command, you must have the SPECIAL attribute or sufficient authority to the IRR.DIGTCERT.LISTRING resource in the FACILITY class for your intended purpose.

Table 37. Authority required for the RACDCERT LISTRING function

IRR.DIGTCERT.LISTRING	
Access level	**Purpose**
READ	List your own key ring.
UPDATE	List another user's key ring.

Related commands

- To list a certificate, see RACDCERT LIST.
- To list a token, see RACDCERT LISTTOKEN.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the RACDCERT LISTRING is:

RACDCERT LISTRING[(*ring-name*)]
[ID(*ring-owner*)]

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

Parameters

LISTRING
LISTRING(*ring-name* | *)

The *ring-name* value is the name of the key ring. To list all rings that are associated with a particular user, LISTRING(*) must be specified. For each certificate in the ring, the following information is displayed:

- The ring name
- The owner of the certificate (ID(*name*), CERTAUTH, or SITE)
- The label assigned to the certificate
- The DEFAULT status of the certificate within the ring
- The usage within the ring.

Because only user IDs can have key rings, neither CERTAUTH nor SITE can be specified with LISTRING.

ID(*ring-owner*)

Specifies the user ID of the key ring owner. (Only a user ID can have a key ring.) If not specified, the key ring owner defaults to the command issuer's user ID.

Examples

Example	Activity label	Description
1	*Operation*	User GEORGEM requests the listing of his key rings.
	Known	User ID GEORGEM has three key rings with certificates and one key ring that has no certificates.
	Command	`RACDCERT LISTRING(*)`
	Output	See Figure 54 on page 341.

```
Digital ring information for user GEORGEM:

  Ring:
    >GEORGEMsNewRing01<
  Certificate Label Name         Cert Owner    USAGE      DEFAULT
  --------------------------     ------------  --------   -------
  New Cert Type - Ser # 00       ID(GEORGEM)   PERSONAL   YES
  New Type Cert - VsignC1        ID(GEORGEM)   CERTAUTH   NO
  New Type Cert - VsignC2        ID(GEORGEM)   SITE       NO
  65                 ID(JOHNP)   PERSONAL      NO

  Ring:
    >GEORGEMsRing<
  Certificate Label Name         Cert Owner    USAGE      DEFAULT
  --------------------------     ------------  --------   -------
  GEORGEM's Cert # 48            ID(GEORGEM)   PERSONAL   NO
  GEORGEM's Cert # 84            ID(GEORGEM)   PERSONAL   NO
  New Cert Type - Ser # 00       ID(GEORGEM)   PERSONAL   YES

  Ring:
    >GEORGEMsRing#2<
  Certificate Label Name         Cert Owner    USAGE      DEFAULT
  --------------------------     ------------  --------   -------
  GEORGEM's Cert # 84            ID(GEORGEM)   PERSONAL   NO
  GEORGEM's Cert # 48            ID(GEORGEM)   PERSONAL   NO

  Ring:
    >GEORGEMsRing#3<
  *** No certificates connected ***
```

Figure 54. Output for the RACDCERT LISTRING command

RACDCERT LISTTOKEN (List token)

Purpose

Use the RACDCERT LISTTOKEN command to display information about the certificate objects in a z/OS PKCS #11 token.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT LISTTOKEN command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules: The following rules apply when issuing this command.

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.
- The updates made to the RACF database by RACDCERT are eligible for propagation with automatic direction of application updates based on the RRSFDATA profiles AUTODIRECT.*target-node.*DIGTCERT.APPL and AUTODIRECT.*target-node.*DIGTRING.APPL, where *target-node* is the remote node to which the update is to be propagated.

Authorization required

To issue the RACDCERT LISTTOKEN command, you must have the following authorizations:

- The SPECIAL attribute, or sufficient authority to the IRR.DIGTCERT.LIST resource in the FACILITY class based on the certificate owner.
- When your installation controls access to ICSF services and the CSFSERV class is active, READ access to the CSF1GAV and CSF1TRL resources in the CSFSERV class.

- Sufficient authority to the appropriate resources in the CRYPTOZ class.

  For details about CRYPTOZ and CSFSERV resources, see *z/OS Cryptographic Services ICSF Administrator's Guide*.

If you are not authorized by ICSF (through the CRYPTOZ class) to read the specified token, the command stops and an error message is displayed. If you are authorized to read the specified token but not authorized by RACF (through the FACILITY class) to list the RACF certificates, the output listing contains token information but no certificate information.

Table 38. Authority required for the RACDCERT LISTTOKEN function

Your own certificate	Another user's certificate	SITE or CERTAUTH certificate
Sufficient authority to CRYPTOZ resources, and READ authority to IRR.DIGTCERT.LIST	Sufficient authority to CRYPTOZ resources, and UPDATE authority to IRR.DIGTCERT.LIST	Sufficient authority to CRYPTOZ resources, and CONTROL authority to IRR.DIGTCERT.LIST

Related commands

- To list a certificate, see RACDCERT LIST.
- To list a key ring, see RACDCERT LISTRING.

Syntax

For the key to the symbols used in the command syntax diagrams, see “Syntax of RACF commands and operands” on page 11. The complete syntax of the RACDCERT LISTTOKEN is:

```
RACDCERT LISTTOKEN(token-name | * )
```

Note: The `ID(certificate-owner) | SITE | CERTAUTH` parameter is ignored for this RACDCERT function.

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

Parameters

LISTTOKEN(*token-name* | *)

To list all tokens that the command issuer is authorized to access, specify LISTTOKEN (*).

For each certificate object in the token that the command issuer is authorized to access with at least READ authority, the following information is displayed:

- The token name
- The sequence number of the certificate object in the token
- The DEFAULT status of the certificate within the token
- The status indicating whether the certificate has an associated private key
- The status indicating whether the certificate has an associated public key
- The certificate's usage within the token (PERSONAL, SITE or CERTAUTH)
- The ICSF token data set (TKDS) label assigned to the certificate object.
- If the certificate is installed in RACF, the RACF label of the certificate.
- If the certificate is installed in RACF, the owner of the certificate is listed as one of the following values:

- ID(*certificate-owner*)
- CERTAUTH
- SITE

Examples

Example	Activity label	Description
1	*Operation*	The security administrator wants to display information for all certificate objects in the z/OS PKCS #11 token called VENDOR.TOKEN.
	Known	
	Commands	RACDCERT LISTTOKEN(VENDOR.TOKEN)
	Output	See Figure 55 on page 343.

```
RACDCERT LISTTOKEN(VENDOR.TOKEN)

Token: VENDOR.TOKEN

 Seq Num  Attributes                      Labels
 -------- ------------------------------  --------------------------------------
        1 Default: YES   Priv Key: SECURE  TKDS: HTTP Serv
          Usage: PERSONAL Pub Key: YES     RACF: Webserver Cert
          Owner: ID(WEBSRV)

        3 Default: NO    Priv Key: NONE    TKDS: Extranet CA
          Usage: CERTAUTH Pub Key: NONE    RACF: Extranet CA
          Owner: CERTAUTH

        4 Default: NO    Priv Key: CLEAR   TKDS: Code signing certificate
          Usage: PERSONAL Pub Key: NONE
```

Figure 55. Output of RACF details from the RACDCERT LISTTOKEN command

RACDCERT MAP (Create mapping)

Purpose

Use the RACDCERT MAP command to define a user ID mapping, also called a certificate name filter. Defining a mapping results in the creation of a profile in the DIGTNMAP class. DIGTNMAP profiles are used as filters when a user attempts to access the system using a digital certificate. A user ID is found by comparing the issuer's distinguished name and subject's distinguished name from the certificate with the filter values used to create the DIGTNMAP profile. The user ID is specified with the ID keyword or specified in DIGTCRIT profiles if MULTIID is specified. When you specify MAP, you must specify IDNFILTER, SDNFILTER, or both.

See "UTF-8 and BMP character restrictions" on page 251 for information about how UTF-8 and BMP characters in certificate names and labels are processed by RACDCERT functions.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT MAP command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules:

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.
- The updates made to the RACF database by RACDCERT are eligible for propagation with automatic direction of application updates based on the RRSFDATA profiles AUTODIRECT.*target-node.*DIGTNMAP.APPL and, if keyword CRITERIA is used, AUTODIRECT.*target-node.*DIGTCRIT.APPL, where *target-node* is the remote node to which the update is to be propagated.

Authorization required

To issue the RACDCERT MAP command, you must have the SPECIAL attribute or sufficient authority to the IRR.DIGTCERT.MAP resource in the FACILITY class for your intended purpose.

Table 39. Authority required for the RACDCERT MAP function

IRR.DIGTCERT.MAP	
Access level	**Purpose**
READ	Create a mapping associated with your own user ID.
UPDATE	Create a mapping associated with another user ID or MULTIID.

Activating your changes

If the DIGTNMAP or DIGTCRIT class is RACLISTed, refresh the classes to activate your changes.

Example:

```
SETROPTS RACLIST(DIGTNMAP, DIGTCRIT) REFRESH
```

Related commands

- To alter a user ID mapping, see RACDCERT ALTMAP.
- To delete a user ID mapping, see RACDCERT DELMAP.
- To list a user ID mapping, see RACDCERT LISTMAP.

The RACDCERT MAP command is *unrelated* to the RACMAP MAP command.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the RACDCERT MAP command is:

RACDCERT MAP[(*data-set-name*)]
[ID(*mapping-owner*) | MULTIID] [SDNFILTER('*subject's-distinguished-name-filter*')] [IDNFILTER('*issuer's-distinguished-name-filter*')] [CRITERIA(*criteria-profile-name-template*)] [WITHLABEL('*label-name*')] [<u>TRUST</u> | NOTRUST]

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

Parameters

MAP
MAP(*data-set-name*)

A data set name can be specified with the MAP keyword. The *data-set-name* value is the name of the data set that contains a certificate. The certificate provides a model for the filter names specified with SDNFILTER and IDNFILTER. The subject's distinguished name is used beginning with the value specified by SDNFILTER. The issuer's distinguished name is used beginning with the value specified by IDNFILTER. Using a model certificate is optional but can reduce the chance of typographical errors when entering long filters for SDNFILTER or IDNFILTER.

When the IDNFILTER keyword is specified, the model certificate used with the MAP keyword cannot have an issuer's distinguished name that exceeds 1024 characters, and the issuer's distinguished name cannot contain a relative distinguished name value that exceeds 64 characters. Likewise, when the SDNFILTER keyword is specified, the model certificate used with the MAP keyword cannot have a subject's distinguished name that exceeds 1024 characters, and the subject's distinguished name cannot contain a relative distinguished name value that exceeds 64 characters.

See RACDCERT ADD for acceptable certificate formats.

The *data-set-name* value has the same characteristics (for example, RECFM) as the data set that can be specified with the ADD and CHECKCERT keywords. The issuer of the RACDCERT command must have READ access to the data set containing the *data-set-name*.

ID(*mapping-owner*) | MULTIID
Specifies the user ID to be associated with the new mapping. If you do not specify ID or MULTIID, the default is ID, and *mapping-owner* defaults to the user ID of the command issuer. If more than one keyword is specified, the last specified keyword is processed and the others are ignored by TSO command parse processing.

ID(*mapping-owner*)
Specifies the user ID to be associated with the mapping.

MULTIID
Specifies that additional criteria is used to determine the user ID to be associated with the mapping. You must also specify the CRITERIA keyword.

IDNFILTER('*issuer's-distinguished-name-filter*')
Specifies the significant portion of the issuer's distinguished name that is used as a filter when associating a user ID with a certificate. For an explanation of how filter values are used to associate a user ID with a digital certificate, see Certificate name filtering in *z/OS Security Server RACF Security Administrator's Guide*.

When specified without *data-set-name* on the MAP keyword, you must specify the entire portion of the distinguished name to be used as a filter.

The format of the *issuer's-distinguished-name-filter* is similar to the output displayed when a certificate is listed with RACDCERT. It is an X.509 distinguished name in an address type format:

```
component.component.component.component...
```

Or, more specifically:

```
qualifier1=node1.qualifier2=node2.qualifier3=node3...
```

Example:

```
IDNFILTER('OU=Class 1 Certificate.O=BobCA, Inc.SP=New York.C=US')
```

Restriction: The filter name cannot contain the ¢ character (X'4A').

The IDNFILTER value is limited to 1024 characters and must begin with a prefix found in the following list, followed by an equal sign (X'7E'). Each component should be separated by a period (X'4B'). The value between the equal sign and the period cannot exceed 64 characters. The case, blanks, and punctuation displayed when the digital certificate information is listed must be maintained in the IDNFILTER. Because digital certificates only contain characters available in the ASCII character set, the same characters should be used for the IDNFILTER value. Valid prefixes are:

Country
Specified as C=

State/Province
Specified as SP=

Locality
Specified as L=

Organization
Specified as O=

Organizational Unit
Specified as OU=

Title
Specified as T=

Common Name
Specified as CN=

When specified along with *data-set-name* on the MAP keyword, the *issuer's-distinguished-name-filter* must correspond to a starting point within the issuer's distinguished name found in the certificate contained in the data set. You should specify enough of the name to precisely identify the starting point for the filter. For example, if the certificate in the data set has the issuer `OU=Class 1 Certificate.O=BobCA, Inc.SP=New York.C=US` and you want all certificates issued by `BobCA` to be selected by this filter, specify:

```
IDNFILTER('O=BobCA')
```

Without the data set containing the certificate, you need to enter the following to produce the same result:

```
IDNFILTER('O=BobCA, Inc.SP=New York.C=US')
```

Note: The attribute values, such as State/Province, of the issuer distinguished name on a certificate can be displayed or generated differently as ST, SP, or S, depending on the software that is used. For RACF IDNFILTER strings, use the SP attribute instead of ST or S, even when existing certificates are displayed with ST or S. IBM recommends that you use the RACDCERT CHECKCERT or RACDCERT LIST command to display the mapped certificate before you create the IDNFILTER and debugging unsuccessful filter values.

IDNFILTER is optional if SDNFILTER is specified. If IDNFILTER is not specified, only the subject's name is used as a filter. If IDNFILTER is specified and only a portion of the issuer's name is to be used as the filter, SDNFILTER must not be specified.

If both IDNFILTER and SDNFILTER are specified, the IDNFILTER value does not need to begin with a valid prefix from the preceding list. This allows the use of certificates from a certificate authority that chooses to include nonstandard data in the issuer's distinguished name.

SDNFILTER('*subject's-distinguished-name-filter*')
Specifies the significant portion of the subject's distinguished name that is used as a filter when associating a user ID with a certificate. For an explanation of how filter values are used to associate a user ID with a digital certificate, see Certificate name filtering in *z/OS Security Server RACF Security Administrator's Guide*.

When specified without *data-set-name* on the MAP keyword, you must specify the entire portion of the distinguished name to be used as the filter.

The format of the *subject's-distinguished-name-filter* is similar to the output displayed when a certificate is listed with RACDCERT. It is an X.509 distinguished name in an address type format:

```
component.component.component.component...
```

Or, more specifically:

```
qualifier1=node1.qualifier2=node2.qualifier3=node3...
```

For example:

```
SDNFILTER('CN=Bob Cook.OU=BobsAccounting.O=BobsMart.SP=New York')
```

Restriction: The filter name cannot contain the ¢ character (X'4A').

The SDNFILTER value is limited to 1024 characters and must begin with a prefix found in the following list, followed by an equal sign (X'7E'). Each component should be separated by a period (X'4B'). The value between the equal sign and the period cannot exceed 64 characters. The case, blanks, and punctuation displayed when the digital certificate information is listed must be maintained in the SDNFILTER. Because digital certificates only contain characters available in the ASCII character set, the same characters should be used for the SDNFILTER value. Valid prefixes are:

Country
Specified as C=

State/Province
Specified as SP=

Locality
Specified as L=

Organization
Specified as O=

Organizational Unit
Specified as OU=

Title
Specified as T=

Common Name
Specified as CN=

When specified along with *data-set-name* on the MAP keyword, the *subject's-distinguished-name-filter* must correspond to a starting point within the subject's distinguished name found in the certificate contained in the data set. You should specify enough of the name to precisely identify the starting point for the filter. For example, if the certificate in the data set has the subject `CN=Bob Cook.OU=BobsAccounting.O=BobsMart.SP=New York` and you want all certificates for anyone in `BobsAccounting` to be selected by this filter, specify:

```
SDNFILTER('OU=BobsAcc')
```

Without the data set containing the certificate, you need to enter the following to produce the same result:

```
SDNFILTER('OU=BobsAccounting.O=BobsMart.SP=New York')
```

Note: The attribute values, such as State/Province, of the subject distinguished name on a certificate can be displayed or generated differently as ST, SP, or S, depending on the software that is used. For RACF SDNFILTER strings, use the SP attribute instead of ST or S, even when existing certificates are displayed with ST or S. IBM recommends that you use the RACDCERT CHECKCERT or RACDCERT LIST command to display the mapped certificate before you create the SDNFILTER and debugging unsuccessful filter values.

SDNFILTER is optional if IDNFILTER is specified. If SDNFILTER is not specified, only the issuer's name is used as a filter. SDNFILTER must not be specified with IDNFILTER unless the value of IDNFILTER will result in the entire issuer's name being used in the filter. Note that subject's name can be partial but cannot be used in a filter that contains only a partial issuer's name.

CRITERIA(*criteria-profile-name-template*)

When specified with MULTIID, it indicates a dynamic user ID mapping. The user ID associated with this mapping profile is based not only on the issuer's distinguished name and the subject's distinguished name found in the certificate, but also on additional criteria. The *criteria-profile-name-template* specifies the additional criteria in the form of a profile name containing one or more variable names, separated by free-form text. These variable names begin with an ampersand (&) and end with a period. The free-form text should identify the variables contained in the template:

```
variable-name1=&variable-name1.variable-name2=&variable-name2...
```

For example, if the application identity and system identifier are to be considered in determining the user ID associated with this mapping, the CRITERIA keyword should be specified as follows:

```
CRITERIA(APPLID=&APPLID.SYSID=&SYSID)
```

The RACF-defined criteria are the application ID (APPLID) and the system-identifier (SYSID). When a user presents a certificate to the system for identification, the identity of the application (as well as the system the user is trying to access) being accessed becomes part of the criteria. The application passes its identity to RACF, and RACF determines the system-identifier. The system-identifier is the 4-character value specified for the SID parameter of the SMFPRMxx member of SYS1.PARMLIB. These values are substituted for &APPLID and &SYSID in the criteria.

Once the substitution is made, the fully expanded criteria template is used as a resource name to find a matching profile defined in the DIGTCRIT class using the RDEFINE command. For example, if the application being accessed is BANKU on system SYSA, the template is:

```
APPLID=BANKU.SYSID=SYSA
```

You should define a profile in the DIGTCRIT class using the RDEFINE command for this name. The user ID to be associated with these certificates must be specified as the APPLDATA. While the DIGTCRIT profile name can be discrete, generic profiles can be used if you have generic profile checking active for the DIGTCRIT class. A DIGTCRIT profile name of APPLID=BANKU.* allows the certificates to be used on any system, rather than just system SYSA. While generic characters such as * and % can be used when defining the DIGTCRIT class profiles, they should not be used in the template name specified with the CRITERIA keyword.

Criteria names other than APPLID and SYSID are allowed, but are effective in certificate name filtering if the application supplies these criteria names and their associated values to RACF when the user attempts to access the application using a certificate. SYSID is determined by RACF, but APPLID must be specified with the initACEE callable service. Criteria names, such as APPLID and SYSID, should only be specified on RACDCERT if the application instructs you to do so.

A maximum of 255 characters can be entered when specifying the CRITERIA keyword. The values can be entered in any case, but are made uppercase by the RACDCERT command because they must match uppercase profile names in the DIGTCRIT class to be effective. When specifying the criteria value, the maximum length for profile names in the DIGTCRIT class is 246 characters.

The CRITERIA keyword can only be set for MULTIID.

WITHLABEL('*label-name*')

Specifies the label that is assigned to this mapping. If specified, it must be unique to the user ID with which the mapping is associated. If WITHLABEL is not specified, a label is generated in the same manner as issuing the WITHLABEL keyword for the RACDCERT ADD command.

Up to 32 characters can be specified for *label-name*. It can contain imbedded blanks and mixed-case characters, and is stripped of leading and trailing blanks. If a single quotation mark is intended to be part of the *label-name*, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

TRUST | NOTRUST

When specified with MAP, indicates whether this mapping can be used to associate a user ID to a certificate presented by a user accessing the system. If neither TRUST nor NOTRUST is specified, the default is TRUST.

Examples

Example	Activity label	Description
1	*Operation*	User RACFADM with SPECIAL authority requests the addition of a new mapping profile that will associate the user ID WEBUSER with all digital certificates issued by VeriSign for Class 1 Individual Subscribers. A certificate is not readily available in a data set.
	Known	User RACFADM has SPECIAL authority.

	Command	`RACDCERT ID(WEBUSER) MAP`
		` IDNFILTER('OU=VeriSign Class 1 Individual Subscriber.O=VeriSign,`
		`Inc..L=Internet')`
		` WITHLABEL('Savings Account')`

	Output	None.
2	*Operation*	User RACFADM with SPECIAL authority requests the addition of a new mapping profile that will associate all members of department BWVA, who have VeriSign Class 1 Individual subscriber certificates, with the user ID BWVAUSR. All members of the department have the organizational unit BWVA (OU=BWVA) as the second node of the subject name in their certificates. A certificate belonging to one of the department member is available in the data set JJONES.DEPTCERT. The use of the certificates should not be allowed until the network administrator gives his approval, so this mapping is currently not trusted.
	Known	User RACFADM has SPECIAL authority to profile IRR.DIGTCERT.MAP in the FACILITY class.

	Command	`RACDCERT ID(BWVAUSR) MAP('JJONES.DEPTCERT')`
		`  IDNFILTER('OU=VeriSign Class 1') NOTRUST`
		`  SDNFILTER('OU=BWVA') WITHLABEL('BWVA USERS')`

	Output	None.
3	*Operation*	User CERTADM with ALTER authority to profile IRR.DIGTCERT.MAP in the FACILITY class has received a digital certificate and placed it in the data set `CERTADM.MODEL.CERT`. BobsBank has contracted VeriSign, Inc. to create certificates like the one received. These certificates will be installed on the workstations of each bank teller, and used to access the banking application BANKAPP. All certificates must map to the user ID BANKU which has access to the data sets containing the banking data. CERTADM uses this function to display the issuer's name and subject name from the certificate.
	Known	User CERTADM has ALTER authority to profiles IRR.DIGTCERT.MAP in the FACILITY class.

	Commands	`RDEF DIGTCRIT BOBS.APPLID1=BANKAPP APPLDATA('BANKU')`
		`RACDCERT MULTIID MAP(MODEL.CERT)`
		`  IDNFILTER('OU=')`
		`  SDNFILTER('CN=')`
		`  CRITERIA(BOBS.APPLID1=&APPLID)`
		`  WITHLABEL('Bobs Tellers')`

	Output	None.

RACDCERT REKEY (Rekey certificate)

Purpose

Use the RACDCERT REKEY command to replicate (rekey) a digital certificate with a new public/private key pair. In general, after you rekey a certificate, issue the RACDCERT ROLLOVER command to supersede the old certificate with the new rekeyed certificate and retire the old private key. For sample procedures, see "Renewing a certificate with a new private key (rekeying)" in *z/OS Security Server RACF Security Administrator's Guide*.

During rekeying, the subject's distinguished name, key usage, and subject alternate name are copied from the original certificate to the replicated certificate. The replicated certificate is then self-signed and stored as a new certificate associated with the same user ID, CERTAUTH, or SITE. The original certificate is not changed by this operation.

If the rekeyed certificate needs to be signed by another certificate in RACF or another certificate authority, issue the RACDCERT GENREQ command to create a PKCS #10 request from the replicated certificate. Use the resulting request as input to RACDCERT GENCERT to sign the replicated certificate with another certificate in RACF or sent to the external certificate authority for fulfillment. Perform signing (if needed) before issuing the RACDCERT ROLLOVER command.

Use the RACDCERT GENCERT command instead of REKEY when you want to change the subject's distinguished name or supported extensions in addition to creating a new key pair.

See "UTF-8 and BMP character restrictions" on page 251 for information about how UTF-8 and BMP characters in certificate names and labels are processed by RACDCERT functions.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT REKEY command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules:

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.
- The updates made to the RACF database by RACDCERT are eligible for propagation with automatic direction of application updates based on the RRSFDATA profiles AUTODIRECT.*target-node.*DIGTCERT.APPL and AUTODIRECT.*target-node.*DIGTRING.APPL, where *target-node* is the remote node to which the update is to be propagated.

Authorization required

To issue the RACDCERT REKEY command, you must have the following authorizations:

- The SPECIAL attribute, or
- Sufficient authority to the IRR.DIGTCERT.REKEY resource in the FACILITY class for your intended purpose, as shown in Table 40 on page 351, or
- Sufficient authority to the appropriate resources in the RDATALIB class, as shown in Table 41 on page 351, if Granular Authority Checking has been enabled by defining the IRR.RACDCERT.GRANULAR resource in the RDATALIB class.

When your installation controls access to ICSF services and the CSFSERV class is active, additional access to CSFSERV resources might be required as follows:

- When you specify RSA(PKDS), you must have READ authority to the CSFDSG, CSFIQF, CSFPKG, CSFPKRC, and CSFPKX resources.
- When you specify RSA(TOKEN(token-name)), you must have READ authority to the CSF1GAV, CSF1GKP, CSF1TRD, CSFDSG, and CSFIQF resources.
- When you specify RSA and omit PKDS or TOKEN, you must have READ authority to the CSFIQF resource.
- When you specify ICSF, you must have READ authority to the CSFIQF, CSFPKI, and CSFPKRC resources.
- When you specify NISTECC(PKDS) or BPECC(PKDS), you must have READ access to the CSFDSG, CSFDSV, CSFOWH, CSFPKG, CSFPKRC, and CSFPKX resources.
- When you specify NISTECC(TOKEN(token-name)) or BPECC(TOKEN(token-name)), you must have READ access to the CSF1GAV, CSF1GKP, CSF1PKV, CSF1TRC, CSF1TRD, CSFDSG, and CSFOWH resources.
- When you specify NISTECC or BPECC and omit PKDS or TOKEN, you must have READ access to the CSF1GAV, CSF1GKP, CSF1PKS, CSF1PKV, CSF1TRC, CSF1TRD, and CSFOWH resources.

- When you omit key type, RACF rekeys the private key using with the characteristics of the original key, including how it is stored. Therefore, you must have access authority to the appropriate resources based on the characteristics of the original key even when you omit the key types shown in this list.

For details about the CSFSERV resources, see *z/OS Cryptographic Services ICSF Administrator's Guide*.

Table 40. Authority required for the RACDCERT REKEY function under the FACILITY class

Access level	**Purpose**
READ	Rekey your own certificate.
UPDATE	Rekey another user's certificate.
CONTROL	Rekey a SITE or CERTAUTH certificate.

Table 41. Authority required for the RACDCERT REKEY function under the RDATALIB class when IRR.RACDCERT.GRANULAR is defined

READ access to the resource based on cert owner and cert label *	**Purpose**
IRR.DIGTCERT.<cert owner>.<source cert label>.UPD.REKEY, and IRR.DIGTCERT.<cert owner>.<target cert label>.UPD.REKEY	Replicate (rekey) a certificate under <cert owner> with <source cert label> to a new certificate with <target cert label>
IRR.DIGTCERT.<cert owner>.<source cert label>.UPD.REKEY, and IRR.DIGTCERT.<cert owner>.LABEL*.UPD.REKEY	Replicate (rekey) a certificate under <cert owner> with <source cert label> to a new certificate with a system generated label

***** 'cert owner' is the RACF user ID, or CERTIFAUTH (for CERTAUTH), or SITECERTIF (for SITE)

Activating your changes

If the DIGTCERT class is RACLISTed, refresh the class to activate your changes.

Example:

```
SETROPTS RACLIST(DIGTCERT) REFRESH
```

Related commands

- To rollover an expiring certificate to a rekeyed certificate, see “RACDCERT ROLLOVER (Rollover certificate)” on page 359.
- To generate a certificate, see “RACDCERT GENCERT (Generate certificate)” on page 302.

Syntax

For the key to the symbols used in the command syntax diagrams, see “Syntax of RACF commands and operands” on page 11. The complete syntax of the RACDCERT REKEY command is:

RACDCERT REKEY(LABEL('*existing-label-name*'))

```
     [ ID(certificate-owner) | SITE | CERTAUTH ]
     [ SIZE(key-size) ]
     [ NOTBEFORE( [ DATE(yyyy-mm-dd) ]  [ TIME(hh:mm:ss) ] ) ]
     [ NOTAFTER( [ DATE(yyyy-mm-dd) ]  [ TIME(hh:mm:ss) ] ) ]
     [ { RSA [ (PKDS [ (pkds-label / * ) ]   |  TOKEN(token-name) ) ]
              | NISTECC [ (PKDS [ (pkds-label / * ) ]  |  TOKEN(token-name)  ) ]
              | BPECC [ (PKDS [ (pkds-label / * ) ]  |  TOKEN(token-name) ) ] } ]
[ SIGATTR [ (RSAPSS)] ]
              [ WITHLABEL('to-be-created-label-name') ]
```

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

Parameters

REKEY(LABEL('*existing-label-name*'))

Specifies the label of the existing certificate to be replicated during RACDCERT REKEY processing. This keyword is required and identities an existing certificate owned by ID(*certificate-owner*), SITE, or CERTAUTH. The certificate identified by the LABEL keyword must be associated with the *must* have a private key associated with it otherwise an error message is issued and the command ends.

If the private key associated with the certificate is an ECC key, the ICSF subsystem must be operational and configured for PKCS #11 operations.

Restriction: When ICSF is operating in FIPS mode, you cannot rekey a certificate that has an associated Brainpool ECC private key.

ID(*certificate-owner*) | SITE | CERTAUTH

Specifies that the certificate to replicate is either a user certificate associated with the specified user ID, a site certificate, or a certificate-authority certificate. If you do not specify ID, SITE, or CERTAUTH, the default is ID, and *certificate-owner* defaults to the user ID of the command issuer. If more than one keyword is specified, the last specified keyword is processed and the others are ignored by TSO command parse processing.

SIZE(*key-size*)

Specifies the size of the *new* private key expressed in decimal bits.

If SIZE is omitted, it defaults to the size of the private key associated with the original certificate.

For NISTECC keys, valid key sizes are 192, 224, 256, 384, and 521 bits. For BPECC keys, valid key sizes are 160, 192, 224, 256, 320, 384, and 512 bits.

For DSA keys, the minimum key size is 512.

For RSA keys, the minimum key size for clear keys and secure keys in the PKDS (PKA key data set) is 512; the minimum key size for secure keys in the TKDS (token key data set) is 1024 and the size must be a multiple of 256.

- The maximum key size for RSA and DSA keys is determined by United States export regulations and is controlled by RACF and non-RACF code in z/OS. Depending on the installation, non-RACF code may enforce a lower maximum size.
- Rounding up to the next appropriate key size might occur. Therefore, the key size of the generated key might be longer than the value you specify with SIZE but the generated key is never shorter than requested.

Maximum key sizes: The maximum key size for a private key depends on key type, as follows:

Private key type	Maximum key size
RSA key stored in the RACF database	4096 bits
RSA key stored in the ICSF PKDS as a CRT key token	4096 bits
RSA key stored in the ICSF PKDS as an ME key token	1024 bits
NISTECC key	521 bits
BPECC key	512 bits

Note: To generate an RSA key that is longer than 1024 bits and is to be stored in the RACF database, the CP Assist for Cryptographic Function (CPACF) must be enabled.

Standard RSA key sizes: Currently, standard key sizes for RSA keys are as follows:

Key size	Key strength
512 bits	Low-strength key
1024 bits	Medium-strength key
2048 bits	High-strength key
4096 bits	Very high-strength key

Key strength considerations: Shorter keys of the ECC type, which are generated when you specify NISTECC or BPECC, achieve comparable key strengths when compared with longer RSA keys.

RSA, NISTECC, and BPECC keys of the following sizes are comparable in strength:

RSA key size	NISTECC key size	BPECC key size
1024 bits	192 bits	160 or 192 bits
2048 bits	224 bits	224 bits
3072 bits	256 bits	256 or 320 bits
7680 bits	384 bits	384 bits
15360 bits	521 bits	512 bits

Hashing algorithm used for signing: RACF signs certificates using a set of secure hash algorithms based on the SHA-1 or SHA-2 hash functions. The size of the signing key determines the hashing algorithm used for signing, as follows:

Hashing algorithm used for signing	Signing key size			
	RSA / DSA	RSAPSS for RSA signing key	NISTECC	BPECC
SHA-1	Less than 2048 bits	—	—	—
SHA-256	2048 bits or longer	2048 bits or longer and less than 3072 bits	192, 224, or 256 bits	160, 192, 224, 256, or 320 bits
SHA-384	—	3072 bits or longer and less than 4096 bits	384 bits	384 bits

Hashing algorithm used for signing	Signing key size			
	RSA / DSA	RSAPSS for RSA signing key	NISTECC	BPECC
SHA-512	—	4096 bits	521 bits	512 bits

NOTBEFORE(DATE(*yyyy-mm-dd*) TIME(*hh:mm:ss*))

Specifies the local date and time from which the certificate is valid. If DATE is not specified, it defaults to the current local date. If TIME is not specified, it defaults to TIME(00:00:00).

If DATE is specified, the value of *yyyy* must be 1950 - 9997.

Note that the use of the date format *yyyy-mm-dd* is valid. However, to aid installations familiar with the RACF date format, the value can be specified in the format *yyyy/mm/dd*.

The time and date values are stored in the certificate as a universal time coordinated (UTC) value. The calculated UTC value might be incorrect if the date and time values for NOTBEFORE and NOTAFTER represent a time that has a different local offset from UTC.

NOTAFTER(DATE(*yyyy-mm-dd*) TIME(*hh:mm:ss*))

Specifies the local date and time after which the certificate is no longer valid. If DATE is not specified, it defaults to one year from the NOTBEFORE date value. If TIME is not specified, it defaults to TIME(23:59:59).

If DATE is specified, the value of *yyyy* must be 1950 - 9997. If DATE is defaulted, the value must be 1951 - 9998.

The NOTBEFORE value must be earlier than the NOTAFTER value or an informational message is issued.

Note the use of the date format *yyyy-mm-dd* is valid. However, to aid installations familiar with the RACF date format, the value can be specified as *yyyy/mm/dd*.

The time and date values are stored in the certificate as a universal time coordinated (UTC) value. The calculated UTC value might be incorrect if the date and time values for NOTBEFORE and NOTAFTER represent a time that has a different local offset from UTC.

RSA | PCICC | ICSF | NISTECC | BPECC

The PCICC and ICSF keywords are deprecated. IBM discourages the use of these parameters.

Specifies how RACF should generate the new key pair and how the private key should be stored for future use.

When you omit the RSA, PCICC, ICSF, NISTECC, and BPECC operands, RACF rekeys using the key type and key size of the private key associated with the original certificate. The new key will have all the characteristics of the original key, including how it is stored. For example, if the original key is stored in the ICSF PKDS, the new key is also stored in the PKDS but with a new system-generated key label.

To specify a PKDS label for the new key, you must specify key type with the PKDS suboperand and a *pkds-label* value or an asterisk (*). When you specify PKDS with a *pkds-label* value, the new key is stored in the PKDS (if all required conditions are met) regardless of whether the original key was stored in the PKDS. Conversely, if the original key is stored in PKDS and you specify key type without the PKDS suboperand, the new key is not stored in the PKDS unless the following condition occurs. When the specified key type is incompatible with the original key, the key-type keyword is ignored. (For example, you cannot specify BPECC to rekey a certificate with an RSA key.) If the key-type operand is ignored, the new key is stored in the PKDS if the original key was stored in the PKDS.

For details about specifying or allowing RACF to generate the PKDS label, see "PKDS label considerations" on page 253.

For the hardware requirements for storing or accessing a key in the ICSF PKA key data set (PKDS), see "Hardware requirements" on page 253.

RSA

Specifies that the key pair is to be generated using software with the RSA algorithm and the private key is to be stored in the RACF database as an RSA key.

When you specify RSA without the PKDS option, the CP Assist for Cryptographic Function (CPACF) must be enabled to generate a key that is longer than 1024 bits.

PKDS[(*pkds-label* / *)]

Specifies that the key pair is to be generated using a CCA cryptographic coprocessor. The resulting private key is generated with the RSA algorithm and stored in the ICSF PKA key data set (PKDS) as an RSA Chinese Remainder Theorem (CRT) key token with either a system-generated label, a label specified by *pkds-label*, or a label copied from the certificate label.

TOKEN(*token-name*)

Specifies that the key pair is to be generated using an Enterprise PKCS#11 cryptographic coprocessor. The resulting private key is stored in the specified existing token-name token in the ICSF token key data set (TKDS) as an RSA Chinese Remainder Theorem (CRT) key token.

PCICC[(*pkds-label* | *)]

This parameter is deprecated. IBM recommends that you use `RSA(PKDS[`*`pkds-label`*` | *)])` instead of `PCICC[(`*`pkds-label`*` | *)]`.

It specifies the same function as the PKDS suboperand of the RSA operand. See the RSA operand of REKEY for details.

ICSF[(*pkds-label* | *)]

This parameter is deprecated. IBM discourages the use of this parameter, as it is only applicable to RSA keys that are limited to 1024 bits.

It specifies that the key pair is to be generated using software. The resulting private key is generated with the RSA algorithm and stored in the ICSF PKA key data set (PKDS) as an RSA Modulus-Exponent (ME) key token.

NISTECC

Specifies that the key pair is to be generated using software , if clear key is not restricted in the system, with the elliptic curve cryptography (ECC) algorithm in accordance with the standard proposed by the National Institute of Standards and Technology (NIST). The resulting private key is stored in the RACF database as an ECC key.

You can specify NISTECC to rekey only an ECC key pair.

When specifying NISTECC, the ICSF subsystem must be operational and configured for PKCS #11 operations.

PKDS[(*pkds-label* / *)]

Specifies that the key pair is to be generated using a CCA cryptographic coprocessor. The resulting private key is stored in the ICSF PKA data set (PKDS) as an ECC key in the PKA token with either a system-generated label, a label specified by *pkds-label*, or a label copied from the certificate label.

TOKEN(*token-name*)

Specifies that the key pair is to be generated using an Enterprise PKCS#11 cryptographic coprocessor. The resulting private key is stored in the specified existing token-name token in the ICSF token key data set (TKDS).

BPECC

Specifies that the key pair is to be generated using software, if clear key is not restricted in the system, with the elliptic curve cryptography (ECC) algorithm in accordance with the standard proposed by the ECC Brainpool working group of the Internet Engineering Task Force (IETF). The resulting private key is stored in the RACF database as an ECC key.

You can specify BPECC to rekey only an ECC key pair.

When specifying BPECC, the ICSF subsystem must be operational and configured for PKCS #11 operations.

Restriction: When ICSF is operating in FIPS mode, you cannot generate a Brainpool ECC key.

PKDS[(*pkds-label* | *)]
Specifies that the key pair is to be generated using a CCA cryptographic coprocessor. The resulting private key is stored in the ICSF PKA data set (PKDS) as an ECC key in the PKA token with either a system-generated label, a label specified by *pkds-label*, or a label copied from the certificate label.

TOKEN(*token-name*)
Specifies that the key pair is to be generated using an Enterprise PKCS#11 cryptographic coprocessor. The resulting private key is stored in the specified existing token-name token in the ICSF token key data set (TKDS).

SIGATTR(*attribute*)
Specifies the signing attribute if the signing key is an RSA key. The only valid value for *attribute* is RSAPSS. If *attribute* is not specified, the default value is RSAPSS.

WITHLABEL('*to-be-created-label-name*')
Specifies the label assigned to the new certificate. If specified, this must be unique to the user ID with which the certificate is associated. If not specified, it defaults in the same manner as the WITHLABEL keyword on the RACDCERT ADD command.

The *label-name* value is stripped of leading and trailing blanks. If a single quotation mark is intended to be part of the *label-name*, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

See the WITHLABEL keyword for RACDCERT ADD for information on label rules.

Examples

Example 1	*Operation*	User RACFADM has an expiring CERTAUTH certificate labeled `'Local PKI CA'` and wants to renew it and rekey the private key. The new, rekeyed certificate will be labeled `'Local PKI CA-2'`. The PCI cryptographic coprocessor will to be used to generate the new key pair. The size of the new private key will be 1024 bits (RACF default size). After issuing the RACDCERT REKEY command, the user RACFADM will issue the RACDCERT ROLLOVER command to retire and replace the expiring certificate.
	Known	User RACFADM has CONTROL access to the IRR.DIGTCERT.REKEY resource in the FACILITY class.

	Command	`RACDCERT REKEY(LABEL(’Local PKI CA’))`
		`   CERTAUTH`
		`   WITHLABEL(’Local PKI CA-2’)`
		`   RSA(PKDS)`

	Output	None.

RACDCERT REMOVE (Remove certificate from key ring)

Purpose

Use the RACDCERT REMOVE command to remove a digital certificate from a key ring.

See “UTF-8 and BMP character restrictions” on page 251 for information about how UTF-8 and BMP characters in certificate names and labels are processed by RACDCERT functions.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT REMOVE command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules: The following rules apply when issuing this command.

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.
- The updates made to the RACF database by RACDCERT are eligible for propagation with automatic direction of application updates based on the RRSFDATA profiles AUTODIRECT.*target-node.*DIGTCERT.APPL and AUTODIRECT.*target-node.*DIGTRING.APPL, where *target-node* is the remote node to which the update is to be propagated.

Authorization required

To issue the RACDCERT REMOVE command, you must have the following authorizations:

- The SPECIAL attribute, or
- Sufficient authority to the IRR.DIGTCERT.REMOVE resource in the FACILITY class, as shown in Table 42 on page 357, or
- Sufficient authority to the appropriate resources in the RDATALIB class, as shown in Table 43 on page 357, if Granular Authority Checking has been enabled by defining the IRR.RACDCERT.GRANULAR resource in the RDATALIB class.

Table 42. Authority required for the RACDCERT REMOVE function under the FACILITY class

Access level	Purpose
READ	Remove a certificate from your own key ring.
UPDATE	Remove a SITE or CERTAUTH certificate from your own key ring.
CONTROL	Remove a certificate from another user's key ring.

Table 43. Authority required for the RACDCERT REMOVE function under the RDATALIB class when IRR.RACDCERT.GRANULAR is defined

READ access to the resource based on cert owner and cert label, ring owner and ring name *	Purpose
IRR.DIGTCERT.<cert owner>.<cert label>.LST.REMOVE and <ring owner>.<ring name>.UPD.REMOVE	Remove a certificate with a specified <cert label> owned by <cert owner> from a key ring with specified <ring name> owned by <ring owner>

***** 'cert owner' is the RACF user ID, or CERTIFAUTH (for CERTAUTH), or SITECERTIF (for SITE); ring owner is the RACF user ID

Activating your changes

If the DIGTCERT or DIGTRING class is RACLISTed, refresh the classes to activate your changes.

Example:

```
SETROPTS RACLIST(DIGTCERT, DIGTRING) REFRESH
```

Related commands

- To connect a certificate to a key ring, see RACDCERT CONNECT.
- To list a key ring, see RACDCERT LISTRING.

Syntax

For the key to the symbols used in the command syntax diagrams, see “Syntax of RACF commands and operands” on page 11. The complete syntax of the RACDCERT REMOVE command is:

RACDCERT REMOVE([ID(*certificate-owner*) | SITE | CERTAUTH]

LABEL('*label-name*')
RING(*ring-name*)
)
[ID(*ring-owner*)]

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

Parameters

REMOVE(ID(*certificate-owner*) LABEL('*label-name*') RING(*ring-name*))
REMOVE(SITE LABEL('*label-name*') RING(*ring-name*))
REMOVE(CERTAUTH LABEL('*label-name*') RING(*ring-name*))

Specifies the digital certificate to be removed from the key ring.

ID(*certificate-owner*) indicates that the certificate being removed is a user certificate, and *certificate-owner* is the user ID associated with this certificate. SITE indicates that the certificate being removed is a site certificate, and CERTAUTH indicates that it is a certificate authority certificate. If ID, SITE or CERTAUTH are not specified, ID(*certificate-owner*) defaults to the key ring owner as specified or defaulted by the ID(*ring-owner*) keyword.

LABEL('*label-name*')

Identifies the certificate that is being removed from the key ring. You must specify a label.

RING(*ring-name*)

Identifies the key ring from which this certificate is being removed. You must specify a ring name. **Note:** The key ring belongs to the ID specified or defaulted by the ID(*ring-owner*) keyword.

ID(*ring-owner*)

Specifies the user ID of the key ring owner. (Only a user ID can have a key ring.) If not specified, the key ring owner defaults to the command issuer's user ID.

Examples

Example	Activity label	Description
1	*Operation*	User RACFADM wants to remove a SITE certificate with the label `Shared Server` from the `RING01` key ring of server INVSERV.
	Known	User RACFADM has SPECIAL authority.

	Command	`RACDCERT ID(INVSERV) REMOVE(SITE LABEL('Shared Server')`
		`RING(RING01))`

	Output	None.

RACDCERT ROLLOVER (Rollover certificate)

Purpose

Use the RACDCERT ROLLOVER command to supersede one certificate (the source certificate) with another certificate (the target certificate). In general, issue the RACDCERT ROLLOVER command after issuing the RACDCERT REKEY command to supersede an old, expiring certificate with a new rekeyed certificate, and to retire the private key of the expiring certificate. For sample procedures, see "Renewing a certificate with a new private key (rekeying)" in *z/OS Security Server RACF Security Administrator's Guide*.

Both the source and target certificates are associated with the user ID, CERTAUTH, or SITE as specified on the command. RACDCERT ROLLOVER processing performs the following actions in the specified order:

1. Deletes the private key of the source certificate so that it may not be used again for any cryptographic operations that need the private key. For example, signing another certificate or decrypting data encrypted via the certificate's public key.
2. Adds the target certificate to any key ring that contains the source certificate and, depending on how the source certificate is connected to the ring, RACDCERT ROLLOVER processing also does one of the following actions:
    - If the source certificate is connected with PERSONAL usage, the source certificate is replaced by the target certificate. In other words, the new certificate is added to the ring and the old one is removed.
    - If the source certificate is connected with CERTAUTH or SITE usage, the target certificate is added to the key ring and the source certificate remains connected. In other words, the new certificate is added to the ring but the old one is not removed.
3. Copies the serial number base from the source certificate to the target certificate. The serial number base is the serial number of the last certificate that this certificate issued.

Once rollover is complete, the new certificate may be used as if it were the old certificate. The old certificate is retained for historical reasons such as validating signatures on existing certificates, but may no longer be used for any private key operations such as signing other certificates.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT ROLLOVER command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules: The following rules apply when issuing this command.

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.

- The updates made to the RACF database by RACDCERT are eligible for propagation with automatic direction of application updates based on the RRSFDATA profiles AUTODIRECT.*target-node.*DIGTCERT.APPL and AUTODIRECT.*target-node.*DIGTRING.APPL, where *target-node* is the remote node to which the update is to be propagated.

Authorization required

To issue the RACDCERT ROLLOVER command, you must have the following authorizations:

- The SPECIAL attribute, or
- Sufficient authority to the IRR.DIGTCERT.ROLLOVER resource in the FACILITY class for your intended purpose, as shown in Table 44 on page 360, or
- Sufficient authority to the appropriate resources in the RDATALIB class, as shown in Table 45 on page 360, if Granular Authority Checking has been enabled by defining the IRR.RACDCERT.GRANULAR resource in the RDATALIB class.

Table 44. Authority required for the RACDCERT ROLLOVER function under the FACILITY class

Access level	Purpose
READ	Rollover your own certificate.
UPDATE	Rollover another user's certificate.
CONTROL	Rollover a SITE or CERTAUTH certificate.

Use the RACDCERT ROLLOVER command to supersede one certificate (the source certificate) with another certificate (the target certificate).

Table 45. Authority required for the RACDCERT ROLLOVER function under the RDATALIB class when IRR.RACDCERT.GRANULAR is defined

READ access to the resource based on cert owner and cert label *	Purpose
IRR.DIGTCERT.<cert owner>.<source cert label>.UPD.ROLLOVER, and IRR.DIGTCERT.<cert owner>.<target cert label>.UPD.ROLLOVER	Supersede (rollover) a certificate under <cert owner> with <source cert label> to a certificate with <target cert label>

***** 'cert owner' is the RACF user ID, or CERTIFAUTH (for CERTAUTH), or SITECERTIF (for SITE)

If the private key of the source certificate is stored in the ICSF PKA key data set (PKDS), you must have READ access to the CSFPKRD resource.

If the private key of the source certificate is stored in the ICSF Token Data Set (TKDS), you must have READ access to the CSF1TRD resource.

Activating your changes

If the DIGTCERT class is RACLISTed, refresh the class to activate your changes.

Example:

```
SETROPTS RACLIST(DIGTCERT) REFRESH
```

Related commands

- To rekey a expiring certificate, see "RACDCERT REKEY (Rekey certificate)" on page 349.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the RACDCERT ROLLOVER command is:

RACDCERT ROLLOVER(LABEL('*old-label-name*'))
[ID(*certificate-owner*) | SITE | CERTAUTH] NEWLABEL('*new-label-name*') [FORCE]

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

Parameters

ROLLOVER(LABEL('*old-label-name*'))

Specifies the label of the source certificate to be superseded by the certificate with the *'new-label-name'* label.

ID(*certificate-owner*) | SITE | CERTAUTH
Specifies that both certificates identified by LABEL and NEWLABEL are either user certificates associated with the specified user ID, site certificates, or a certificate-authority certificates. If you do not specify ID, SITE, or CERTAUTH, the default is ID, and *certificate-owner* defaults to the user ID of the command issuer. If more than one keyword is specified, the last specified keyword is processed and the others are ignored by TSO command parse processing.

NEWLABEL('*new-label-name*')
Specifies the label of the target certificate for the rollover function. This keyword is required and must identity an existing certificate owned by the specified user ID, SITE, or CERTAUTH.

FORCE
Specifies that RACF should bypass the following error checking and unconditionally perform the rollover operation.

If you do not specify FORCEto bypass these conditions, an error message is issued and the command ends:

- The values specified for the LABEL and NEWLABEL keywords are the same.
- The certificate identified by the LABEL or NEWLABEL keywords does not have a private key associated with it.
- The certificate identified by the NEWLABEL keyword has been the target certificate of a previously issued RACDCERT ROLLOVER command.
- The certificate identified by the NEWLABEL keyword has been used to sign other certificates.
- The certificate being superseded has been used to generate a request through RACDCERT GENREQ.

If you specify FORCE, these conditions are not checked. If you specify FORCE and inadvertently specify the same certificate with both the LABEL and NEWLABEL keywords, the private key of this certificate is deleted.

Examples

Example	Activity label	Description
1	*Operation*	User RACFADM has an expiring CERTAUTH certificate labeled `'Local PKI CA'` and wants to retire it and replace it with a new, rekeyed certificate labeled `'Local PKI CA-2'`.
	Known	User RACFADM has CONTROL access to the IRR.DIGTCERT.ROLLOVER resource in the FACILITY class.

	Command	`RACDCERT ROLLOVER(LABEL('Local PKI CA'))`
		`CERTAUTH`
		`NEWLABEL('Local PKI CA-2')`

	Output	None.

RACDCERT UNBIND (Unbind certificate from token)

Purpose

Removes a digital certificate from the specified z/OS PKCS #11 token.

See "UTF-8 and BMP character restrictions" on page 251 for information about how UTF-8 and BMP characters in certificate names and labels are processed by RACDCERT functions.

Issuing options

The following table identifies the eligible options for issuing the RACDCERT UNBIND command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules: The following rules apply when issuing this command.

- The RACDCERT command cannot be directed to a remote system using the AT or ONLYAT keyword.
- The updates made to the RACF database by RACDCERT are eligible for propagation with automatic direction of application updates based on the RRSFDATA profiles AUTODIRECT.*target-node.*DIGTCERT.APPL and AUTODIRECT.*target-node.*DIGTRING.APPL, where *target-node* is the remote node to which the update is to be propagated.

Authorization required

Authorization to delete z/OS PKCS #11 tokens is controlled by ICSF based on profiles in the CRYPTOZ class. (No authority in the FACILITY class is required.) If you do not have authority to remove the certificate from the specified token as determined by ICSF, the command stops and an error message is displayed.

When your installation controls access to ICSF services and the CSFSERV class is active, you must also have READ access to the CSF1GAV, CSF1TRD, and CSF1TRL resources in the CSFSERV class.

For authorization details about the CRYPTOZ and CSFSERV classes, see *z/OS Cryptographic Services ICSF Administrator's Guide*.

Related commands

- To bind a certificate to a token, see RACDCERT BIND.
- To list a token, see RACDCERT LISTTOKEN.

Syntax

For the key to the symbols used in the command syntax diagrams, see “Syntax of RACF commands and operands” on page 11. The complete syntax of the RACDCERT UNBIND command is:

```
RACDCERT UNBIND(TOKEN(token-name)

    { [ ID(certificate-owner) | SITE | CERTAUTH ] LABEL('label-name')
          | SEQNUM(sequence-number) }
    )
    [ FORCE ]
```

Note: Unless specified as a subkeyword of the UNBIND parameter, the `ID(`*certificate-owner*`) | SITE | CERTAUTH` parameter is ignored for the RACDCERT UNBIND function.

If you specify more than one RACDCERT function, only the last specified function is processed. Extraneous keywords that are not related to the function being performed are ignored.

If you do not specify a RACDCERT function, LIST is the default function.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

Parameters

UNBIND(TOKEN(*token-name*) ID(*certificate-owner*) LABEL('*label-name*'))
UNBIND(TOKEN(*token-name*) SITE LABEL('*label-name*'))
UNBIND(TOKEN(*token-name*) CERTAUTH LABEL('*label-name*'))
UNBIND(TOKEN(*token-name*) SEQNUM(*sequence-number*))

You must uniquely identify the certificate to be removed in one of the following ways:

- By its RACF label name (if defined to RACF), and optionally identify it as a user, SITE or CERTAUTH certificate. (The certificate *must* be defined to RACF when you specify the label name.)
- By its sequence number within the token. (The certificate need not be defined to RACF when you specify the sequence number.)

TOKEN(*token-name*)

Specifies the name of the token from which the certificate is being removed. When specifying the UNBIND operand, you must specify the TOKEN operand.

ID(*certificate-owner*) | SITE | CERTAUTH

Specifies that the certificate to remove from the token is either a user certificate associated with the specified user ID, a site certificate, or a certificate-authority certificate. If you do not specify ID, SITE, or CERTAUTH, the default is ID, and *certificate-owner* defaults to the user ID of the command issuer. If more than one keyword is specified, the last specified keyword is processed and the others are ignored by TSO command parse processing.

LABEL('*label-name*')

Specifies the certificate to remove from the token. LABEL is mutually exclusive with SEQNUM.

SEQNUM(*sequence-number*)

Specifies the sequence number of the certificate to remove from the token. If the certificate (or its associated private key, if any) is not currently defined to RACF, you must also specify FORCE or else an error message is issued and the command ends. (This error prevents you from inadvertently deleting a certificate that is not defined to RACF.) SEQNUM is mutually exclusive with LABEL.

FORCE

Specifies that RACF should bypass some error checking and unconditionally perform the unbind operation.

If you do not specify FORCE, the following condition must be true or an error message is issued and the command ends:

- The certificate (or its associated private key, if any) must be currently defined to RACF.

  If you specify FORCE, this condition is not checked. If you specify FORCE and inadvertently specify a sequence number for a certificate not defined to RACF, the certificate (or its associated private key, if any) is deleted.

Examples

Example	Activity label	Description
1	*Operation*	User NETB0Y wants to remove a digital certificate labeled `My temp certificate` from the z/OS PKCS #11 token named `NETB0Y.TKN1`. The certificate does not currently reside in RACF.
	Known	User NETB0Y has CONTROL authority to the discrete profile named `USER.NETB0Y.TKN1` in the CRYPTOZ class. Using RACDCERT LISTTOKEN, user NETB0Y determined the sequence number of the certificate to be removed is 3.
	Command	`RACDCERT UNBIND(TOKEN(NETB0Y.TKN1) SEQNUM(3)) FORCE`
	Output	None.

RACLINK (Administer user ID associations)

Purpose

Use the RACLINK command to:

- Define, approve, and delete (undefine) an established or pending user ID association
- List information related to a user ID association
- Establish password synchronization between user IDs

Note:

1. When the RACLINK command is issued from ISPF, the TSO command buffer (including password data) is written to the ISPLOG data set. As a result, you should not issue this command from ISPF or you must control the ISPLOG data set carefully.
2. If the RACLINK command is issued as a RACF operator command, the command and the password data are written to the system log. Therefore, either use of RACLINK as a RACF operator command should be controlled or you should issue the command as a TSO command.

Issuing options

The following table identifies the eligible options for issuing the RACLINK command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	Yes	No	No	No

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

You must be logged on to the console to issue this command as a RACF operator command.

Related commands

- To add a user profile, see "ADDUSER (Add user profile)" on page 45.
- To display information from a user profile, see "LISTUSER (List user profile)" on page 213.
- To change a user profile, see "ALTUSER (Alter user profile)" on page 110.
- To delete a user profile, see "DELUSER (Delete user profile)" on page 185.
- To obtain a list of user profiles, see "SEARCH (Search RACF database)" on page 541.

Authorization required

When issuing this command as a RACF operator command, you might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

You have the authority to issue the RACLINK command for your own user ID.

To issue the RACLINK DEFINE command you must also have sufficient authority to the proper profiles in the RRSFDATA class. For RACLINK DEFINE, this is the first security check performed. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

You can issue the RACLINK command for a user ID other than your own if you have the following authority over the user ID specified on the ID keyword:

- You have the SPECIAL attribute.
- The profile is within the scope of a group in which you have the group-SPECIAL attribute.
- You are the profile owner.

When the DEFINE keyword is specified and the command issuer has sufficient authority to perform the RACLINK command for the user ID, the user ID association is implicitly approved if:

- A valid password or password phrase is supplied for the user ID specified on the DEFINE keyword.
- The command issuer has one of the following authorities over the user ID specified on the DEFINE keyword:
  - The command issuer has the SPECIAL attribute.
  - The profile is within the scope of a group in which the command issuer has the group-SPECIAL attribute.
  - The command issuer is the owner of the profile.
- The command issuer has an association with a user ID on the node specified on the DEFINE keyword. That association must be either a PEER association or a MANAGED association with the command issuer as the manager. The user ID with which the command issuer has the association must have one of the following authorities over the user ID specified on the DEFINE keyword:
  - The command issuer has the SPECIAL attribute.
  - It is within the scope of a group that has the group-SPECIAL attribute.
  - It is the owner of the profile.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the RACLINK command is:

[*subsystem-prefix*]RACLINK

```
[ ID(userid1 ...) ]
```

```
[ LIST ([ node | * ].[ userid2 | * ] ...)
   | DEFINE ([ node ].userid2[ /password] ...)
       [ MANAGED | PEER (NOPWSYNC | PWSYNC) ]
   | UNDEFINE ([ node ].userid2 ...)
   | APPROVE ([ node ].userid2 ...) ]
```

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

ID(*userid1 ...*)

Specifies the user for whom the RACLINK operation is to be performed. Specify one or more user IDs on the RRSF node from which the command is issued.

If this operand is not specified, the command defaults to the user issuing the command at the node where the command is issued.

LIST([*node* | *].[*userid2* |*] *...*)

Specifies that a list of associations for *node.userid2* is to be displayed. If multiple user IDs are specified, then multiple lists are displayed, one for each user ID specified.

RACLINK LIST (*.*) is the default. RACLINK LIST (*.*) lists all user ID associations for the specified user ID or the issuer's user ID if the ID keyword is not specified.

If the node name is not specified, the default is the local node.

The node names you specify must have been defined as RRSF nodes with the TARGET command.

The following information is displayed for each user ID association:

- User ID association type
  - Peer association
  - Managed association (including whether the specified user ID is the managed user ID or the managing user ID)
- Password synchronization status
  - YES (password synchronization is active)
  - NO (password synchronization is inactive)
  - N/A (password synchronization is not applicable to a managed association)
- User ID association status
  - PENDING APPROVAL BY *userid* (waiting for *userid* to approve or reject the user ID association)

  - ESTABLISHED (the user ID association has been approved)
  - SYSTEM ERROR (an unexpected error occurred on the target node that prevented the user ID association from being completed) The user ID association should be deleted and then defined again. See the notes under the DEFINE keyword for additional details.

DEFINE([*node*].*userid2*[*/password*] ...)

Specifies that a user ID association is to be formed between *userid1* at the node where the command was issued, and *userid2* at *node*. If you specify more than one *node.userid2* operand, an association is established between *userid1* and each *node.userid2* specified. A user ID association enables RACF users to utilize command direction and password synchronization.

If the password or phrase contains special characters that cause problems with TSO/E, the entire string ([node].userid2[/password]) must be enclosed in single quotation marks. For example, if the phrase contains blanks, or special characters such as the comma, parenthesis, or comment delimiter (/*), the string must be enclosed in quotes. Likewise, when a password or phrase starts with an asterisk, the string must be enclosed in quotes.

To issue the RACLINK DEFINE command, you need READ access to the following profile in the RRSFDATA class:

- RACLINK.DEFINE.*node*

The RRSFDATA class must be active.

When the DEFINE keyword is specified and the command issuer has sufficient authority to perform the RACLINK command for the user ID, the user ID association is implicitly approved if any of the following are true:

- A valid password is supplied for *node.userid2* on the DEFINE keyword.
- The command issuer has one of the following authorities over *userid2* on the DEFINE keyword:
  - The command issuer has the SPECIAL attribute.
  - The profile is within the scope of a group in which the command issuer has the group-SPECIAL attribute.
  - The command issuer is the owner of the profile.
- The command issuer has an association with a user ID on the node specified on the DEFINE keyword. That association must be either a PEER association or a MANAGED association with the command issuer as the manager. The user ID with which the command issuer has the association must have one of the following authorities over *userid2* on the DEFINE keyword:
  - The command issuer has the SPECIAL attribute.
  - It is within the scope of a group that has the group-SPECIAL attribute.
  - It is the owner of the profile.

Otherwise, a user ID association requires explicit approval by *node.userid2* with the RACLINK APPROVE command.

Although it is possible for the command issuer to have more than 50 associated user IDs on the target node, only the first 50 are used for authority checking. RACLINK issues a message if more than 50 user ID associations exist for the command issuer.

An association is PENDING until *node.userid2* either approves the association with a RACLINK APPROVE command or rejects the association with a RACLINK UNDEFINE command.

Note:

1. Under certain circumstances, RACLINK DEFINE(*node.userid*) requests can be issued by two users. If both requests are consistent, RACF treats this as an implicit approval. The entry is marked established in the target user IDs profile. An entry is considered consistent if the association type (PEER(PWSYNC) or PEER(NOPWSYNC)) is the same. If the request is not consistent (for example, differing PEER definitions or both users requesting a MANAGED association), RACF fails

the request and the entries remain in a pending state. In order to correct this situation, the user(s) need to undefine and redefine the user ID associations.

2. When creating a user ID association with a revoked user ID:

   - If a RACLINK DEFINE command is coded without the password operand and the target user ID is a revoked user, the results vary depending on the authority of the command issuer and the user ID associations of the command issuer. When:

     The user ID association with the revoked user ID is created and the status displayed by a RACLINK LIST command is `ESTABLISHED` when one of the following is true:

     – The command issuer has sufficient authority (SPECIAL, group-SPECIAL, or owner) over the target user ID *or*

     – The command issuer has a PEER association or is the manager of a MANAGED association with a user ID on the target node and the associated user ID has sufficient authority over the target user ID.

3. If a RACLINK DEFINE command is coded without the password operand, the target user ID is a revoked user ID, and the command issuer does not have sufficient authority (SPECIAL, group-SPECIAL, or owner) over the target user ID, the user ID association is created and the status displayed by a RACLINK LIST command is `PENDING APPROVAL BY` *`userid2`*.
4. If a RACLINK DEFINE command is coded with the password operand and the target user is a revoked user, the user ID association is not established and the status displayed by a RACLINK LIST is `SYSTEM ERROR`.
5. If a RACLINK DEFINE command is coded with a password phrase and the target system is at a release before z/OS V2R2, the association will be in the PENDING APPROVAL state and message IRRT032I will not be issued. In this case, the target user ID must log on and explicitly approve the request.
6. If a RACLINK DEFINE command is attempted to a node which is denying inbound work, the user ID association is not established and the status displayed by a RACLINK LIST is SYSTEM ERROR.

The type of association you want to establish is specified with one of the following:

MANAGED

Specifies a managed association.

A managed association does not provide password synchronization. A managed association allows commands to be directed from the managing user ID to the managed user ID (that is, from *userid1* to *node.userid2*).

A managed association does not allow commands to be directed from the managed user ID to the managing user ID (that is, *node.userid2* cannot direct commands to *userid1*).

PEER(NOPWSYNC)

Specifies a peer association without password synchronization.

Either user ID in a peer association can direct commands to the other user ID in the association.

If no association type is specified, PEER(NOPWSYNC) is the default.

PEER(PWSYNC)

Specifies a peer association with password synchronization.

Either user ID in a peer association can direct commands to the other user ID in the association.

If either user in the association changes their password, the password is automatically changed for the other user in the association.

READ access to the RACLINK.PWSYNC.*node* resource is required to use the RACLINK command to define a peer association with the PWSYNC attribute. READ access to the PWSYNC resource is required to synchronize the passwords when one of the associated users changes their password.

If the RRSFDATA class is not active, you cannot define an association with the PWSYNC attribute, or synchronize passwords.

UNDEFINE([*node*].*userid2 ...*)
Specifies that a user ID association is ended between *userid2* on *node* and *userid1* on the node where the command is processed. Either member of an association can end an association.

If a user ID has attempted to establish an association with your user ID which requires approval, and you do not want to approve it, use the UNDEFINE keyword to reject the pending association.

APPROVE([*node1*].*userid1 ...*)
Specifies that *userid2* on *node2* approves of a pending association between *userid2* at *node2* and *userid1* at *node1*. *node1* is the node where the RACLINK DEFINE was issued, and *node2* is the node where *userid2* issues the command.

Examples

Example	Activity label	Description
1	*Operation*	The security administrator wants to know what, if any, associations user DENICE has with user BETH.
	Known	The security administrator wants to issue the command as a RACF TSO command.
	Command	`RACLINK ID(DENICE) LIST(*.BETH)`
	Defaults	None.
	Output	See Figure 56 on page 370.
2	*Operation*	User DENICE wants to define password synchronization between all of her MVS user IDs; DENICE at NODE1, DENICE at NODE2, and DENICE at NODE3.
	Known	DENICE wants to issue the command as a RACF TSO command. DENICE has the authority to issue the RACLINK command for her own user IDs and has the authority to establish password synchronization for her own user IDs. The command is to be issued from DENICE at NODE1.
	Command	`RACLINK DEFINE(NODE2.DENICE/passw2 NODE3.DENICE/passw3) PEER(PWSYNC)`
	Defaults	None.

	Results	DENICE at NODE1 receives the following messages:
		`IRRT032I RACLINK command to associate user ID DENICE with`
		`     NODE2.DENICE is pending approval.`
		`IRRT032I RACLINK command to associate user ID DENICE with`
		`     NODE3.DENICE is pending approval.`
		`IRRP097I Peer association with DENICE at node NODE2 has been`
		`     approved.`
		`IRRP097I Peer association with DENICE at node NODE3 has been`
		`     approved.`
		When user DENICE changes her password on one of her MVS user IDs, the new password propagates to take affect on her other user IDs. The password is checked for validity only on the node where user DENICE issues the command to change her password, not at any of the other nodes.

Example	Activity label	Description
3	*Operation*	User BETH wants to define a MANAGED user ID association where BETH is the managing user ID and DENICE is the managed user ID.
	Known	User BETH: • wants to issue the command as a RACF TSO command, • does not know the password for user DENICE, and • has the authority to issue the RACLINK command for her own user ID.
	Command	`RACLINK DEFINE(NODE1.DENICE) MANAGED`
	Defaults	None.

	Results	User BETH receives the following message:
		`IRRT032I RACLINK command to associate user ID BETH with NODE1.DENICE is pending approval.`
		User DENICE receives the following message:
		`IRRP094I Managed association with DENICE at node NODE1 issued by BETH waiting for your approval.`
		The association remains pending until DENICE at NODE1 either approves the association with a RACLINK APPROVE command or rejects the association with a RACLINK UNDEFINE command.

```
ASSOCIATION information for user ID DENICE on node NODE1
at 1:12:31 on 04/01/95:

 Association  Node.userid    Password  Association
  Type                         Sync       Status

 -----------  ------------   --------  -------------

PEER OF       NODE1.BETH       YES      ESTABLISHED

MANAGED BY    NODE2.BETH       N/A      PENDING APPROVAL BY DENICE

PEER OF       NODE3.BETH       NO       PENDING APPROVAL BY BETH
```

Figure 56. Example 1: Output for the RACLINK LIST Command

RACMAP (Create, delete, list, or query a distributed identity filter)

Purpose

Use the RACMAP command to create, delete, list, and query a distributed identity filter. A distributed identity filter is a mapping association between a RACF user ID and one or more distributed user identities. The filter consists of all or selected components of a distributed-identity user name and the distributed-identity registry name.

When you use the RACMAP command to add a distributed identity filter, RACF creates a general resource profile in the IDIDMAP class. RACF uses distributed identity filters to determine the RACF user ID of a user who attempts to access the system using a distributed identity.

RACF accepts distributed user information from authorized applications that issue the RACROUTE REQUEST=VERIFY request or the `initACEE` callable service (IRRSIA00), and determines the RACF user ID of the distributed user by matching the distributed-identity user name and registry name with the filters in IDIDMAP class profiles.

For information about how to use a distributed identity filter to map distributed identities to a RACF user ID, see Distributed identity filters in *z/OS Security Server RACF Security Administrator's Guide*.

Issuing options

The following table identifies the eligible options for issuing the RACMAP command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No. (See rules.)	No. (See rules.)	No

Rules: The following rules apply when issuing this command.

- The RACMAP command cannot be directed to a remote system using the AT or ONLYAT keyword.
- Updates made to the RACF database by RACMAP are eligible for propagation with automatic direction of application updates based on the RRSFDATA profile named AUTODIRECT.*target-node*.IDIDMAP.APPL, where *target-node* is the remote node to which the update is to be propagated.
- If RACMAP commands are being propagated using automatic direction of application updates, then an equivalent IRR.IDIDMAP.PROFILE.CODEPAGE profile must be defined in the FACILITY class on all systems to which the RACMAP commands are being propagated. All of these systems must have the support for IRR.IDIDMAP.PROFILE.CODEPAGE.

For information on issuing this command as a RACF TSO command, see Chapter 3, "RACF TSO commands," on page 17.

Related commands

None.

The MAP, DELMAP and LISTMAP functions of the RACMAP command are *unrelated* to the MAP, DELMAP and LISTMAP functions of the RACDCERT command.

Authorization required

To issue the RACMAP command, you must have SPECIAL authority or sufficient authority to the IRR.IDIDMAP.*function* resource in the FACILITY class, where *function* is MAP, DELMAP, LISTMAP, or QUERY.

Table 46. Authority required for the RACMAP command

IRR.IDIDMAP.*function*		
RACMAP function	**Access level**	**Purpose**
MAP	READ	Create a filter for your own RACF user ID.
	UPDATE	Create a filter for another RACF user ID.
DELMAP	READ	Delete a filter for your own RACF user ID.
	UPDATE	Delete a filter for another RACF user ID.
LISTMAP	READ	List a filter for your own RACF user ID.
	UPDATE	List a filter for another RACF user ID.
QUERY	READ	Query a filter to find the matching RACF user ID.

Activating your changes

To activate your changes, you must activate and RACLIST the IDIDMAP class. When you create a distributed identity filter for the first time, issue the following command.

Example:

```
SETROPTS CLASSACT(IDIDMAP) RACLIST(IDIDMAP)
```

If the IDIDMAP class is already active and RACLISTed, refresh the class to activate your changes.

Example:

```
SETROPTS RACLIST(IDIDMAP) REFRESH
```

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the RACMAP command is:

RACMAP
[ID(*userid*)]

MAP
USERDIDFILTER(NAME('*distributed-identity-user-name*' | '*'))
REGISTRY(NAME('*distributed-identity-registry-name*' | '*'))
[WITHLABEL('*label-name*')]

| DELMAP [(LABEL('*label-name*'))]
| LISTMAP [(LABEL('*label-name*'))]

QUERY
USERDIDFILTER(NAME('*distributed-identity-user-name*'))
REGISTRY(NAME('*distributed-identity-registry-name*'))

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

Parameters

ID(*userid*)

Specifies the RACF user ID mapped by the distributed identity filter. The user ID must already be defined to RACF. If you do not specify ID, the default value is the RACF user ID of the command issuer.

The ID operand is ignored when specified with the QUERY function.

MAP

Specifies the MAP function of the RACMAP command. Use the MAP function to create a distributed identity filter that maps a user's distributed identity to a RACF user ID. The MAP function creates a profile in the IDIDMAP class for each filter you create.

Rule: When you specify the MAP function, you must specify USERDIDFILTER and REGISTRY.

USERDIDFILTER(NAME('*distributed-identity-user-name*' | '*'))

Specifies the significant portion of the distributed-identity user name. RACF uses the user name as part of the distributed identity filter to map a distributed identity to a RACF user ID.

The USERDIDFILTER operand is required for the MAP and QUERY functions and ignored for other RACMAP functions.

Specify the user name value enclosed in single quotation marks. If a single quotation mark is intended to be part of the name, specify two single quotation marks together for each single quotation mark in the name, and enclose the entire name value in single quotation marks.

The maximum length for a user name is 246 bytes.

In general, the user name can contain blank and mixed-case characters. Any leading or trailing blank or null characters are removed from the value before it is stored in the IDIDMAP profile.

You cannot specify the name value as a hexadecimal character string.

RACF converts the name that you specified from EBCDIC to UTF-8 prior to storing it in the RACF database.

If the IRR.IDIDMAP.PROFILE.CODEPAGE profile exists in the FACILITY class and contains a valid code page that is supported by RACF, then that code page is used to convert from EBCDIC to UTF-8. By default, code page IBM-1047 is used fro the conversion.

Examples:

```
USERDIDFILTER(NAME('DENICE'))
USERDIDFILTER(NAME('UID=GUSKI,OU=Tools,O=IBM,C=US'))
USERDIDFILTER(NAME('Rich''s ID'))
USERDIDFILTER(NAME('Dev\+Test219'))
USERDIDFILTER(NAME('*'))
```

Restriction for names containing multibyte characters: Because RACF converts the name value you specify from EBCDIC to UTF-8 format prior to storing it in the RACF database, if your value contains multibyte characters, the resulting UTF-8 value might be longer than 246 bytes. If this occurs, the command fails and message IRRW213I is issued.

Format of the user name value: Specify the user name value in any of the following three formats:

1. As a single asterisk (X'5C') to indicate that any user name matches this filter.
2. As a simple character string, such as a user ID defined in a non-LDAP registry.

   Typically, special characters do not appear in user names stored within a registry. However, if you need to specify a user name value that includes certain characters, they must be preceded by the backslash (\) escape character.

   These characters include the plus sign (+), semicolon (;), comma (,), quotation mark ("), backslash (\\), less than symbol (<), greater than symbol (>) and the equal sign (=).
3. As a character string that represents an X.500 distinguished name (DN).

   A DN consists of one or more relative distinguished names (RDNs). Each RDN consists of an attribute type and attribute value, separated by an equal sign (=). RDNs are separated by a comma (,).

   When you use mixed-case characters to specify the user name as a DN, the RACMAP command translates the attribute types to uppercase characters, and preserves the mixed-case characters of the attribute value.

   The RACMAP command performs no validity checking of the X.500 names you specify.

   Rules for specifying the user name as a distinguished name (DN):

   - Specify the user name value in its canonical form, as it is defined within the registry, with any special characters preceded by the backslash (\\) escape character. You must specify the RDNs in their correct sequence.

     For example, for users of WebSphere® Application Server applications, the canonical form of the user name must match the value returned by the `WSCredential` interface method called `getUniqueSecurityName()`.

- Typically, special characters do not appear in user names stored within a registry. However, if you need to specify a user name value that includes certain characters, including LDAP special characters, they must be preceded by the backslash (\) escape character.

  These characters include the plus sign (+), semicolon (`;`), comma (`,`), quotation mark ("), backslash (\\), less than symbol (<), greater than symbol (>), and the equal sign (=).

  Exception: Do not escape the equal sign (=), semicolon (`;`), or comma (`,`) when you specify them as delimiters of an RDN.
- Do not specify a blank character immediately preceding or following the equal sign (=) when using the equal sign as a delimiter of an attribute type or an RDN.

Normalization of the X.500 distinguished name (DN): When you specify the user name as a DN, the name is normalized before it is stored in the IDIDMAP profile. The normalized form of the DN appears in the output of the RACMAP LISTMAP command.

Normalization of the DN is done as follows:

- Any leading blank or null characters at the beginning of each RDN are removed.
- Any trailing blank or null characters at the end of each RDN are removed with the following exception.

  Exception: The last escaped blank or null character that precedes an RDN delimiter (an unescaped semicolon or comma) is not removed unless it appears in the last RDN.
- Any unescaped semicolon delimiter is replaced by a comma.
- Any lowercase characters that appear in the attribute type of each RDN are translated to uppercase characters.

Note: During normalization, a character is processed as an escaped character when it is preceded by an odd number of consecutive backslash characters.

REGISTRY(NAME('*distributed-identity-registry-name*' | '*'))

Specifies the registry that contains the distributed-identity user name. RACF uses the registry name as part of the distributed identity filter to map a distributed identity to a RACF user ID.

The REGISTRY operand is required for the MAP and QUERY functions and ignored for other RACMAP functions.

Specify the registry name value enclosed in single quotation marks. If a single quotation mark is intended to be part of the name, specify two single quotation marks together for each single quotation mark in the name, and enclose the entire name value in single quotation marks.

You can specify a single asterisk (X'5C') as the registry name to indicate that any distributed-identity registry name matches this filter.

The maximum length for a registry name is 255 bytes.

The registry name can contain blank and mixed-case characters. Any leading or trailing blank or null characters are removed from the value before it is stored in the IDIDMAP profile.

You cannot specify the name value as a hexadecimal character string.

RACF converts the name that you specified from EBCDIC to UTF-8 prior to storing it in the RACF database.

If the IRR.IDIDMAP.PROFILE.CODEPAGE profile exists in the FACILITY class and contains a valid code page that is supported by RACF, then that code page is used to convert from EBCDIC to UTF-8. By default, code page IBM-1047 is used fro the conversion.

Examples:

```
REGISTRY(NAME('ldaps://us.richradioham.com'))
REGISTRY(NAME('ldap://12.34.56.78:389'))
```

Restriction for names containing multibyte characters: Because RACF converts the name value you specify from EBCDIC to UTF-8 format prior to storing it in the RACF database, if your value contains multibyte characters, the resulting UTF-8 value might be longer than 255 bytes. If this occurs, the command fails and message IRRW213I is issued.

Defining registry names for LDAP servers: When the user's distributed identity is based on an LDAP registry, specify the *distributed-identity-registry-name* value as the URL of the LDAP server where the user is defined. The URL is defined with a `listen` option in the `ds.conf` configuration file of the LDAP server, or overridden using the `-l` command-line parameter when the LDAP server is started.

For information about LDAP URLs, see *z/OS IBM Tivoli Directory Server Administration and Use for z/OS*.

For users of WebSphere Application Server applications: The registry name must match the value returned by the `WSCredential` interface method called `getRealmName()`.

The RACMAP command performs no validity checking of the registry names you specify.

WITHLABEL('*label-name*')

Specifies the label assigned to this distributed identity filter. If specified, the label must be unique to the RACF user ID associated with this filter.

If WITHLABEL is not specified, RACF generates a label for the filter in the form of LABEL*nnnnnnnn*, where *nnnnnnnn* is the first integer value, starting at `00000001` that generates a unique label name.

Up to 32 characters can be specified for *label-name*. The label name can contain blank and mixed-case characters. Any leading or trailing blank characters are removed from the value before it is stored in the IDIDMAP profile.

Specify the label name value enclosed in single quotation marks. If a single quotation mark is intended to be part of the label name, specify two single quotation marks together for each single quotation mark in the name, and enclose the entire label name in single quotation marks.

The WITHLABEL operand is ignored when the RACMAP function is not MAP.

DELMAP

Specifies the DELMAP function of the RACMAP command. Use the DELMAP function to delete a distributed identity filter for the specified RACF user ID. The DELMAP function deletes the profile in the IDIDMAP class that contains the specified filter.

Rule: You must specify LABEL when the specified RACF user ID is associated with more than one filter.

LABEL('*label-name*')

Specifies the label name of the distributed identity filter to delete for the specified RACF user ID.

The LABEL operand is ignored when the RACMAP function is not DELMAP or LISTMAP.

Performance consideration: When you issue the RACMAP DELMAP command specifying both filter label and a user ID for which no user profile exists, RACF searches all profiles in the IDIDMAP class to locate and delete all distributed identity filters that match. This search might take an extended period of time.

LISTMAP

Specifies the LISTMAP function of the RACMAP command. Use the LISTMAP function to list information about a distributed identity filter for the specified RACF user ID.

Rule: You must specify LABEL when the specified RACF user ID is associated with more than one filter.

LABEL('*label-name*')

Specifies the label name of the distributed identity filter to list for the specified RACF user ID.

Tip: Omit LABEL to list all filters associated with the specified user ID.

The LABEL operand is ignored when the RACMAP function is not DELMAP or LISTMAP.

Note: When you define a distributed-identity user name as an X.500 distinguished name (DN), the DN appears in its normalized form in the LISTMAP output. For details about how a DN is normalized, see the description of the USERDIDFILTER operand of the MAP function.

If the filter cannot be listed because the IDIDMAP profile containing it is missing or incomplete, the following error text appears in the LISTMAP output:

```
Filter with label label-name not found.
```

Guideline: When this error text appears in the LISTMAP output, issue a RACMAP DELMAP command specifying this label name to remove residual filter information from the user's profile.

A missing or incomplete IDIDMAP profile might result if a previous RACMAP MAP command failed to complete due to a system failure or early termination by the issuer. If the filter or IDIDMAP profile were not created before the failure, the resulting user profile might contain residual filter information indicating that the RACF user ID is associated with a filter.

When you do not specify a RACMAP function, LISTMAP is the default function.

QUERY

Specifies the QUERY function of the RACMAP command. Use the QUERY function to find the matching RACF user ID that is associated with a distributed identity filter.

Rule: When you specify the QUERY function, you must specify USERDIDFILTER and REGISTRY.

USERDIDFILTER(NAME('*distributed-identity-user-name*'))

Specifies the significant portion of the distributed-identity user name. RACF uses the user name as part of the distributed identity filter to map a distributed identity to a RACF user ID.

The USERDIDFILTER operand is required for the MAP and QUERY functions and ignored for other RACMAP functions.

Specify the user name value enclosed in single quotation marks. If a single quotation mark is intended to be part of the name, specify two single quotation marks together for each single quotation mark in the name, and enclose the entire name value in single quotation marks.

The maximum length for a user name is 246 bytes.

In general, the user name can contain blank and mixed-case characters. Any leading or trailing blank or null characters are removed from the value before it is stored in the IDIDMAP profile.

You cannot specify the name value as a hexadecimal character string.

Examples:

```
USERDIDFILTER(NAME('DENICE'))
USERDIDFILTER(NAME('UID=GUSKI,OU=Tools,O=IBM,C=US'))
USERDIDFILTER(NAME('Rich''s ID'))
USERDIDFILTER(NAME('Dev\+Test219'))
```

Restriction for names containing multibyte characters: Because RACF converts the name value you specify from EBCDIC to UTF-8 format prior to storing it in the RACF database, if your value contains multibyte characters, the resulting UTF-8 value might be longer than 246 bytes. If this occurs, the command fails and message IRRW213I is issued.

Format of the user name value: Specify the user name value in either of the following two formats:

1. As a simple character string, such as a user ID defined in a non-LDAP registry.

   Typically, special characters do not appear in user names stored within a registry. However, if you need to specify a user name value that includes certain characters, they must be preceded by the backslash (****) escape character.

   These characters include the plus sign (+), semicolon (;), comma (,), quotation mark ("), backslash (\), less than symbol (<), greater than symbol (>) and the equal sign (=).

2. As a character string that represents an X.500 distinguished name (DN).

   A DN consists of one or more relative distinguished names (RDNs). Each RDN consists of an attribute type and attribute value, separated by an equal sign (=). RDNs are separated by a comma (`,`).

   When you use mixed-case characters to specify the user name as a DN, the RACMAP command translates the attribute types to uppercase characters, and preserves the mixed-case characters of the attribute value.

   The RACMAP command performs no validity checking of the X.500 names you specify.

   Rules for specifying the user name as a distinguished name (DN):

   - Specify the user name value in its canonical form, as it is defined within the registry, with any special characters preceded by the backslash (\) escape character. You must specify the RDNs in their correct sequence.

     For example, for users of WebSphere Application Server applications, the canonical form of the user name must match the value returned by the `WSCredential` interface method called `getUniqueSecurityName()`.
   - Typically, special characters do not appear in user names stored within a registry. However, if you need to specify a user name value that includes certain characters, including LDAP special characters, they must be preceded by the backslash (****) escape character.

     These characters include the plus sign (+), semicolon (`;`), comma (`,`), quotation mark ("), backslash (\), less than symbol (<), greater than symbol (>), and the equal sign (=).

     Exception: Do not escape the equal sign (=), semicolon (`;`), or comma (`,`) when you specify them as delimiters of an RDN.
   - Do not specify a blank character immediately preceding or following the equal sign (=) when using the equal sign as a delimiter of an attribute type or an RDN.

   Normalization of the X.500 distinguished name (DN): When you specify the user name as a DN, the name is normalized before it is used to find the matching user ID that is associated with the distributed identity filter. For details about how the DN is normalized, see the description of the USERDIDFILTER operand of the MAP function.

REGISTRY(NAME(*'distributed-identity-registry-name'* | *'*'*))

Specifies the registry that contains the distributed-identity user name. RACF uses the registry name as part of the distributed identity filter to map a distributed identity to a RACF user ID.

The REGISTRY operand is required for the MAP and QUERY functions and ignored for other RACMAP functions.

Specify the registry name value enclosed in single quotation marks. If a single quotation mark is intended to be part of the name, specify two single quotation marks together for each single quotation mark in the name, and enclose the entire name value in single quotation marks.

The maximum length for a registry name is 255 bytes.

Examples:

```
REGISTRY(NAME('ldaps://us.richradioham.com'))
REGISTRY(NAME('ldap://12.34.56.78:389'))
```

The registry name can contain blank and mixed-case characters. Any leading or trailing blank or null characters are removed from the value before it is stored in the IDIDMAP profile.

You cannot specify the name value as a hexadecimal character string.

Restriction for names containing multibyte characters: Because RACF converts the name value you specify from EBCDIC to UTF-8 format prior to storing it in the RACF database, if your value contains multibyte characters, the resulting UTF-8 value might be longer than 255 bytes. If this occurs, the command fails and message IRRW213I is issued.

Defining registry names for LDAP servers: When the user's distributed identity is based on an LDAP registry, specify the *distributed-identity-registry-name* value as the URL of the LDAP server where the user is defined. The URL is defined with a `listen` option in the `ds.conf` configuration file of the LDAP server, or overridden using the `-l` command-line parameter when the LDAP server is started.

For information about LDAP URLs, see *z/OS IBM Tivoli Directory Server Administration and Use for z/OS*.

For users of WebSphere Application Server applications: The registry name must match the value returned by the `WSCredential` interface method called `getRealmName()`.

The RACMAP command performs no validity checking of the registry names you specify.

Examples

Example	Activity label	Description
1	*Operation*	The security administrator wants to add a distributed identity filter that specifies the distributed user's name using all RDNs of the user's X.500 distinguished name.
	Known	The security administrator has the SPECIAL attribute.

	Command	`RACMAP ID(RLCOOK) MAP`
		`  USERDIDFILTER(NAME('UID=BobC,CN=Bob`
		`Cook,OU=Accounting,O=BobsMart,C=US'))`
		`  REGISTRY(NAME('ldaps://us.bobsmarturl.com'))`
		`  WITHLABEL('Accounting boss')`

	Defaults	None.
	Output	None. For a listing of the output of the RACMAP LISTMAP command for this filter, see Figure 57 on page 379.
2	*Operation*	The security administrator wants to add a distributed identity filter that specifies the distributed user's name using selected RDNs of the user's X.500 distinguished name.
	Known	The security administrator has the SPECIAL attribute.

	Command	`RACMAP ID(ACCTUSER) MAP`
		`  USERDIDFILTER(NAME('OU=Accounting,O=BobsMart,C=US'))`
		`  REGISTRY(NAME('ldaps://us.bobsmarturl.com'))`
		`  WITHLABEL('Accounting office workers')`

	Defaults	None.
	Output	None. For a listing of the output of the RACMAP LISTMAP command for this filter, see Figure 58 on page 379.
3	*Operation*	The security administrator wants to add a distributed identity filter that specifies the distributed user's name as a non-LDAP user name.
	Known	The security administrator has the SPECIAL attribute.

	Command	`RACMAP ID(DENICE) MAP`
		`  USERDIDFILTER(NAME('DENICE'))`
		`  REGISTRY(NAME('Registry01'))`
		`  WITHLABEL('Filter for Denice from Registry01')`

	Defaults	None.
	Output	None. For a listing of the RACMAP LISTMAP command for this filter, see Figure 59 on page 379.

Example	Activity label	Description
4	*Operation*	The security administrator wants to delete the distributed identity filter labeled `Filter for Denice from Registry01` for the RACF user ID DENICE.
	Known	The security administrator has the SPECIAL attribute.
	Command	`RACMAP ID(DENICE) DELMAP(LABEL('Filter for Denice from Registry01'))`
	Defaults	None.
	Output	None.
5	*Operation*	User GUSKI wants to list a distributed identity filter and knows that RLCOOK is the RACF user ID that is associated with it.
	Known	User GUSKI has UPDATE access to the IRR.IDIDMAP.LISTMAP resource in the FACILITY class.
	Command	`RACMAP ID(RLCOOK) LISTMAP`
	Defaults	None.
	Output	See Figure 57 on page 379.
6	*Operation*	User GUSKI wants to find out the RACF user ID associated with the distributed identity filter for the user name `OU=Accounting,O=BobsMart,C=US` in registry `ldaps://us.bobsmarturl.com`.
	Known	User GUSKI has READ access to the IRR.IDIDMAP.QUERY resource in the FACILITY class.

	Command	`RACMAP QUERY`
		`USERDIDFILTER(NAME('OU=Accounting,O=BobsMart,C=US'))`
		`REGISTRY(NAME('ldaps://us.bobsmarturl.com'))`

	Defaults	None.
	Output	`RACMAP QUERY result. RACF user ID: ACCTUSER`
	Note	For a listing of the output of the RACMAP LISTMAP command for this filter, see Figure 58 on page 379.

```
RACMAP ID(RLCOOK) LISTMAP
Mapping information for user RLCOOK:
 Label: Accounting boss
 Distributed Identity User Name Filter:
   >UID=BobC,CN=Bob Cook,OU=Accounting,O=BobsMart,C=US<
 Registry name:
   >ldaps://us.bobsmarturl.com<
```

Figure 57. Example 1: Output for the RACMAP LISTMAP command

```
RACMAP ID(ACCTUSER) LISTMAP
Mapping information for user ACCTUSER:
 Label: Accounting office workers
 Distributed Identity User Name Filter:
   >OU=Accounting,O=BobsMart,C=US<
 Registry name:
   >ldaps://us.bobsmarturl.com<
```

Figure 58. Example 2: Output for the RACMAP LISTMAP command

```
RACMAP ID(DENICE) LISTMAP
Mapping information for user DENICE:
 Label: Filter for Denice from Registry01
 Distributed Identity User Name Filter:
   >DENICE<
 Registry name:
   >Registry01<
```

Figure 59. Example 3: Output for the RACMAP LISTMAP command

RACPRIV (Set write-down privileges)

Purpose

Use the RACPRIV command to allow users, who are authorized to the profile IRR.WRITEDOWN.BYUSER in the FACILITY class, to set, reset, and query the setting of the write-down privilege that they are running within their address space. This command ends with an error message if write-down by user is not active on the system.

To activate write-down by user, the profile IRR.WRITEDOWN.BYUSER must be defined in the FACILITY class, the FACILITY class must be active and RACLISTed, and the SETR MLS option must be active.

Issuing options

The following table identifies the eligible options for issuing the RACPRIV command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	No	No	No	No

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

Authorization required

To issue the RACPRIV command, the user must have at least READ access to IRR.WRITEDOWN.BYUSER in the FACILITY class.

Syntax

For the key to the symbols used in the command syntax diagrams, see “Syntax of RACF commands and operands” on page 11. The complete syntax of the RACPRIV command is:

```
RACPRIV

     [ WRITEDOWN [( ACTIVE | INACTIVE | RESET )] ]
```

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

Parameters

WRITEDOWN
Specifies the user's current write-down mode. If WRITEDOWN is specified without a value, or if RACPRIV is issued without any keywords, the current write-down mode is listed. The write-down privilege can only be set, reset, or listed if the FACILITY class is active and RACLISTed, the profile IRR.WRITEDOWN.BYUSER exists in the FACILITY class in the RACLISTed profiles, the SETR MLS option is active, and the user issuing the command has authority to IRR.WRITEDOWN.BYUSER.

ACTIVE
Specifies that the user's write-down mode be set on.

INACTIVE
Specifies that the user's write-down mode be set off.

RESET
Specifies that the user's write-down mode be reset to the user's installation defined default.

Examples

Example	Activity label	Description
1	*Operation*	User DEBBIE1 wants to know her current write-down setting.
	Known	• DEBBIE1 has READ access to IRR.WRITEDOWN.BYUSER. • The FACILITY class is active and RACLISTed. • The profile IRR.WRITEDOWN.BYUSER exists in the FACILITY class in the RACLISTed profiles. • The SETROPTS MLS option is active.
	Command	`RACPRIV`
	Defaults	None.
	Output	User DEBBIE1 might receive the following message: `WRITEDOWN is not currently active for this user`
2	*Operation*	User DEBBIE1 wants to set her write-down setting to active.
	Known	• DEBBIE1 has READ access to IRR.WRITEDOWN.BYUSER. • The FACILITY class is active and RACLISTed. • The profile IRR.WRITEDOWN.BYUSER exists in the FACILITY class in the RACLISTed profiles. • The SETROPTS MLS option is active.
	Command	`RACPRIV WRITEDOWN(ACTIVE)`
	Defaults	None.
	Output	User DEBBIE1 will receive the following message: `WRITEDOWN is currently active for this user`

RACPRMCK (Validate parmlib member syntax)

Purpose

Use the RACPRMCK command to validate the syntax of one or more RACF parmlib members and verify that the content of the member is valid prior to IPLing.

The input to the command is the name of one or more parmlib members. The output of the command, consists of one or more messages that are displayed to indicate whether the RACF parmlib member is valid or not.

Issuing options

The following table identifies the eligible options for issuing the RACPRMCK command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	Yes	No	No	No

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

Authorization required

When issuing this command as a RACF operator command, you might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

Syntax

For the key to the symbols used in the command syntax diagrams, see “Syntax of RACF commands and operands” on page 11. The complete syntax of the RACPRMCK command is:

```
RACPRMCK

    MEMBER(member-name1 [, member-name2 [, member-name3]] )
```

Parameters

MEMBER(*member-name1* [, *member-name2* [, *member-name3*]])
Specifies the name of one or more RACF parmlib members that you want to validate. The member name must reside in a data set that is part of the parmlib concatenation. A maximum of 3 parmlib members can be specified.

RALTER (Alter general resource profile)

Purpose

Use the RALTER command to:

- Alter the profile for one or more resources belonging to classes defined in the class descriptor table. Using RALTER to modify an automatic TAPEVOL profile (a profile RACF creates automatically as part of protecting a tape data set) makes that TAPEVOL profile nonautomatic. For more information about TAPEVOL profiles, see *z/OS Security Server RACF Security Administrator's Guide*.
- Change the global access checking table
- Change the attributes of classes in the dynamic class descriptor table
- Change the list of security categories
- Change the list of security levels

To have changes take effect after altering a generic profile if the class is not RACLISTed using the RACROUTE REQUEST=LIST, GLOBAL=YES, or SETROPTS RACLIST, one of the following steps is required:

- The security administrator issues the SETROPTS command:

  ```
  SETROPTS GENERIC(class-name) REFRESH
  ```

See the SETROPTS command for authorization requirements.

- The user of the resource logs off and logs on again.

To have changes take effect after altering a generic profile if the class has been RACLISTed, the security administrator issues the following command:

```
SETROPTS RACLIST(class-name) REFRESH
```

⚠ **Attention:**

- When the RALTER command is issued from ISPF, the TSO command buffer (including SESSKEY, SSIGNON and possible BINDPW password data) is written to the ISPLOG data set. As a result, you should not issue this command from ISPF or you must control the ISPLOG data set carefully.
- When the command is issued as a RACF operator command, the command (including SESSKEY, SSIGNON and possible BINDPW password data) is written to the system log. Therefore, if any of the sensitive operands are used the command should be issued through TSO, not as an operator command.

Issuing options

The following table identifies the eligible options for issuing the RALTER command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	Yes	Yes	Yes	Yes

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, "RACF operator commands," on page 21.

You must be logged on to the console to issue this command as a RACF operator command.

Related commands

- To define a general resource profile, see "RDEFINE (Define general resource profile)" on page 444.
- To list a general resource profile, see "RLIST (List general resource profile)" on page 512.
- To permit or deny access to a general resource profile, see "PERMIT (Maintain resource access lists)" on page 237.
- To obtain a list of general resource profiles, see "SEARCH (Search RACF database)" on page 541.

Authorization required

When issuing this command as a RACF operator command, you might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

To alter the profile for a resource belonging to a class defined in the class descriptor table, you must have sufficient authority over the resource. RACF makes the following checks until one of the conditions is met:

- You have the SPECIAL attribute.
- The resource profile is within the scope of a group in which you have the group-SPECIAL attribute.
- You are the owner of the profile.

- To assign a security label, you must have the SPECIAL attribute or have READ access to the security label profile. However, the security administrator can limit the ability to assign security labels to only users with the SPECIAL attribute.
- To assign a security category to a profile, you must have the SPECIAL attribute, or the category must be in your user profile.
- To assign a security level to a profile, you must have the SPECIAL attribute, or, in your own profile, a security level that is equal to or greater than the security level you are assigning.
- Only a SPECIAL user can define a delegated resource (by specifying the `RACF-DELEGATED` string in the APPLDATA of the profile protecting the resource) when the resource has a SECLABEL and SETROPTS SECLABELCONTROL is in effect.
- To modify information in segments other than the base segment, such as DLFDATA, you must have the SPECIAL attribute or your installation must permit you to do so through field-level access checking.
- For a discrete profile, you have ALTER authority.[7]

To use the GLOBALAUDIT operand, you must have the AUDITOR attribute or the profile is within the scope of a group in which you have group-AUDITOR attribute.

If you have the AUDITOR attribute or the resource profile is within the scope of a group in which you have the group-AUDITOR attribute, but you do not satisfy one of the preceding checks, you can specify only the GLOBALAUDIT operand.

Restrictions: The following operands have restrictions noted with the description of each operand:

- ADDMEM
- DELMEM
- ADDVOL
- GLOBALAUDIT

To specify the AT keyword, you must have READ authority to the DIRECT.*node* resource in the RRSFDATA class and a user ID association must be established between the specified *node.userid* pair(s).

To specify the ONLYAT keyword you must have the SPECIAL attribute, the *userid* specified on the ONLYAT keyword must have the SPECIAL attribute, and a user ID association must be established between the specified *node.userid* pair(s) if the user IDs are not identical.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the RALTER command is:

[*subsystem-prefix*]{RALTER | RALT}
class-name
(***profile-name ...***)
[ADDCATEGORY(*category-name ...*) | DELCATEGORY [({*category-name ...* | * })]]
[{ADDMEM | DELMEM} (*member ...*)]
[{ADDVOL | DELVOL} (*volume-serial ...*)]

[7] More information about ALTER authority and how to limit it can be found in Limiting ALTER access authority in discrete profiles in *z/OS Security Server RACF Security Administrator's Guide*.

```
[ APPLDATA ('application-data') | NOAPPLDATA ]
```

```
[ AT([node].userid ...) | ONLYAT([node].userid ...) ]
```

```
[ AUDIT( access-attempt [(audit-access-level)] ...) ]
```

```
[ CDTINFO(
    [ CASE ( UPPER | ASIS ) | NOCASE ]
    [ DEFAULTRC ( 0 | 4 | 8 ) | NODEFAULTRC ]
    [ DEFAULTUACC (ACEE | ALTER | CONTROL
                          | UPDATE | READ | NONE)
        | NODEFAULTUACC ]
    [ FIRST ( characters-allowed ... ) | NOFIRST ]
    [ GENERIC ( ALLOWED | DISALLOWED ) | NOGENERIC ]
    [ GENLIST ( ALLOWED | DISALLOWED ) | NOGENLIST ]
    [ GROUP ( grouping-class-name ) | NOGROUP ]
    [ KEYQUALIFIERS ( nnn ) | NOKEYQUALIFIERS ]
    [ MACPROCESSING ( NORMAL | REVERSE | EQUAL )
      | NOMACPROCESSING ]
    [ MAXLENGTH ( nnn ) | NOMAXLENGTH ]
    [ MAXLENX ( nnn ) | NOMAXLENX ]
    [ MEMBER ( member-class-name ) | NOMEMBER ]
    [ OPERATIONS ( YES | NO ) | NOOPERATIONS ]
    [ OTHER ( characters-allowed ...) | NOOTHER ]
    [ POSIT ( nnn ) | NOPOSIT ]
    [ PROFILESALLOWED ( YES | NO )
        | NOPROFILESALLOWED ]
    [ RACLIST ( ALLOWED | DISALLOWED | REQUIRED )
        | NORACLIST ]
    [ SECLABELSREQUIRED ( YES | NO )
        | NOSECLABELSREQUIRED ]
    [ SIGNAL ( YES | NO ) | NOSIGNAL ]
    )
  | NOCDTINFO ]
```

```
[ CFDEF(
    [ FIRST( ALPHA | ALPHANUM | ANY
         | NONATABC | NONATNUM | NUMERIC ) ]
    [ HELP( help-text ) ]
    [ LISTHEAD( list-heading-text ) ]
    [ MAXLENGTH( maximum-field-length ) ]
    [ MAXVALUE( maximum-numeric-value ) | NOMAXVALUE ]
    [ MINVALUE( minimum-numeric-value ) | NOMINVALUE ]
    [ MIXED( YES | NO ) ]
    [ OTHER( ALPHA | ALPHANUM | ANY
        | NONATABC | NONATNUM | NUMERIC )
    [ VALREXX( REXX-exec-name ) ]
      )
  | NOCFDEF ]
```

```
[ CSDATA(
      [ custom-field-name(custom-field-value) | NOcustom-field-name ] ...
   )
   | NOCSDATA ]
```

```
[ DATA ('installation-defined-data') | NODATA ]
```

```
[ DLFDATA(
      [ RETAIN ( YES | NO ) | NORETAIN ]
      [ JOBNAMES(jobname1 ...)
            | NOJOBNAMES
            | ADDJOBNAMES(jobname1 ...)
            | DELJOBNAMES(jobname1 ...) ]
      )
   | NODLFDATA ]
```

```
[ EIM(
      [ DOMAINDN (eim_domain_dn) | NODOMAINDN ]
      [ OPTIONS (ENABLE | DISABLE) | NOOPTIONS ]
      [ LOCALREGISTRY (registry_name) | NOLOCALREGISTRY ]
      [ KERBREGISTRY (registry_name) | NOKERBREGISTRY ]
      [ X509REGISTRY (registry_name) | NOX509REGISTRY ]
      )
   | NOEIM ]
```

```
[ GLOBALAUDIT (access-attempt[(audit-access-level)] ...) ]
```

```
[ ICSF(
      [ ASYMUSAGE(
            [ HANDSHAKE | NOHANDSHAKE ]
            [ SECUREEXPORT | NOSECUREEXPORT ]
         )
         | NOASYMUSAGE ]
      [ SYMEXPORTABLE(BYANY | BYLIST | BYNONE)
         | NOSYMEXPORTABLE ]
      [ SYMEXPORTCERTS([qualifier]/label-name ... | *)
         | ADDSYMEXPORTCERTS([qualifier]/label-name ... | *)
         | DELSYMEXPORTCERTS([qualifier]/label-name ... | *)
         | NOSYMEXPORTCERTS ]
      [ SYMEXPORTKEYS(ICSF-key-label ... | *)
         | ADDSYMEXPORTKEYS(ICSF-key-label ... | *)
         | DELSYMEXPORTKEYS(ICSF-key-label ... | *)
         | NOSYMEXPORTKEYS ]
      [ SYMCPACFWRAP ( YES | NO ) ]
      [ SYMCPACFRET ( YES | NO ) ]
         )
   | NOICSF ]
```

```
[ ICTX(
      [ USEMAP( YES | NO ) | NOUSEMAP ]
      [ DOMAP( YES | NO ) | NODOMAP ]
      [ MAPREQUIRED( YES | NO ) | NOMAPREQUIRED ]
      [ MAPPINGTIMEOUT(nnnn) | NOMAPPINGTIMEOUT ]
         )
   | NOICTX ]
```

```
[ IDTPARMS(
      [ SIGTOKEN(pkcs11-token-name ) | NOSIGTOKEN ]
      [ SIGSEQNUM( pkcs11-sequence-number ) | NOSIGSEQNUM ]
      [ SIGCAT( pkcs11-category ) | NOSIGCAT ]
      [ SIGALG( HS256 | HS384 | HS512) | NOSIGALG ]
      [ ANYAPPL(YES | NO) ]
      [ IDTTIMEOUT( timeout-minutes ) | NOIDTTIMEOUT ]
      [ PROTALLOWED ( YES | NO ) ]
         )
   | NOIDTPARMS ]
```

```
[ JES(
      [ KEYLABEL(key-label) | NOKEYLABEL ]
         )
   | NOJES ]
```

```
[ KERB(
      [ CHECKADDRS( YES | NO ) | NOCHECKADDRS ]
      [ DEFTKTLFE(def-ticket-life) | NODEFTKTLFE ]
      [ ENCRYPT(
            [ DES | NODES ]
            [ DES3 | NODES3 ]
            [ DESD | NODESD ]
            [ AES128 | NOAES128 ]
            [ AES256 | NOAES256 ]
            [ AES128SHA2 | NOAES128SHA2 ]
            [ AES256SHA2 | NOAES256SHA2 ]
            )
         | NOENCRYPT ]
      [ KERBNAME(kerberos-realm-name) | NOKERBNAME ]
      [ MAXTKTLFE(max-ticket-life) | NOMAXTKTLFE ]
      [ MINTKTLFE(min-ticket-life) | NOMINTKTLFE ]
      [ PASSWORD(kerberos-password) | NOPASSWORD ]
      )
   | NOKERB ]
```

```
[ LEVEL (nn) ]
```

```
[ MFA | NOMFA ]
[ MFPOLICY(
      [ FACTORS(factor-name ...)
         | ADDFACTORS(factor-name ...)
         | DELFACTORS(factor-name ...)
         | NOFACTORS]
      [ TOKENTIMEOUT(timeout-seconds)]
      [ REUSE(YES|NO)]
      )
   | NOMFPOLICY ]
```

```
[ NOTIFY [(userid)] | NONOTIFY ]
```

```
[ OWNER (userid or group-name) ]
```

```
[ PROXY(
      [ LDAPHOST (ldap_url) | NOLDAPHOST ]
      [ BINDDN (bind_distinguished_name) | NOBINDDN ]
      [ BINDPW (bind_password) | NOBINDPW ]
      )
   | NOPROXY ]
```

```
[ SECLABEL (seclabel-name) | NOSECLABEL ]
```

```
[ SECLEVEL (seclevel-name) | NOSECLEVEL ]
```

```
[ SESSION(
      [ CONVSEC( NONE | CONV | ALREADYV | PERSISTV | AVPV )
         | NOCONVSEC ]
      [ INTERVAL(n) | NOINTERVAL ]
      [ LOCK | NOLOCK ]
      [ SESSKEY(session-key) | NOSESSKEY ]
      )
   | NOSESSION ]
```

```
[ SIGVER(
      [ SIGREQUIRED( YES | NO ) | NOSIGREQUIRED ]
      [ FAILLOAD( ANYBAD | BADSIGONLY | NEVER ) | NOFAILLOAD ]
      [ SIGAUDIT( ALL | SUCCESS | ANYBAD | BADSIGONLY | NONE )
         | NOSIGAUDIT ]
      )
   | NOSIGVER ]
```

```
[ SINGLEDSN | NOSINGLEDSN ]
[ SSIGNON(
      [ KEYMASKED(legacy-passticket-key-value)
         | KEYENCRYPTED(legacy-passticket-key-value)
         | ENCRYPTKEY
         | KEYLABEL(legacy-passticket-label-value)
         | NOLEGACYKEY ]
      [ EPTKEYLABEL(enhanced-passticket-label-value) | NOEPTKEYLABEL ]
      [ TYPE(UPPER | MIXED) | NOTYPE ]
      [ TIMEOUT(timeout-seconds) | NOTIMEOUT ]
      [ REPLAY(YES | NO) ]
      )
    | NOSSIGNON ]
```

```
[ STDATA(
      [ USER(userid | =MEMBER) | NOUSER ]
      [ GROUP(group-name | =MEMBER) | NOGROUP ]
      [ PRIVILEGED( YES | NO ) | NOPRIVILEGED ]
      [ TRACE( YES | NO ) | NOTRACE ]
      [ TRUSTED( YES | NO ) | NOTRUSTED ]
      )
   | NOSTDATA ]
```

```
[ SVFMR(
      [ SCRIPTNAME(script-name) | NOSCRIPTNAME ]
      [ PARMNAME(parm-name) | NOPARMNAME ]
      )
   | NOSVFMR ]
```

```
[ TIMEZONE( {E | W} hh [.mm]) | NOTIMEZONE ]
[ TME(
      [ CHILDREN(profile-name ...)
         | ADDCHILDREN(profile-name ...)
         | DELCHILDREN(profile-name ...)
         | NOCHILDREN ]
      [ GROUPS(group-name ...)
         | ADDGROUPS(group-name ...)
         | DELGROUPS(group-name ...)
         | NOGROUPS ]
      [ PARENT(profile-name) | NOPARENT ]
      [ RESOURCE(resource-access-specification ...)
         | ADDRESOURCE(resource-access-specification ...)
         | DELRESOURCE(resource-access-specification ...)
         | NORESOURCE ]
      [ ROLES(role-access-specification ...)
         | ADDROLES(role-access-specification ...)
         | DELROLES(role-access-specification ...)
         | NOROLES ]
      )
   | NOTME ]

[ TVTOC | NOTVTOC ]

[ UACC(access authority) ]

[ WARNING | NOWARNING ]

[ WHEN( [ DAYS(day-info)] [ TIME(time-info) ]) ]
```

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

class-name

Specifies the name of the class to which the resource belongs. Valid class names are those defined in the class descriptor table. For a list of general resource classes defined in the class descriptor table supplied by IBM, see Appendix B, “Supplied RACF resource classes,” on page 647.

This operand is required and must be the first operand following RALTER.

This command is not intended to be used for profiles in the following classes:

- DCEUUIDS
- DIGTCERT
- DIGTNMAP
- DIGTRING
- IDIDMAP
- NDSLINK
- NOTELINK
- ROLE
- UNIXMAP

(*profile-name ...*)

Specifies the name of the profile you want to change. The name you specify must be the name of an existing discrete or generic profile in the specified class. RACF uses the class descriptor table to determine the syntax of resource names within the class and whether the resource is a group.

Mixed-case profile names are accepted and preserved when *class-name* refers to a class defined in the static class descriptor table with CASE=ASIS or in the dynamic class descriptor table with CASE(ASIS).

This operand is required and must be the second operand following RALTER.

Note:

1. For class TAPEVOL, if the volume serial specified for *profile-name* is a member of a tape volume set, then the profile definition for all tapes in the set is changed, because there is only one profile for the tape volume set.

   A tape volume set is used to refer to a set of two or more tapes created by the overflow of one tape to the next. RACF protects these tapes with one profile. Hence, if the value specified for *profile-name* on this command is a member of a tape volume set, the changes in its resource profile affect the other members of the set.
2. You can specify only a single volume serial number if you also specify the ADDVOL or DELVOL operand.
3. To define a controlled program, you must specify *class-name* as PROGRAM and also specify ADDMEM or DELMEM. Also, you can specify only one *profile-name*.
4. If you specify *class-name* as PROGRAM, *profile-name* must identify one or more load modules or program objects. If you specify the full name of the program, the profile applies only to load modules or program objects with that specific name. If you specify the last character of the name as an *, the profile applies to all load modules or program objects that match the preceding part of the name, but only if they reside in one of the libraries listed in the profile's member list. For example, `IKF*` identifies all load module names that begin with `IKF`. If you specify *profile-name* as * or **, then the profile applies to all load modules and program objects that reside in one of the libraries you identify in the profile's member list, unless a profile with a more specific name and matching library applies.
5. For z/OS Integrated Security Services Network Authentication Service, the profile name for the definition of the local realm must be KERBDFLT.
6. RACF processes each profile name you specify independently, and all operands you specify apply to each named profile name. If an error occurs while processing a profile name, RACF issues a message and continues processing with the next profile name.

ADDCATEGORY | DELCATEGORY

ADDCATEGORY(*category-name ...*)

Specifies one or more names of installation-defined security categories. The *category-name* you specify must be defined as members of the CATEGORY profile in the SECDATA class. (For information on defining security categories, see *z/OS Security Server RACF Security Administrator's Guide*.)

Specifying ADDCATEGORY causes RACF to add any *category-name* values you specify to any list of required categories that already exists in the resource profile. All users previously allowed to access the resource can continue to do so only if their profiles also include the additional values for *category-name*.

When the SECDATA class is active and you specify ADDCATEGORY, RACF performs security category checking in addition to its other authorization checking. If a user requests access to a resource, RACF compares the list of security categories in the user profile with the list of security categories in the resource profile. If RACF finds any security category in the resource profile that is not in the user's profile, RACF denies access to the resource. If the user's profile contains all the required security categories, RACF continues with other authorization checking.

Note:

1. RACF does not perform security category checking for a started task with the RACF privileged or trusted attribute. The RACF privileged or trusted attribute can be assigned to a started task through the RACF started procedures table or STARTED class. Also, RACF does not enforce security category information specified on profiles in the PROGRAM class.
2. If you specify both ADDCATEGORY and DELCATEGORY, RACF uses the last operand that you specify.

DELCATEGORY[(*category-name ...* | *)]

Specifies one or more names of installation-defined security categories you want to delete from the resource profile. Specifying an asterisk (*) deletes all categories; RACF no longer performs security category checking for the resource.

Specifying DELCATEGORY by itself causes RACF todelete from the profile only undefined category names (those category names that were once known to RACF but that the installation has since deleted from the CATEGORY profile).

Note: If you specify both ADDCATEGORY and DELCATEGORY, RACF uses the last operand that you specify.

ADDMEM | DELMEM

Specifies the resource names that RACF is to add to, or delete from, the member list of the resource group profile indicated by *profile-name*.

ADDMEM(*member ...*)

You can use the ADDMEM operand to perform tasks such as altering security categories and security levels, entries in the global access checking table, and entries for program control, or to implement security labels on a system basis, as described in the following sections.

If you specify ADDMEM to add one or more members to an existing profile, the new members are stored in the profile in the reverse of the order in which you specified them with the ADDMEM operand of the RALTER command. Additionally, if the existing profile already contains members, the new members are stored ahead of the existing members. For example, if you specify ADDMEM(C D) with the RALTER command to add members to an existing profile that already contains the members A B, the resulting member list stored in the profile is D C A B.

Mixed-case member names are accepted and preserved when *class-name* refers to a class defined in the static class descriptor table with CASE=ASIS or in the dynamic class descriptor table with CASE(ASIS). When *class-name* is GLOBAL and *profile-name* is the name of a class defined in the static class descriptor table with CASE=ASIS or in the dynamic class descriptor table with CASE(ASIS), the name part of a member entry in the GLOBAL access table is preserved as entered.

For ADDMEM with the GLOBAL DATASET class, no characters including generic characters, such as the asterisk (*) and the percent sign (%), can be combined with the value &RACUID to form a single qualifier level of the member name. This restriction does not exist for ADDMEM with classes other than GLOBAL DATASET.

For ADDMEM with the RACFVARS class, the following rules apply:

- Do not specify generic characters, such as the ampersand (&), the asterisk (*) and the percent sign (%) in a member name.
- Issue the SETROPTS RACLIST(RACFVARS) REFRESH command to activate your member change.
- If your member change affects profiles in a class with in-storage profiles processed by RACLIST or GENLIST, you must also refresh that class to activate your change.

For important guidelines, see How RACF uses the RACFVARS member list in *z/OS Security Server RACF Security Administrator's Guide*.

To add members using the RALTER command, you need one of the following authorities, in addition to the authority needed to issue the RALTER command:

1. For classes other than SECLABEL, PROGRAM, SECDATA, GLOBAL, RACFVARS, and NODES, if the member resources are already RACF-protected by a member class profile or as a member of a profile in the same grouping class, one of the following must be true:
   - You have ALTER access authority to the member.[8]
   - You are the owner of the member resource.
   - The member resource is within the scope of a group in which you have the group-SPECIAL attribute.
   - You have the SPECIAL attribute.
2. For classes other than SECLABEL, PROGRAM, SECDATA, GLOBAL, RACFVARS, and NODES, if the member resources are not RACF-protected (that is, there is no profile defined for that member), one of the following must be true:
   - You have CLAUTH authority to define resources in the member resource class.
   - You have the SPECIAL attribute.
3. To add a member to a profile in the RACFVARS or NODES class, one of the following must be true:
   - You have CLAUTH authority to define resources in the specified class (for example, RACFVARS or NODES).
   - You have the SPECIAL attribute.
   - You are the owner of the profile indicated by *profile-name*.
   - You have ALTER access authority to the profile indicated by *profile-name*.[9]
4. To add a member to a profile in the PROGRAM or SECDATA class, one of the following must be true:
   - You have CLAUTH authority to define resources in the specified class (for example, PROGRAM or SECDATA).
   - You have the SPECIAL attribute.

[8] More information about ALTER authority and how to limit it can be found in Limiting ALTER access authority in discrete profiles in *z/OS Security Server RACF Security Administrator's Guide*.

[9] More information about ALTER authority and how to limit it can be found in Limiting ALTER access authority in discrete profiles in *z/OS Security Server RACF Security Administrator's Guide*.

5. To add a member to a profile in the GLOBAL class (other than the GLOBAL DATASET, GLOBAL DIRECTRY, or GLOBAL FILE profile) using the following syntax:

   ```
   RALT GLOBAL class-name
      ADDMEM(resource-name/access-level)
   ```

   - If the profile *resource-name* is already RACF-protected by a profile in class *class-name*:
     - You have ALTER access authority to the profile *resource-name* in class *class-name*.
     - You are the OWNER of the profile *resource-name*.
     - The profile *resource-name* in class *class-name* is within the scope of a group in which you have the group-special attribute.
     - You have the SPECIAL attribute.
   - If the profile *resource-name* is not already RACF-protected (that is, there is no profile defined for that member in class *class-name*):
     - You have CLAUTH authority to define resources in the class *class-name*.
     - You have the SPECIAL attribute.
6. To add a member to the GLOBAL DATASET profile, one of the following must be true:
   - You are the owner of the DATASET profile in the GLOBAL class.
   - The member is within the scope of a group in which you have the group-SPECIAL attribute.
   - You have the SPECIAL attribute.
7. To add a member to the GLOBAL DIRECTRY or GLOBAL FILE profile, you must have the SPECIAL attribute.

For more information on the format of member names in general, and for specific classes (SECLABEL, GLOBAL, NODES, PROGRAM, SECDATA), see "Specifying member on the ADDMEM operand" under the ADDMEM parameter of the RDEFINE command.

Note: If you specify both ADDMEM and DELMEM, RACF uses the last operand that you specify.

DELMEM(*member ...*)

Specifies the resource names that are to be deleted from the resource group indicated by *profile-name*. This operand is ignored when the class name specified is not a resource group class.

If *class-name* is specified as GLOBAL the rules for *member* are the same as given for ADDMEM. If *class-name* is specified as SECDATA, *member* should be a valid SECLEVEL name or category name.

Mixed-case member names are accepted and preserved when *class-name* refers to a class defined in the static class descriptor table with CASE=ASIS or in the dynamic class descriptor table with CASE(ASIS). When *class-name* is GLOBAL and *profile-name* is the name of a class defined in the static class descriptor table with CASE=ASIS or in the dynamic class descriptor table with CASE(ASIS), the name part of a member entry in the GLOBAL access table is preserved as entered.

For DELMEM with the RACFVARS class, the following rules apply:

- Issue the SETROPTS RACLIST(RACFVARS) REFRESH command to activate your member change.
- If your member change affects profiles in a class with in-storage profiles processed by RACLIST or GENLIST, you must also refresh that class to activate your change.

For important guidelines, see How RACF uses the RACFVARS member list in *z/OS Security Server RACF Security Administrator's Guide*.

Note: If you specify both ADDMEM and DELMEM, RACF uses the last operand that you specify.

ADDVOL | DELVOL

ADDVOL(*volume-serial ...*)

Specifies the tape volume serial numbers to be added to the tape volume set represented by *profile-name*. When you specify ADDVOL, *profile-name* must be a single volume serial number, which can identify any of the volumes currently defined in the volume set.

To use the ADDVOL operand, you must have the SPECIAL attribute, or you must have the CLAUTH attribute for the TAPEVOL resource class in addition to the other authorization requirements for using the RALTER command.

If you specify a generic profile, RACF ignores this operand.

Note:

1. The ADDVOL operand is only valid for the TAPEVOL resource class.
2. If you specify both ADDVOL and DELVOL, RACF uses the last operand that you specify.

DELVOL(*volume-serial ...*)

Specifies the tape volume serial numbers to be deleted from the tape volume set represented by *profile-name*. When you specify DELVOL, *profile-name* must be a single volume serial number, which can identify any of the volumes currently defined in the volume set except one of the volumes to be deleted. If you specify the same volume serial number for both *profile-name* and DELVOL, RACF ignores it.

If you try to delete a tape volume when the TAPEVOL profile contains one or more TVTOC entries, RACF does not complete the command if a TVTOC entry indicates that there is a protected data set on the volume. To delete this volume, you must first use the DELDSD command to delete any protected data sets on the volume.

If you specify a generic profile, RACF ignores this operand.

Note:

1. The DELVOL operand is only valid for the TAPEVOL resource class.
2. If you specify both ADDVOL and DELVOL, RACF uses the last operand that you specify.

APPLDATA | NOAPPLDATA

APPLDATA('*application-data*')

Specifies a text string that is associated with each of the named resources. The text string can contain a maximum of 255 characters and must be enclosed in single quotation marks. It can also contain double-byte character set (DBCS) data.

Rules:

- For profiles in the PROGRAM class, RACF examines the APPLDATA (if any) and perform special processing if you have specified `MAIN` or `BASIC` (optionally followed by blanks). This processing will occur only for profiles whose names do not end in `*`, and only when you have enabled enhanced PGMSECURITY mode. For details of this processing, see *z/OS Security Server RACF Security Administrator's Guide*.
- For the FACILITY class, RACF examines the APPLDATA value of the following profiles:
  - **BPX.UNIQUE.USER**

    The APPLDATA value specifies the name of a user profile from which RACF can copy OMVS segment information (other than UID) when assigning unique UIDs through a callable service.
  - **BPX.DEFAULT.USER**

    The APPLDATA value specifies a user ID and group name from which RACF can retrieve default OMVS segment information. Beginning with z/OS Version 1 Release 11, the BPX.DEFAULT.USER profile is ignored when the BPX.UNIQUE.USER profile is defined. Beginning with z/OS Version 2 Release 1, the BPX.DEFAULT.USER profile is no longer supported.
  - **BPX.NEXT.USER**

The APPLDATA value specifies information that RACF will use for the automatic assignment of OMVS UIDs and GIDs.

- **IRR.PGMSECURITY**

  The APPLDATA value specifies whether RACF will operate in *basic*, *enhanced*, or *enhanced-warning* PGMSECURITY mode.

  - If the APPLDATA value contains the string `ENHANCED`, then RACF will run in enhanced PGMSECURITY mode.
  - If the APPLDATA value contains the string `BASIC`, then RACF will run in basic PGMSECURITY mode.
  - If the APPLDATA is empty or contains any other value, RACF will run in enhanced PGMSECURITY mode but in warning mode rather than failure mode.

- **IRR.PROGRAM.SIGNING.*group.userid***
- **IRR.PROGRAM.SIGNING.*userid***
- **IRR.PROGRAM.SIGNING.*group***
- **IRR.PROGRAM.SIGNING**

  For any of the IRR.PROGRAM.SIGNING profiles, the APPLDATA value specifies the signing hash algorithm, and the SAF key ring to use when signing a program.

- **IRR.PROGRAM.SIGNATURE.VERIFICATION**

  The APPLDATA value specifies the SAF key ring to use when verifying the signature of a signed program.

- **IRR.IDIDMAP.PROFILE.CODEPAGE**

  The APPLDATA value specifies the code page which is to be used when processing the USERDIDFILTER NAME and REGISTRY values with the RACMAP command. The code page is specified in the form: `APPLDATA(CCSID(`*nnnnn*`))`

  The valid values for the code page *nnnnn* are:

  00037
  EBCDIC US 037

  00870
  EBCDIC LATIN 2

  00875
  EBCDIC GREEK

  00924
  EBCDIC US 1047 with the Euro sign

  01047
  EBCDIC US 1047

  01140
  EBCDIC US 037 with the Euro sign

  01153
  EBCDIC LATIN 2 with the Euro sign #2

  04971
  EBCDIC GREEK with the Euro sign

  Note:

  - If the IRR.IDIDMAP.PROFILE.CODEPAGE profile does not exist, then RACF uses code page IBM-1047.
  - If the IRR.IDIDMAP.PROFILE.CODEPAGE profile does exist, but contains no APPLDATA or the APPLDATA references a code page other than one of the supported code pages, then RACF uses code page IBM-1047

- For the TIMS and GIMS class, specify *application-data* as REVERIFY to force the user to reenter his password whenever the transaction or transactions listed in the *profile-name* or ADDMEM operands are used.
- For the PTKTDATA class, the *application-data* field can be used to control the replay protection function of legacy PassTicket support. This setting applies only to legacy PassTickets and does not control the replay behavior of enhanced PassTickets.
  - PassTicket replay protection prevents the use of user IDs to be shared among multiple users. However, in some events it is desirable to bypass this replay protection function.
  - Specifying `no replay protection` in the *application-data* field indicates that replay protection is to be bypassed. For example, the following command would result in replay protection being bypassed.

    ```
    RALTER PTKTDATA profile-name
       APPLDATA('NO REPLAY PROTECTION')
    ```

    Note the following:

    - There *must* be a single space between the words no and `replay`, and between `replay` and `protection`. Lack of spaces *or* additional spaces or characters will make the command ineffective. For example, entering the following command would *not* result in replay protection being bypassed.

      ```
      RALTER PTKTDATA profile-name
         APPLDATA('NOREPLAY PROTECTION')
      ```

    - The text string `no replay protection` will always be translated to uppercase.
    - The text string `no replay protection` can appear anywhere in the APPLDATA field.
  - See *z/OS Security Server RACF Security Administrator's Guide* for more information on the PassTicket function.
- For the APPL class, when the APPLDATA value contains the `RACF-INITSTATS(DAILY)` string, RACF records statistics only for the first user verification of the day for the applications protected by this profile. The `RACF-INITSTATS(DAILY)` string is reserved text and may appear anywhere in the APPLDATA field. For more information about statistics collection, see *z/OS Security Server RACF Security Administrator's Guide*.
- Specifying the `RACF-DELEGATED` string in the APPLDATA designates the resources protected by the profile as delegated, meaning that RACROUTE REQUEST=FASTAUTH should honor a nested ACEE during access checking to this resource. The `RACF-DELEGATED` string is reserved text and may appear anywhere in the APPLDATA field. For more information on nested ACEEs and delegated resources, see *z/OS Security Server RACF Security Administrator's Guide*.

RACF does not validate the APPLDATA value during RALTER. Depending on the function, RACF might or might not issue any messages during subsequent processing if it finds an unexpected value.

The APPLDATA value, if present, can be displayed with the RLIST command.

For detailed information about each APPLDATA value, see *z/OS Security Server RACF Security Administrator's Guide*.

NOAPPLDATA

Specifies that the RALTER command is to delete the text string that was present in the profile associated with the resource.

AT | ONLYAT

The AT and ONLYAT keywords are only valid when the command is issued as a RACF TSO command.

AT ([*node*].*userid* ...)

Specifies that the command is to be directed to the node specified by *node*, where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed to the local node.

ONLYAT([*node*].*userid* ...)

Specifies that the command is to be directed only to the node specified by *node* where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed only to the local node.

AUDIT(*access-attempt*[(*audit-access-level*)])

Specifies which access attempts and access levels you want logged to the SMF data set.

access-attempt

Specifies which access attempts you want logged to the SMF data set. The following options are available:

ALL

Specifies that you want to log both authorized accesses and detected unauthorized attempts to access the resource.

FAILURES

Specifies that you want to log detected unauthorized attempts to access the resource.

NONE

Specifies that you do not want any logging to be done for accesses to the resource.

SUCCESS

Specifies that you want to log authorized accesses to the resource.

audit-access-level

Specifies which access levels you want logged to the SMF data set. The levels you can specify are:

ALTER

Logs ALTER access-level attempts only.

CONTROL

Logs access attempts at the CONTROL and ALTER levels.

READ

Logs access attempts at any level. This is the default value if no access level is specified.

UPDATE

Logs access attempts at the UPDATE, CONTROL, and ALTER levels.

You cannot audit access attempts at the EXECUTE level.

CDTINFO | NOCDTINFO

CDTINFO

Specifies information used in the definition of an installation-defined class in the dynamic class descriptor table. CDTINFO should only be specified for profiles in the CDT class. Carefully plan changes to avoid unintended results. For guidelines, see Guidelines for changing dynamic CDT entries in *z/OS Security Server RACF Security Administrator's Guide*.

You can use the CDTINFO keyword with no suboperands to initiate validation checking of fields within the CDTINFO segment. For example, you issued an RDEFINE CDT command and received several errors, but you did not save a copy of the error messages. You could then issue the following command and the validation checking will be performed; those error messages will then be issued again.

```
RALTER CDT profile-name CDTINFO
```

CASE | NOCASE

CASE (UPPER | ASIS)

Specifies whether mixed-case profile names are allowed for the class. When UPPER is specified, RACF translates the profile names for the specified class to uppercase. When ASIS is specified, RACF commands preserve the case of profile names for the specified class. Lowercase characters are allowed in any position of the profile name where alphabetic characters are allowed, based on the character restrictions in the FIRST and OTHER keywords.

NOCASE
Resets CASE to the default value of UPPER.

DEFAULTRC | NODEFAULTRC

DEFAULTRC
Specifies the return code that RACF will provide from RACROUTE REQUEST=AUTH or REQUEST=FASTAUTH when both RACF and the class are active and (if required) the class has been processed using SETROPTS RACLIST, but RACF doesn't find a profile to protect the resource specified on the AUTH or FASTAUTH request. The return codes are interpreted as follows:

0
The access request was accepted.

4
No profile exists.

8
The access request was denied.

NODEFAULTRC
Resets DEFAULTRC to the default value of 4.

DEFAULTUACC | NODEFAULTUACC

DEFAULTUACC (ALTER | CONTROL | UPDATE | READ | NONE)
Specifies the minimum access allowed if the access level is not set when a resource profile is defined in the class.

DEFAULTUACC (ACEE)
If no universal access level is specified at the time the profile is created, RACF uses the default universal access authority from the command issuer's ACEE, as specified on the UACC operand of the ADDUSER, ALTUSER or CONNECT command.

NODEFAULTUACC
Resets the DEFAULTUACC to the default of NONE.

FIRST | NOFIRST

FIRST (*characters-allowed ...*)
Specifies a character type restriction for the first character of the profile name. One or more of the following may be specified.

- **ALPHA** - Allows an alphabetic character (`A - Z`)
- **NUMERIC**—Allows a digit (`0 - 9`)
- **NATIONAL**—Allows characters # (X'7B'), @ (X'7C'), and $ (X'5B')
- **SPECIAL**—Allows any character except the following:
  - a blank
  - a comma
  - a parenthesis
  - a semicolon
  - those characters in ALPHA, NUMERIC, or NATIONAL.

Note: This option includes the period ('.') and is needed if you intend to use it as a delimiter.

NOFIRST
Resets FIRST to the default value of FIRST(ALPHA, NATIONAL).

GENERIC | NOGENERIC

GENERIC (ALLOWED | DISALLOWED)

Specifies whether or not SETROPTS GENERIC and SETROPTS GENCMD are allowed for the class. The SETROPTS GENERIC command activates generic profile checking for a class. The SETROPTS GENCMD command activates generic profile command processing.

If GENERIC(DISALLOWED) is specified, GENLIST(ALLOWED) cannot also be specified.

Because generic processing is not allowed for grouping classes, GENERIC(DISALLOWED) should be specified if MEMBER(*member-class-name*) is also specified. If GENERIC(ALLOWED) is specified or defaulted for a grouping class, a warning message is issued. Subsequent processing for the dynamic class being defined and for profiles in that class will be treated as if GENERIC(DISALLOWED) was specified.

Rule: If the dynamic class you are defining shares a POSIT number with other classes, all classes with the shared POSIT number must have the same GENERIC keyword value. This is because the SETROPTS GENERIC and SETROPTS GENCMD commands process all classes that share a POSIT number. If at least one class specifies GENERIC(DISALLOWED) and at least one class specifies GENERIC(ALLOWED), RACF issues a warning message. When you subsequently add this class to the dynamic class descriptor table using the SETROPTS RACLIST(CDT) command, RACF might change the value of the GENERIC keyword to match the GENERIC keyword value of the other classes sharing the POSIT number.

- If this dynamic class shares a POSIT number with an IBM-supplied class, RACF changes the value of the GENERIC keyword in the dynamic class to match the IBM class. (The class attribute in the IBM-supplied class takes precedence).
- If this dynamic class shares a POSIT number with an installation-defined class (static or dynamic), RACF determines the least restrictive attribute - GENERIC(ALLOWED) is less restrictive than GENERIC(DISALLOWED) - and changes the GENERIC(DISALLOWED) class attribute to GENERIC(ALLOWED).

Exception: A grouping class and member class can share a POSIT number although their GENERIC keyword values need not match. You must specify GENERIC(DISALLOWED) for the grouping class. However, you can specify either ALLOWED or DISALLOWED for the member class.

NOGENERIC

Resets GENERIC to the default value of ALLOWED.

GENLIST | NOGENLIST

GENLIST (ALLOWED | DISALLOWED)

Specifies whether SETROPTS GENLIST is to be allowed for the class. If you GENLIST the class on the SETROPTS command and a user then requests access to a resource protected by a generic profile, a copy of that profile will be brought into the common storage area rather than into the user's address space. RACF uses those generic profiles in common storage to check the authorization of any users who want to access the resource. The profiles remain in common storage until a REFRESH occurs.

NOGENLIST

Resets GENLIST to the default value of DISALLOWED.

GROUP | NOGROUP

GROUP (*grouping-class-name*)

Specifies the name of the class that groups the resources within the specified class. If GROUP is not specified, RACF does not allow resource grouping for the class. The *grouping-class-name* must be 1 - 8 characters.

When GROUP is specified, the class being defined is a member class.

If GROUP is specified, then *grouping-class-name* must also be defined in the CDT class, and its MEMBER keyword should refer to the class being defined. The GROUP and

MEMBER keywords must have matching class entries before SETROPTS RACLIST(CDT) is issued to build or refresh the dynamic CDT or before the system is restarted; otherwise, the class in error will not be added to the dynamic class descriptor table.

NOGROUP
Removes the *grouping-class-name*.

KEYQUALIFIERS | NOKEYQUALIFIERS

KEYQUALIFIERS (***nnn*** **)**
Specifies the number of matching qualifiers RACF uses when loading generic profile names to satisfy an authorization request if a discrete profile does not exist for a resource. For example, if you specify two for the class, all generic profile names whose highest level qualifiers match the two highest qualifiers of the entity name are loaded into the user's storage when the user requests access to a resource. The *nnn* value must be a number 0 - 123.

If KEYQUALIFIERS is not specified, the default is 0 and profile names for the entire class are loaded and searched.

The maximum value you can specify is 123, which is the maximum number of qualifiers in a name 246 characters long.

When KEYQUALIFIERS(*nnn*) is specified, generic profiles created in that class may not contain generic characters in the first *nnn* qualifiers of the profile name.

When KEYQUALIFIERS(*nnn*) is greater than 0 for a class, all discrete and generic profiles in that class must have at least *nnn*+1 qualifiers in each profile name. The number of qualifiers a profile name is determined by counting the number of period characters in the profile and adding one; the first character is not examined.

Examples of valid profile names for KEYQUALIFIERS(2) are:

```
A.B.C
A.B.**
A.B.C.D*
```

Guideline: Specify KEYQUALIFIERS(*nnn*) greater than 0 for classes that have the following characteristics:

- The class is not usually RACLISTed or GENLISTed.
- Profile names in the class follow a naming convention where many generic profiles have the same *nnn* number of qualifiers at the beginning of the profile name.

For example, if you have an application that uses an installation-defined class to protect reports on terminal usage, you might have profiles such as these for each user on your z/OS system:

```
REPORTS.USER1.TERMUSE.*
REPORTS.USER1.TERMUSE.DEPT60.*
REPORTS.USER1.TERMUSE.2006.JAN.*
REPORTS.USER1.TERMUSE.2006.FEB.*
REPORTS.USER1.TERMUSE.2006.MAR.*
REPORTS.USER1.TERMUSE.2006.APR.*
REPORTS.USER1.TERMUSE.2006.MAY.*
REPORTS.USER1.TERMUSE.2006.JUN.*
REPORTS.USER1.TERMUSE.2006.JUL.*
REPORTS.USER1.TERMUSE.2006.AUG.*
REPORTS.USER1.TERMUSE.2006.SEP.*
REPORTS.USER1.TERMUSE.2006.OCT.*
REPORTS.USER1.TERMUSE.2006.NOV.*
REPORTS.USER1.TERMUSE.2006.DEC.*
```

In this example, you might define your installation class using KEYQUALIFIERS(3) so that when RACF checks authorization checks for resources in your class, only generic profile names that match the first three qualifiers of your report are loaded into storage for RACF to check.

NOKEYQUALIFIERS
Resets KEYQUALIFIERS to the default value of 0.

MACPROCESSING | NOMACPROCESSING

MACPROCESSING (NORMAL | REVERSE | EQUAL)
Specifies which type of mandatory access control (MAC) processing is required for the class:

- **NORMAL** - specifies normal MAC processing is required. If and when a MAC check is performed, the user's SECLABEL must dominate that of the resource.
- **REVERSE** - specifies reverse MAC processing is required. If and when a MAC check is performed, the SECLABEL of the resource must dominate that of the user.
- **EQUAL** - specifies equal MAC processing is required. If and when a MAC check is performed, the SECLABEL of the user must be equivalent to that of the resource. MACPROCESSING(EQUAL) should be used for classes where two-way communication is expected. Writedown (SETROPTS MLS) does not apply to classes where MACPROCESSING(EQUAL) is specified.

NOMACPROCESSING
Resets MACPROCESSING to the default value of NORMAL.

MAXLENGTH | NOMAXLENGTH

MAXLENGTH (*nnn*)
Specifies the maximum length of resource and profile names for the specified class when MAXLENX is not specified. When MAXLENX is also specified, MAXLENGTH represents the maximum length of a resource name only when a RACROUTE macro is invoked with the ENTITY keyword. The value of *nnn* must be 1 - 246.

NOMAXLENGTH
Resets MAXLENGTH to the default value of 8.

MAXLENX | NOMAXLENX

MAXLENX (*nnn*)
Specifies the maximum length of resource and profile names for the specified class when a RACROUTE macro is invoked with the ENTITYX keyword or when a profile is added or changed using a RACF command processor. The value of *nnn* must be 1 - 246.

If MAXLENX is not specified before SETROPTS RACLIST(CDT) is issued to build or refresh the dynamic CDT or before the system is restarted, the value specified for MAXLENGTH is used for MAXLENX in subsequent processing for the dynamic class.

NOMAXLENX
Removes the MAXLENX value.

MEMBER | NOMEMBER

MEMBER (*member-class-name*)
Specifies the name of the class grouped by the resources within the specified class. The *member-class-name* value must be 1 - 8 characters.

When MEMBER is specified, the class being defined is a resource group.

If MEMBER is specified, then *member-class-name* must also be defined in the CDT class and its GROUP keyword should refer to the class being defined. The GROUP and MEMBER keywords must have matching class entries before SETROPTS RACLIST(CDT) is issued to build or refresh the dynamic CDT or before the system is restarted; otherwise, the class in error will not be added to the dynamic class descriptor table.

NOMEMBER
Removes the *member-class-name*.

OPERATIONS | NOOPERATIONS

OPERATIONS (YES | NO)
Specifies whether RACF is to take the OPERATIONS attribute into account when it performs authorization checking. If YES is specified, RACF considers the OPERATIONS attribute; if NO is specified, RACF ignores the OPERATIONS attribute.

NOOPERATIONS
Resets OPERATIONS to the default value of NO.

OTHER | NOOTHER

OTHER (*characters-allowed ...*)
Specifies a character type restriction for the characters of the profile name other than the first character. One or more of the following may be specified:

- **ALPHA** - Allows an alphabetic character (A - Z)
- **NUMERIC**—Allows a digit (0 - 9)
- **NATIONAL**—Allows characters # (X'7B'), @ (X'7C'), and $ (X'5B')
- **SPECIAL**—Allows any character except the following:
  - a blank
  - a comma
  - a parenthesis
  - a semicolon
  - those characters in ALPHA, NUMERIC, or NATIONAL.

Note: This option includes the period ('.') and is needed if you intend to use it as a delimiter.

NOOTHER
Resets OTHER to the default of OTHER(ALPHA, NATIONAL).

POSIT | NOPOSIT

POSIT (*nnn*)
Specifies the POSIT number associated with the class. Each class in the class descriptor table has a POSIT number specified which identifies a set of option flags that control the following RACF processing options:

- Whether authorization checking should take place for the class (SETROPTS CLASSACT)
- Whether auditing should take place for resources within the class (SETROPTS AUDIT)
- Whether statistics should be kept for resources within the class (SETROPTS STATISTICS)
- Whether generic profile access checking is active for the class (SETROPTS GENERIC)
- Whether generic command processing is active for the class (SETROPTS GENCMD)
- Whether global access checking is active for the class (SETROPTS GLOBAL)
- Whether the user has CLAUTH to a resource class
- Whether special resource access auditing applies to the class (SETROPTS LOGOPTIONS)
- Whether SETROPTS RACLIST will occur for this class (when RACLIST(ALLOWED) or RACLIST(REQUIRED) is also specified)
- For all classes that have the same POSIT number specified, these options are identical. If you change an option for one class, this change will also affect all other classes that share the same POSIT number.

Before you issue SETROPTS RACLIST(CDT) to build or refresh the dynamic class descriptor table, you must decide whether to use a unique set of option flags for each RACF class or whether to have two or more RACF classes share the same set of option flags. If you choose to use a unique set of option flags for a class, assign the class a unique POSIT number. If you choose to share the same set of option flags among several classes, assign those classes the same POSIT number.

Before you issue SETROPTS RACLIST(CDT) to build or refresh the dynamic CDT, the POSIT keyword must specify a valid value on either the RDEFINE or RALTER command. Otherwise, the new or changed class will not be added to the dynamic class descriptor table.

Once you issue SETROPTS RACLIST(CDT) to build or refresh the dynamic class descriptor table, you can activate the classes that comprise it and their respective set of option flags using the appropriate keywords on the SETROPTS command.

There are 1024 POSIT numbers that can identify 1024 sets of option flags. Installations can specify POSIT numbers 19 - 56 and 128 - 527. POSIT numbers 0 - 18, 57 - 127 and 528 - 1023 are reserved for IBM use and should not be specified for installation-defined classes unless an installation intends that one of its classes share SETROPTS options with an IBM-defined class.

Guideline: A RACF class that has a default return code of 8 should *not* share a POSIT value with a RACF class having a different default return code. If a class with a default return code of 8 is activated but no profiles are defined, user activity that requires access in that class will be prevented.

NOPOSIT

Removes the POSIT number.

Before you issue SETROPTS RACLIST(CDT) to build or refresh the dynamic CDT, the POSIT keyword must specify a valid value on either the RDEFINE or RALTER command. Otherwise, the new or changed class will not be added to the dynamic class descriptor table.

PROFILESALLOWED | NOPROFILESALLOWED

PROFILESALLOWED (YES | NO)

Specifies whether you want RACF to allow profiles to be defined for this RACF class. If you specify PROFILESALLOWED(NO), RACF will not allow profiles to be defined to this RACF class; if a user attempts to define a profile to that class, the RDEFINE command responds with an appropriate message.

NOPROFILESALLOWED

Resets the PROFILESALLOWED value to the default of YES.

RACLIST | NORACLIST

RACLIST

Specifies whether SETROPTS RACLIST is to be allowed, disallowed or required for the specified class. If you process this class using SETROPTS RACLIST, RACF brings copies of all discrete and generic profiles within that class into storage in a data space. RACF uses those profiles in storage to check the authorization of any users who want to access the resources. The profiles remain in storage until removed by SETROPTS NORACLIST.

ALLOWED

Specifies that SETROPTS RACLIST may be used for the class, but is not required for authorization checking.

DISALLOWED

Specifies that SETROPTS RACLIST may not be used for the class.

REQUIRED

Specifies that you must process the class using SETROPTS RACLIST in order to use RACROUTE REQUEST=AUTH. The purpose of this keyword is to allow routines that cannot tolerate I/O to invoke RACF. When this keyword is specified and the class is not processed by SETROPTS RACLIST and a RACROUTE REQUEST=AUTH is attempted, the return code is 4.

NORACLIST

Resets the RACLIST value to the default of DISALLOWED.

SECLABELSREQUIRED | NOSECLABELSREQUIRED

SECLABELSREQUIRED (YES | NO)

Specifies whether a SECLABEL is required for the profiles of the specified class when SETROPTS MLACTIVE is on.

SECLABELSREQUIRED(NO) means that RACF will not require a SECLABEL for profiles in this class; however, if a SECLABEL exists for this profile and the SECLABEL class is active, RACF will use it during authorization checking. SECLABELSREQUIRED(NO) applies to general resource classes that have no profiles, such as DIRAUTH, or for classes that contain no data, such as OPERCMDS and SECLABEL.

SECLABELSREQUIRED(YES) means that RACF will require a SECLABEL for profiles in this class when SETROPTS MLACTIVE is on.

NOSECLABELSREQUIRED

Resets the SECLABELSREQUIRED to the default of NO.

SIGNAL | NOSIGNAL

SIGNAL (YES | NO)

Specifies whether an ENF signal should be sent to listeners when RACLISTed profiles are created, updated or deleted for authorization checking.

When SIGNAL(YES) is specified, RACF will send an ENF signal to listeners when a SETROPTS RACLIST, SETROPTS NORACLIST or SETROPTS RACLIST REFRESH is issued for the class to activate, deactivate, or update the profiles used for authorization checking. For more information, see ENF signals in *z/OS Security Server RACF System Programmer's Guide*.

When SIGNAL(NO) is specified, no ENF signal is sent.

SIGNAL(YES) is not valid if RACLIST(DISALLOWED) is specified.

NOSIGNAL

Resets the SIGNAL value to the default of NO.

NOCDTINFO

Deletes the CDTINFO segment.

CFDEF | NOCFDEF

CFDEF

Changes the attributes of a custom field for profiles in the CFIELD class. The custom fields you define with the CFDEF operand can be used in the CSDATA segment of RACF profiles. For more information about custom fields, including the profile name format, see Defining and using custom fields in *z/OS Security Server RACF Security Administrator's Guide*.

Changes in the custom field are not effective until the system programmer rebuilds the dynamic parse table using the IRRDPI00 UPDATE command. For information about using the IRRDPI00 command, see *z/OS Security Server RACF System Programmer's Guide*.

You can use the CFDEF keyword with no suboperands to initiate validation checking of fields within the CFDEF segment. For example, you issued an RDEFINE CFIELD command and received several errors, but you did not save a copy of the error messages. You could then issue the following command and the validation checking will be performed; those error messages will then be issued again.

```
RALTER CFIELD profile-name CFDEF
```

Rules:

- Specify CFDEF only for profiles in the CFIELD class.

- You cannot change the data type of a custom field using the RALTER command. (Changing the data type might render the field unusable if all other attributes are not correctly set.)

  If you want to change the data type for a custom field, delete the CFIELD profile using the RDELETE command, and then define the custom field with the proper data type using the RDEFINE command.

Important: Plan carefully before you change the attributes of a custom field. Most attributes are either required or desirable based on data type. Therefore, you can change but not remove certain attributes using the RALTER command.

FIRST

Specifies a character restriction for the first character in the custom field.

Rules:

- You can change but you cannot remove the FIRST value.
- The valid options for the FIRST attribute apply as follows, based on TYPE value (data type).

Valid options	**Data type based on TYPE attribute**			
	CHAR	**FLAG**	**HEX**	**NUM**
ALPHA	X			
ALPHANUM	X			
ANY	X			
NONATABC	X	X		
NONATNUM	X		X	
NUMERIC	X			X

For each option of the FIRST attribute, the characters allowed in the custom field are as follows:

Valid options	**Characters allowed**			
	Alphabetic characters (A - Z)	**National characters # (X'7B'), @ (X'7C'), and $ (X'5B')**	**Numeric characters (0 - 9)**	**Any other character**
ALPHA	X	X		
ALPHANUM	X	X	X	
ANY	X	X	X	X
NONATABC	X			
NONATNUM	X		X	
NUMERIC			X	

ALPHA

Allows alphabetic characters (A - Z) and national characters # (X'7B'), @ (X'7C'), and $ (X'5B').

ALPHANUM

Allows alphabetic characters (A - Z), numbers (0 - 9), and national characters # (X'7B'), @ (X'7C'), and $ (X'5B').

ANY

Allows alphabetic characters (A - Z), numbers (0 - 9), national characters # (X'7B'), @ (X'7C'), and $ (X'5B'), and any other character. When you specify both FIRST(ANY) and OTHER(ANY), also allows quoted strings.

NONATABC

Allows alphabetic characters, and excludes numbers and national characters # (X'7B'), @ (X'7C'), and $ (X'5B').

NONATNUM

Allows alphabetic characters and numbers, but excludes national characters # (X'7B'), @ (X'7C'), and $ (X'5B').

NUMERIC

Allows numbers (0 - 9).

HELP(*help-text*)

Specifies the help text for this custom field. The help text is displayed when the user is in TSO PROMPT mode and presses the PF1 key or enters a question mark (?). Lowercase alphabetic characters in the *help-text* value are translated to uppercase.

Rules:

- Length: 1 - 255 characters.
- If the help text contains parentheses, commas, blanks, or semicolons, enclose the entire text string in single quotation marks.
- If a single quotation mark is intended to be part of the help text, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string in single quotation marks.

  Example: To define help text for a customer's address and indicate that the field can be up to 100 characters, you might specify the following value:

  ```
  HELP('CUSTOMER''S ADDRESS. SPECIFY UP TO 100 CHARACTERS')
  ```
- You can change but you cannot remove the HELP value.

LISTHEAD(*list-heading-text*)

Specifies the heading to display in the output for the LISTUSER or LISTGRP command whenever the CSDATA segment is listed. Lowercase alphabetic characters in the *list-heading-text* value are translated to uppercase.

Rules:

- Length: 1 - 40 characters.
- If the heading text contains parentheses, commas, blanks, or semicolons, enclose the entire text string in single quotation marks.
- If a single quotation mark is intended to be part of the help text, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string in single quotation marks.

  Example:

  ```
  LISTHEAD('CUSTOMER''S ADDRESS =')
  ```
- You can change but you cannot remove the LISTHEAD value.

Guidelines: If you specify a LISTHEAD value, avoid confusion for users who use the LISTUSER or LISTGRP command to list custom field values by following these guidelines:

- Ensure that each custom field has a unique heading.
- Append an equal sign (=) or other delimiter to your LISTHEAD value to indicate in the list output where the heading ends and the data begins.

MAXLENGTH(***maximum-field-length*** **)**

Specifies the maximum length of the custom field.

Rules:

- You can change but you cannot remove the MAXLENGTH value.
- The valid values or value ranges shown in Table 47 on page 408 apply based on data type.

Table 47. Valid values or value range for the MAXLENGTH keyword, based on data type

Data type	Valid value or range
CHAR	1 - 1100
FLAG	3
HEX	1 - 512
NUM	1 - 10

MAXVALUE | NOMAXVALUE

MAXVALUE(***maximum-numeric-value*** **)**

Specifies the maximum numeric value for a custom field with TYPE(NUM).

Rules:

- Valid range: 0 - 2 147 483 647
- Do not specify a MAXVALUE value for custom fields with CHAR, FLAG, or HEX data type.
- Do not specify a MAXVALUE value lower than the MINVALUE value.
- Do not specify a MAXVALUE value longer than the highest value based on MAXLENGTH value.

NOMAXVALUE

Removes the MAXVALUE value. If you specify NOMAXVALUE, the following information is displayed when you list the CFDEF segment using the RLIST command.

```
MAXVALUE = NONE
```

MINVALUE | NOMINVALUE

MINVALUE(***minimum-numeric-value*** **)**

Specifies the minimum numeric value for a custom field with TYPE(NUM).

Rules:

- Valid range: 0 - 2 147 483 647
- Do not specify a MINVALUE value for fields with CHAR, FLAG, or HEX data type.
- Do not specify a MINVALUE value higher than the MAXVALUE value.
- Do not specify a MINVALUE value longer than the highest value based on MAXLENGTH value.

NOMINVALUE

Removes the MINVALUE value. If you specify NOMINVALUE, the following information is displayed when you list the CFDEF segment using the RLIST command.

```
MINVALUE = NONE
```

MIXED

Specifies whether mixed-case alphabetic characters are allowed for a custom field with TYPE(CHAR).

YES

Lowercase characters are allowed in any position of the custom field where alphabetic characters are allowed, based on the character restrictions specified in the FIRST and OTHER keywords. RACF commands, such as ADDUSER, do *not* translate lowercase alphabetic characters in the field to uppercase.

Rule: Do not specify MIXED(YES) for custom fields with FLAG, HEX, or NUM data type.

NO

RACF commands translate lowercase alphabetic characters in the field to uppercase.

OTHER

Specifies a character restriction for characters in the custom field other than the first character.

For each option of the OTHER attribute, the characters allowed in the custom field are as follows:

Valid options	Characters allowed			
	Alphabetic characters (A - Z)	National characters # (X'7B'), @ (X'7C'), and $ (X'5B')	Numeric characters (0 - 9)	Any other character
ALPHA	X	X		
ALPHANUM	X	X	X	
ANY	X	X	X	X
NONATABC	X			
NONATNUM	X		X	
NUMERIC			X	

ALPHA

Allows alphabetic characters (A - Z) and national characters # (X'7B'), @ (X'7C'), and $ (X'5B').

ALPHANUM

Allows alphabetic characters (A - Z), numbers (0 - 9), and national characters # (X'7B'), @ (X'7C'), and $ (X'5B').

ANY

Allows alphabetic characters (A - Z), numbers (0 - 9), national characters # (X'7B'), @ (X'7C'), and $ (X'5B'), and any other character. When you specify both FIRST(ANY) and OTHER(ANY), also allows quoted strings.

NONATABC

Allows alphabetic characters, and excludes numbers and national characters # (X'7B'), @ (X'7C'), and $ (X'5B').

NONATNUM

Allows alphabetic characters and numbers, but excludes national characters # (X'7B'), @ (X'7C'), and $ (X'5B').

NUMERIC

Allows numbers (0 - 9).

Rules:

- You can change but you cannot remove the OTHER value.
- The valid options for the OTHER attribute apply as follows, based on TYPE value (data type).

Valid options	Data type based on TYPE attribute			
	CHAR	FLAG	HEX	NUM
ALPHA	X			
ALPHANUM	X			
ANY	X			
NONATABC	X	X		
NONATNUM	X		X	
NUMERIC	X			X

VALREXX(***REXX-exec-name*** **)**

Specifies the name of a REXX exec that RACF will call to perform validation on the value of the custom field as it is being assigned. The REXX exec must reside in the system rexx concatenations.

NOCFDEF

Deletes the CFDEF segment.

Important: Avoid issuing the NOCFDEF operand for profiles in the CFIELD class because it causes the custom fields defined in the CFDEF segment to be unusable.

If you want to change the TYPE attribute, or remove an attribute that you are unable to remove using the RALTER command, delete the CFIELD profile using the RDELETE command, and then define the custom field with the proper attributes using the RDEFINE command.

CSDATA | NOCSDATA

CSDATA

Specifies information to add, change, or remove a custom field for this general resource.

custom-field-name ... **| NO*custom-field-name ...***

***custom-field-name*(*custom-field-value*) ...**

Specifies the name and value of a custom field for this general resource. You can specify values for multiple custom fields with a single RALTER command.

Usage for each custom field is defined using the CFDEF operand of the RDEFINE command for resource profiles in the CFIELD class. Contact your security administrator to see how custom fields are used at your installation. For more information about custom fields, see *z/OS Security Server RACF Security Administrator's Guide*.

Rules:

- You must use the same *custom-field-name* as defined by the CFIELD profile named GENERAL.CSDATA.*custom-field-name*. (The CFIELD profile is defined using the CFDEF operand of the RDEFINE command.)
- You must specify a *custom-field-value* that is valid for the attributes of this custom field. (The attributes, such as data type, are defined in the CFDEF segment of the CFIELD profile.)

NO*custom-field-name ...*

Removes the custom field information for this user. You can remove values for multiple custom fields with a single RALTER command.

When you append the prefix **NO** to the name of the custom field, you delete the value for that custom field from the general resources profile. For example, if your installation has defined a custom field named ADDRESS and you want to remove the ADDRESS field from the profile of the user SHANNON, you might issue the following command:

Example:

```
GENERAL SHANNON CSDATA(NOADDRESS)
```

NOCSDATA
Deletes the CSDATA segment from the general resources profile.

DATA | NODATA

DATA('*installation-defined-data*')
Specifies up to 255 characters of installation-defined data to be stored in the profile for the resource. The data must be enclosed in single quotation marks. It can also contain double-byte character set (DBCS) data.

This information is listed by the RLIST command.

NODATA
Specifies that the RALTER command is to delete the installation-defined data in the resource profile.

DLFDATA | NODLFDATA

DLFDATA
For profiles in the DLFCLASS, specifies information used in the control of DLF objects.

RETAIN(YES | NO) | NORETAIN
Specifies whether the DLF object can be retained after use.

JOBNAMES | NOJOBNAMES | ADDJOBNAMES | DELJOBNAMES

You can specify any job name valid on your system. You can also specify generic job names with an asterisk (*) as the last character of a job name, to indicate generic job names. For example, JOBNAMES(ABC) allows only job ABC to access the DLF objects protected by the profile. JOBNAMES(ABC*) allows any job whose name begins with ABC (such as ABC, ABC1, or ABCDEF and so forth) to access to the DLF objects.

JOBNAMES(*jobname1* ...)
Specifies the list of job names that can access the DLF objects protected by this profile.

NOJOBNAMES
Specifies that no job names can access the DLF objects protected by this profile.

ADDJOBNAMES(*jobname1*...)
Adds to the list of job names, the job names that can access the DLF objects protected by this profile.

DELJOBNAMES(*jobname1*...)
Deletes the names from the job names list.

NODLFDATA
Deletes the DLFDATA in the specified segment.

EIM | NOEIM

EIM
The EIM and PROXY segment keywords and subkeywords combine to define the EIM domain, the LDAP host it resides on, and the bind information required by the EIM services to establish a connection with an EIM domain. The EIM services will attempt to retrieve this information when it is not explicitly supplied with the invocation parameters.

DOMAINDN | NODOMAINDN

DOMAINDN(*eim_domain_dn*)
Specifies the distinguished name of the EIM domain. A valid EIM domain distinguished name begins with `ibm-eimDomainName=`. Uppercase and lowercase characters are accepted and maintained in the case in which they are entered.

The EIM domain distinguished name is one component of an EIM domain name. An EIM domain name identifies the LDAP server that stores the EIM domain information. The EIM domain name begins with the *ldap_url* from the LDAPHOST suboperand of the keyword, followed by / and ends with the *eim_domain_dn* from the DOMAINDN suboperand. The length of a valid EIM domain name is determined by the combination of those factors. RACF allows the input of 1023 characters for the domain distinguished name. RACF does not ensure that an EIM domain name created from the LDAP URL and EIM domain distinguished name forms a valid EIM domain name.

For more information about LDAP distinguished names, see *z/OS IBM Tivoli Directory Server Administration and Use for z/OS*.

NODOMAINDN
Deletes the *eim_domain_dn* value.

OPTIONS | NOOPTIONS
Specifies options that control the EIM configuration.

ENABLE | DISABLE

ENABLE
Specifies that new connections may be established with the specified EIM domain. This is the default.

DISABLE
Specifies that new connections may not be established with the specified EIM domain.

NOOPTIONS
Resets OPTIONS to the default value of ENABLE.

LOCALREGISTRY | NOLOCALREGISTRY

LOCALREGISTRY(*registry_name*)
Specifies the name of the local RACF registry in EIM domains. This operand is valid only with the following profiles and is ignored for all others:

- The IRR.PROXY.DEFAULTS profile in the FACILITY class
- The IRR.ICTX.DEFAULTS.*sysid* profile in the LDAPBIND class
- The IRR.ICTX.DEFAULTS profile in the LDAPBIND class.

EIM uses the *registry_name* value defined in the IRR.PROXY.DEFAULTS profile. The ICTX identity cache uses the *registry_name* value defined in the IRR.ICTX.DEFAULTS.*sysid* or IRR.ICTX.DEFAULTS profile.

The *registry_name* value is 1 - 255 characters in length. It can consist of any characters and can be entered with or without single quotation marks. The following rules apply:

- If parentheses, commas, blanks, or semicolons are intended as part of the *registry_name*, you must enclose the entire character string in single quotation marks.
- If a single quotation mark is intended as part of the *registry_name*, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.
- Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered.

NOLOCALREGISTRY
Deletes the local registry name from the profile. It does not affect the in-storage copy of the registry name. IPL the system to remove the in-storage copy.

KERBREGISTRY | NOKERBREGISTRY

KERBREGISTRY(*registry_name*)
Specifies the name of the Kerberos registry in the EIM domain that the system is configured to use. This operand is only valid for the IRR.PROXY.DEFAULTS FACILITY class profile. The value is ignored when used on other profiles.

The Kerberos *registry_name* may be 1 - 255 characters in length. The *registry_name* can consist of any characters and can be entered with or without single quotation marks. The following rules apply:

- If parentheses, commas, blanks, or semicolons are to be entered as part of the *registry_name*, the character string must be enclosed in single quotation marks.
- If a single quotation mark is intended to be part of the *registry_name*, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.
- Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered.

NOKERBREGISTRY
Deletes the Kerberos registry name from the profile.

X509REGISTRY | NOX509REGISTRY

X509REGISTRY(*registry_name*)
Specifies the name of the X.509 registry in the EIM domain that the system is configured to use. This operand is only valid for the IRR.PROXY.DEFAULTS FACILITY class profile. The value is ignored when used on other profiles.

The X.509 *registry_name* may be 1 - 255 characters long. The *registry_name* can consist of any characters and can be entered with or without single quotation marks. The following rules apply:

- If parentheses, commas, blanks, or semicolons are to be entered as part of the *registry_name*, the character string must be enclosed in single quotation marks.
- If a single quotation mark is intended to be part of the *registry_name*, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.
- Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered.

NOX509REGISTRY
Deletes the X.509 registry name from the profile.

NOEIM
Deletes the EIM segment.

GLOBALAUDIT(*access-attempt*[(*audit-access-level*)])
Specifies which access attempts and access levels the user who has the AUDITOR attribute wants logged to the SMF data set.

access-attempt
Specifies which access attempts the user who has the AUDITOR attribute wants to log on the SMF data set.

ALL
Specifies that you want to log both authorized accesses and detected unauthorized attempts to access the resource.

FAILURES
Specifies that you want to log detected unauthorized attempts to access the resource.

NONE
Specifies that you do not want any logging to be done for accesses to the resource.

SUCCESS
Specifies that you want to log authorized accesses to the resource.

audit-access-level
Specifies which access levels the user who has the AUDITOR attribute wants to log on the SMF data set.

ALTER
Logs ALTER access-level attempts only.

CONTROL
Logs access attempts at the CONTROL and ALTER levels.

READ
Logs access attempts at any level. This is the default value if no access level is specified.

UPDATE
Logs access attempts at the UPDATE, CONTROL, and ALTER levels.

You cannot audit access attempts at the EXECUTE level.

To use GLOBALAUDIT, you must have the AUDITOR attribute, or the resource profile must be within the scope of a group in which you have the group-AUDITOR attribute.

Regardless of the value you specify for GLOBALAUDIT, RACF always logs all access attempts specified on AUDIT.

ICSF | NOICSF

ICSF
Specifies ICSF attributes for the keys that are controlled by this profile. ICSF attributes are valid only for profiles in the CSFKEYS, GCSFKEYS, XCSFKEY, and GXCSFKEY classes.

ASYMUSAGE | NOASYMUSAGE

ASYMUSAGE
Specifies how an asymmetric key that is controlled by this profile is eligible to be used.

If you specify ICSF operand to create a new ICSF segment and omit the ASYMUSAGE option, SECUREEXPORT and HANDSHAKE are the default settings.

SECUREEXPORT | NOSECUREEXPORT
Specifies whether the key is eligible to be used to export or import symmetric keys.

HANDSHAKE | NOHANDSHAKE
Specifies whether the key is eligible to be used to protect communication channels.

NOASYMUSAGE
Resets to SECUREEXPORT and HANDSHAKE.

SYMEXPORTABLE | NOSYMEXPORTABLE

SYMEXPORTABLE
Specifies which public keys, if any, are eligible to be used to export a symmetric key that is controlled by this profile.

If you specify ICSF operand to create a new ICSF segment and omit the SYMEXPORTABLE option, BYANY is the default setting.

BYANY
Any public key is eligible. The SYMEXPORTCERTS and SYMEXPORTKEYS settings are ignored.

BYLIST
Only public keys specified with the SYMEXPORTCERTS or SYMEXPORTKEYS option are eligible. If neither option is set for this symmetric key, no public key is eligible (as if BYNONE were specified).

BYNONE
No public key is eligible. The SYMEXPORTCERTS and SYMEXPORTKEYS settings are ignored.

NOSYMEXPORTABLE
Resets the SYMEXPORTABLE option to BYANY.

SYMEXPORTCERTS | NOSYMEXPORTCERTS

SYMEXPORTCERTS([*qualifier*]/*label-name ...* | *)

Specifies a list of the labels of digital certificates that are eligible to be used to export the symmetric keys controlled by this profile.

Each listed certificate must exist in the ICSF key store (the SAF key ring or PKCS #11 token specified by an ICSF configuration setting). For information about the ICSF key store, see *z/OS Cryptographic Services ICSF Administrator's Guide*.

Specify an asterisk (*) to indicate that any certificate in the ICSF key store is eligible to be used to export the symmetric keys controlled by this profile. Specifying an asterisk (*) overrides any listed labels.

Specify each certificate label using a certificate label string in the form of *qualifier*/*label-name*.

qualifier

Specifies an optional qualifier in the certificate label string when multiple certificates have the same label. If specified, RACF translates the qualifier value to uppercase characters before storing it in the profile. The meaning of the qualifier value depends on where the certificate resides.

When the certificate resides in a ...	The qualifier value is ...
SAF key ring	The RACF user ID of the certificate owner.
PKCS #11 token	The value of the `CKA_ID` attribute of the certificate. The `CKA_ID` value consists of up to 64 hexadecimal characters. Valid characters are `0 - 9` and `A - F`.

/label-name

Specifies the certificate label assigned when the certificate was created. You must specify the forward slash character (/) followed by the certificate label.

If the certificate label contains blanks, or special characters that cause problems with TSO/E, such as the comma, parenthesis, or comment delimiter (`/*`), the entire certificate label string must be enclosed in single quotation marks.

Any leading or trailing blanks specified in *label-name* are removed from this value before storing it in the profile.

Examples of certificate label strings:

```
DENICE/CertForDenice
'ROGERS/Cert for Rogers'
'/DLR cert'
```

ADDSYMEXPORTCERTS([*qualifier*]/*label-name ...* | *)

Adds the specified certificate labels to the current list of labels.

DELSYMEXPORTCERTS([*qualifier*]/*label-name ...* | *)

Removes the specified certificate labels from the current list of labels.

NOSYMEXPORTCERTS

Removes the entire list of certificate labels.

SYMEXPORTKEYS | NOSYMEXPORTKEYS

SYMEXPORTKEYS(*ICSF-key-label ...* | *)

Specifies a list of the ICSF key labels of public keys that are eligible to be used to export the symmetric keys controlled by this profile. Each listed public key must reside in the ICSF PKA key data set (PKDS).

Specify an asterisk (*) to indicate that any public key in the ICSF PKDS is eligible to be used to export the symmetric keys controlled by this profile. Specifying an asterisk (*) overrides any listed labels.

ICSF-key-label

Specifies the ICSF key label for the public key. The label name cannot exceed 64 characters. The first character must be an alphabetic character or a national character (#, @, or $). Subsequent characters can be a period character (.) or any alphanumeric or national character.

ADDSYMEXPORTKEYS(*ICSF-key-label ...* | *)

Adds the specified key labels to the current list of labels.

DELSYMEXPORTKEYS(*ICSF-key-label ...* | *)

Removes the specified key labels from the current list of labels.

NOSYMEXPORTKEYS

Removes the entire list of key labels.

SYMCPACFWRAP

Specifies whether the encrypted symmetric keys that are controlled by this profile are eligible to be rewrapped by CP Assist for Cryptographic Function (CPACF).

If you specify ICSF operand to create a new ICSF segment and omit the SYMCPACFWRAP option, NO is the default setting.

YES

Specifies that the encrypted symmetric keys that are controlled by this profile are eligible to be rewrapped by CPACF.

NO

Specifies that the encrypted symmetric keys that are controlled by this profile are ineligible to be rewrapped by CPACF.

SYMCPACFRET

Specifies whether the encrypted symmetric keys that are controlled by this profile and are rewrapped by CP Assist for Cryptographic Function (CPACF) are eligible to be returned to an authorized caller.

If you specify the ICSF operand to create a new ICSF segment and omit the SYMCPACFRET option, NO is the default setting.

YES

Specifies that the encrypted symmetric keys that are controlled by this profile and are rewrapped by CP Assist for Cryptographic Function (CPACF) are eligible to be returned to an authorized caller.

NO

Specifies that the encrypted symmetric keys that are controlled by this profile and are rewrapped by CP Assist for Cryptographic Function (CPACF) are ineligible to be returned to an authorized caller.

NOICSF

Deletes the ICSF segment.

ICTX | NOICTX

ICTX

Specifies the ICTX configuration options that control the ICTX identity cache.

The ICTX identity cache uses an in-storage copy of the configuration options. Use SETROPTS RACLIST processing for the LDAPBIND class to activate these options. See *z/OS Security Server RACF Security Administrator's Guide* for more information about SETROPTS RACLIST processing.

For details about the ICTX configuration options, see *z/OS Integrated Security Services EIM Guide and Reference*.

The following operands are used only for the following profiles in the LDAPBIND class and are ignored for other profiles:

- IRR.ICTX.DEFAULTS.*sysid*
- IRR.ICTX.DEFAULTS

USEMAP (YES | NO)
Specifies whether the ICTX identity cache stores an identity mapping to a local z/OS user ID when provided by the application.

YES
When the application provides a valid mapping to a local z/OS user ID, the ICTX identity cache stores it.

NO
Identity mappings provided by the application are not stored.

NOUSEMAP
Resets the USEMAP value to YES.

DOMAP (YES | NO)
Specifies whether the ICTX identity cache uses Enterprise Identity Mapping (EIM) services to find a mapping to a z/OS user ID for an authenticated user, and then stores the mapping.

YES
When EIM finds a mapping to a z/OS user ID for an authenticated user, the ICTX identity cache stores it.

NO
The ICTX identity cache does not use EIM to find an identity mapping.

NODOMAP
Resets the DOMAP value to NO.

MAPREQUIRED (YES | NO)
Specifies whether the ICTX identity cache requires identity mapping to a z/OS user ID for an authenticated user.

YES
The ICTX identity cache fails the request when no valid mapping is provided by the application or found using EIM.

NO
The ICTX identity cache does *not* fail the request when no valid mapping is provided by the application or found using EIM.

NOMAPREQUIRED
Resets the MAPREQUIRED value to NO.

MAPPINGTIMEOUT(1 - 3600)
Specifies how long (one second to one hour) the ICTX identity cache stores an identity mapping to a z/OS user ID for an authenticated user.

Guideline: If you frequently modify your EIM mappings, consider a low MAPPINGTIMEOUT value. A shorter timeout period causes the ICTX identity cache to invoke EIM more frequently. This allows your cached mappings to be refreshed more frequently and improves their currency.

NOMAPPINGTIMEOUT
Resets the MAPPINGTIMEOUT value to 3600 seconds (one hour).

NOICTX
Deletes the ICTX segment.

IDTPARMS | NOIDTPARMS

IDTPARMS
Specifies information for the IDTDATA class profile being changed.

SIGTOKEN | NOSIGTOKEN

SIGTOKEN(*pkcs11-token-name*)
Specifies the name of an ICSF PKCS#11 token name for the generation and validation of Identity Token (IDT) signatures associated with this profile.

The token name may consist of alphanumeric characters, national characters (@, #, $) and the period symbol. The token name is not case sensitive.

The minimum token name length is 1. The maximum token name length is 32.

There is no default value.

For more information see, handl in *z/OS Cryptographic Services ICSF Application Programmer's Guide*.

NOSIGTOKEN
Deletes the SIGTOKEN in the profile.

SIGSEQNUM | NOSIGSEQNUM

SIGSEQNUM(*pkcs11-sequence-number*)
Specifies the ICSF PKCS#11 sequence number of the key for the generation and validation of Identity Token (IDT) signatures associated with this profile.

The sequence number must be a hexadecimal number.

The minimum sequence number is 1. The maximum sequence number length is 8 hexadecimal digits. The default value is 1.

NOSIGSEQNUM
Deletes the SIGSEQNUM in the profile.

SIGCAT | NOSIGCAT

SIGCAT(*pkcs11-category*)
Specifies the ICSF PKCS#11 category of the key for the generation and validation of Identity Token (IDT) signatures associated with this profile.

The category must be one of the following values:

T - Specifies a clear token object.
Y - Specifies a secure token object.

The default value is T.

NOSIGCAT
Deletes the SIGCAT in the profile.

SIGALG | NOSIGALG

SIGALG(HS256) | HS384 | HS512)
Specifies the signature algorithm for the generation of Identity Token (IDT) signatures associated with this profile. The default value is HS256.

HS256
Specifies the signature algorithm as HMAC with SHA-256.

HS384
Specifies the signature algorithm as HMAC with SHA-384.

HS512
Specifies the signature algorithm as HMAC with SHA-512.

NOSIGALG
Deletes the SIGALG in the profile.

ANYAPPL(YES | NO)
Specifies whether the IDT that RACROUTE generates can be used for any application name or only for the application name that performed authentication. The default value is YES.

When ANYAPPL(YES) is specified, RACROUTE will generate the IDT so it can be used for any application name.

When ANYAPPL(NO) is specified, RACROUTE will generate the IDT so that it can only be used by the application name that performed the authentication.

When an IDT is generated by RACROUTE, which is not for an end user, by specifying the IDTA parameter field IDTA_End_User_IDT off, RACROUTE will ignore this setting and generate the IDT so that it can be used with any application name.

IDTTIMEOUT |NOIDTTIMEOUT

IDTTIMEOUT(*timeout-minutes*)
Specifies the number of minutes that the Identity Token (IDT) associated with the profile is active.

The value of timeout-minutes can be between 1 and 1440. The default value is 5.

NOIDTTIMEOUT
Deletes the IDTTIMEOUT in the profile. The default value of 5 goes into effect.

PROTALLOWED (YES | <u>NO</u>)

Specifies whether an Identity Token (IDT) validated with this profile can be used to authenticate a protected user.

NOIDTPARMS
Deletes the IDTPARMS segment.

JES | NOJES

JES
Specifies the JES information for the profile being changed.

KEYLABEL | NOKEYLABEL

KEYLABEL(*key-label*)
Specifies the name of an ICSF key-label to be used when encrypting spool data for resources that are covered by the profile.

NOKEYLABEL
Specifies that you want to delete the key-label from the JES segment of the profile.

NOJES
Specifies that you want to delete the JES segment from the profile.

KERB | NOKERB

KERB
Specifies z/OS Integrated Security Services Network Authentication Service information for a REALM class profile.

CHECKADDRS | NOCHECKADDRS

CHECKADDRS
Specifies whether the Kerberos server validates addresses in tickets as part of ticket validation processing.

This keyword is only applicable when defining the KERBDFLT REALM profile for the local realm.

YES
The server validates addresses in tickets.

NO
The server ignores addresses in tickets.

NOCHECKADDRS
Resets the CHECKADDRS value to NO.

DEFTKTLFE | NODEFTKTLFE

DEFTKTLFE(*def-ticket-life*)

Specifies the default ticket lifetime for the local z/OS Network Authentication Service in seconds. The value for DEFTKTLFE is 1 - 2 147 483 647. Note that 0 is not a valid value.

This keyword is only applicable when defining the KERBDFLT REALM profile for the local realm.

The RALTER command only requires specification of all of the ticket lifetime keywords on the same command invocation if RALTER is being used to initially define these values. If values have been previously defined, RACF uses both the previous values and new values specified to verify the specified *def-ticket-life* value.

NODEFTKTLFE

Deletes the *def-ticket-lifetime* value for the local z/OS Network Authentication Service.

ENCRYPT | NOENCRYPT

ENCRYPT

Specifies which keys can be used by the z/OS Network Authentication Service realm you are changing.

DES | NODES

Whether DES encrypted keys can be used.

DES3 | NODES3

Whether DES3 encrypted keys can be used.

DESD | NODESD

Whether DESD encrypted keys can be used.

AES128 | NOAES128

Whether AES128 encrypted keys can be used.

AES256 | NOAES256

Whether AES256 encrypted keys can be used.

AES128SHA2 | NOAES128SHA2

AES128 SHA2 encryption keys can be used.

AES256SHA2 | NOAES256SHA2

AES256 SHA2 encryption keys can be used.

When a realm's password changes, a key of each type is generated and stored in the principal's user profile. The use of each key is based on the z/OS Network Authentication Service configuration.

See *z/OS Integrated Security Services Network Authentication Service Administration* for information about how z/OS Network Authentication Service uses keys and how to customize environment variables related to keys.

NOENCRYPT

Specifies that there is no restriction on which generated keys the realm can use, and resets the KERB ENCRYPT values to the default settings.

See *z/OS Integrated Security Services Network Authentication Service Administration* for information about how z/OS Network Authentication Service uses keys and how to customize environment variables related to keys.

KERBNAME | NOKERBNAME

KERBNAME(*kerberos-realm-name*)

Specifies the local realm name or a trust relationship for z/OS Network Authentication Service. The maximum length of this field is 117 characters.

- When you specify the local realm name for the KERBDFLT realm, you must specify KERBNAME using the *unqualified* form of the local realm name. For example:

  ```
  RALTER REALM KERBDFLT KERB(KERBNAME(KRB2000.IBM.COM)
  ```

  Important: Avoid renaming your local realm name. If you rename your local realm, the keys for existing principals become unusable.
- When you specify a trust relationship, you must specify the *fully qualified* principal name using the following form:

  ```
  /.../kerberos_realm_name_1/krbtgt/kerberos_realm_name_2
  ```

  For more information about defining trust relationships, see *z/OS Integrated Security Services Network Authentication Service Administration*.

Syntax rules for naming your local realm:

The local realm name that you define to RACF can consist of any character, except the / (X'61') character. You can enter the name with or without single quotation marks, depending on the following:

- If parentheses, commas, blanks, or semicolons are entered as part of the name, the character string must be enclosed in single quotation marks.
- If a single quotation mark is intended to be part of the name and the entire character string is enclosed in single quotation marks, you must use two single quotation marks together to represent each single quotation mark within the string.
- If the first character of the name is a single quotation mark, you must enter the string within single quotation marks, with two single quotation marks entered for the single quotation mark.

Regardless of the case in which it is entered, RACF translates the name of the local z/OS Network Authentication Service realm to uppercase. However, RACF does not ensure that a valid *kerberos-realm-name* has been specified.

Guidelines for naming your local realm:

- Avoid using EBCDIC variant characters to prevent problems with different code pages.
- Carefully consider the length of the local realm name. Its length limits the length of local principal names because fully qualified local principal names use the following form and cannot exceed 240 characters:

  ```
  /.../kerberos_realm_name/principal_name
  ```

  The length of the fully qualified local principal name is checked by RACF only when a local *kerberos-principal-name* is added or altered. Therefore, plan ahead to ensure that the maximum length of your principal names is sufficient and help you avoid renaming the local realm. If you rename your local realm (using the RALTER command), the keys for existing principals become unusable.

NOKERBNAME

Deletes the *kerberos-realm-name* value.

MAXTKTLFE | NOMAXTKTLFE

MAXTKTLFE(*max-ticket-life*)

Specifies the *max-ticket-life* for the local z/OS Integrated Security Services Network Authentication Service in seconds. The value for MAXTKTLFE is 1 - 2 147 483 647. Note that 0 is not a valid value.

This keyword is only applicable when defining the KERBDFLT REALM profile for the local z/OS Network Authentication Service realm.

The RALTER command only requires specification of all of the ticket lifetime keywords on the same command invocation if RALTER is being used to initially define these values. If values have been previously defined, RACF uses both these previous values and new values specified on the command, to verify the specified *max-ticket-life* value.

NOMAXTKTLFE

Deletes the *max-ticket-lifetime* value for the local z/OS Network Authentication Service.

MINTKTLFE | NOMINTKTLFE

MINTKTLFE(*min-ticket-life*)

Specifies the *min-ticket-life* for the z/OS Network Authentication Service in seconds. The value of MINTKTLFE is 1 - 2 147 483 647. Note that 0 is not a valid value.

This keyword is only applicable when defining the KERBDFLT REALM profile for the local realm.

The RALTER command only requires specification of all of the ticket lifetime keywords on the same command invocation if RALTER is being used to initially define these values. If values have been previously defined, RACF uses both the previous values and new values specified on the command to verify the specified *min-ticket-life* value.

NOMINTKTLFE

Deletes the *min-ticket-lifetime* value for the local z/OS Network Authentication Service principal.

PASSWORD | NOPASSWORD

PASSWORD(*kerberos-password*)

Specifies the value of the *kerberos-password*. The maximum length of this value is 128 characters. The PASSWORD keyword is applicable to all REALM class profile definitions. A password must be associated with the definition of a trust relationship or else the definition is incomplete.

Guideline: Avoid using EBCDIC variant characters to prevent problems with different code pages.

The *kerberos-password* that you define to RACF might consist of any character. You can enter a password with or without single quotation marks, depending on the following:

- If parentheses, commas, blanks, or semicolons are entered as part of the password, the character string must be enclosed in single quotation marks.
- If a single quotation mark is intended to be part of the password and the entire character string is enclosed in single quotation marks, you must use two single quotation marks together for each single quotation mark within the string.
- If the first character of the password is a single quotation mark, you must enter the string within single quotation marks, with two single quotation marks entered for the character.

Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered.

Note: This keyword is intended for administrators to be able to associate a password with the definition of a realm. It is not the same as a RACF user password and is not constrained by the SETROPTS password rules and change interval values that might be established for RACF user passwords. ICSF must be available prior to changing the password as the encryption keys for the REALM class profile are generated using ICSF services.

NOPASSWORD

Deletes the z/OS Network Authentication Service password. If this is the local z/OS Network Authentication Service realm (KERBDFLT), it will no longer be able to grant ticket-granting tickets. Removal of the password from a foreign realm definition will invalidate the inter-realm trust relationship.

NOKERB
Deletes the KERB segment.

LEVEL(*nn*)
Specifies a level indicator, where *nn* is an integer in the range of 00 - 99. Your installation assigns the meaning of the value. It is included on all records that log resource accesses and is listed by the RLIST command.

MFA | NOMFA
The MFA segment is intended to be updated only by IBM Multi-Factor Authentication for z/OS.

MFA
Specifies that RACF create an MFA segment in the MFADEF profile.

NOMFA
Specifies that RACF delete the MFA segment from the MFADEF profile.

MFPOLICY | NOMFPOLICY
Specifies multi-factor authentication policy information for the MFADEF class profile being changed.

FACTORS | ADDFACTORS | DELFACTORS | NOFACTORS
Specifies the list of factors that are required to satisfy this authentication policy.

FACTORS(*factor-name1 ...*)
specifies the list of factor names that are required in order to satisfy this authentication policy.

ADDFACTORS(*factor-name1 ...*)
Adds to the list of factor names that are required in order to satisfy this authentication policy.

DELFACTORS(*factor-name1 ...*)
Deletes from the list of factor names that are required in order to satisfy this authentication policy.

NOFACTORS
Removes the list of factor names from the authentication policy.

TOKENTIMEOUT(*timeout-seconds*)
Specifies the number of seconds for which out-of-band authentication with the policy is valid. That is, after having authenticated out-of-band with the policy to IBM MFA, the user must logon to a z/OS application within this number of seconds or the out-of-band authentication record will time out. When an out-of-band authentication record times out, a user must authenticate out-of-band again to IBM MFA in order to logon.

The value of timeout-seconds can be between 1 and 86,400® (the number of seconds in a day).

The default value is 300 (5 minutes).

REUSE(YES|<u>NO</u>)
Specifies whether this out-of-band authentication policy allows multiple z/OS logons using the out-of-band token within the TOKENTIMEOUT setting. When REUSE(NO) is specified, the user must authenticate out-of-band with the policy prior to every z/OS logon.

REUSE(NO) is the default.

NOMFPOLICY
Specifies that RACF deletes the MFPOLICY segment from the MFADEF profile.

NOTIFY | NONOTIFY

NOTIFY[(*userid*)]
Specifies the user ID of a RACF-defined user to be notified whenever RACF uses this profile to deny access to a resource. If you specify NOTIFY without specifying a user ID, RACF takes your user ID as the default; you are notified whenever the profile denies access to a resource.

If you receive NOTIFY messages, you should log on frequently to take action in response to the unauthorized access attempt described in each message. RACF sends NOTIFY messages to the SYS1.BRODCAST data set. When the resource profile also includes WARNING, RACF might have granted access to the resource to the user identified in the message.

When RACF denies access to a resource, it does *not* notify a user:

- When the resource is in the PROGRAM class
- When the resource is in a class for which an application has built in-storage profiles using RACROUTE REQUEST=LIST

  Some applications, such as IMS and CICS, load all the profiles for a given class into storage. After these profiles are in storage, the applications can do a *fast* authorization check using RACROUTE REQUEST=FASTAUTH. Fast authorization checking is different from normal authorization checking in several ways. One difference is that, in some cases, fast authorization checking does not issue warning messages, notification messages or support auditing. In cases where it does not, return and reason codes are returned to the application to allow support of these functions. The application can examine the return and reason codes and use RACROUTE REQUEST=AUTH to create the messages and audit records. If the application uses RACROUTE REQUEST=AUTH to support auditing or specifies LOG=ASIS on RACROUTE REQUEST=FASTAUTH, the specified user is notified. Otherwise, notification, warning, and such do not occur.

  For details on using RACF with IMS, visit IMS in IBM Documentation (www.ibm.com/docs/en/ims).

  For details on using RACF with CICS, visit CICS Transaction Server for z/OS (www.ibm.com/docs/en/cics-ts).
- When the profile is used to disallow the creation or deletion of a data set

  NOTIFY is used only for resource access checking, not for resource creation or deletion.

NONOTIFY
Specifies that no user is to be notified when RACF uses this profile to deny access to a resource.

OWNER(*userid or group-name*)
Specifies a RACF-defined user or group to be assigned as the new owner of the resource you are changing.

To change the owner of a resource, you must be the current owner of the resource or have the SPECIAL attribute, or the profile must be within the scope of a group in which you have the group-SPECIAL attribute. The user specified as the owner does not automatically have access to the resource. Use the PERMIT command to add the owner to the access list as desired.

PROXY | NOPROXY

PROXY
Specifies information which the z/OS LDAP server will use when acting as a proxy on behalf of a requester. The `R_proxyserv` (IRRSPY00) SAF callable service will attempt to retrieve this information when it is not explicitly supplied with the invocation parameters. Applications or other services which use the `R_proxyserv` callable service, such as IBM Policy Director Authorization Services for z/OS and OS/390, may instruct their invokers to define PROXY segment information.

LDAPHOST | NOLDAPHOST

LDAPHOST(*ldap_url*)
Specifies the URL of the LDAP server which the z/OS LDAP server will contact when acting as a proxy on behalf of a requester. An LDAP URL has a format such as `ldap://12.34.56.78:389` or `ldaps://12.34.56.78:636`, where `ldaps` indicates that an SSL connection is desired for a higher level of security. LDAP will also allow you to specify the host name portion of the URL using either the text form (`BIGHOST.POK.IBM.COM`) or the dotted decimal address (`12.34.56.78`). The port number is appended to the host name, separated by a colon `:` (X'7A').

For more information about LDAP URLs and how to enable LDAP servers for SSL connections, see *z/OS IBM Tivoli Directory Server Administration and Use for z/OS*.

The LDAP URL that you define to RACF can consist of 10 - 1023 characters. A valid URL must start with either `ldap://` or `ldaps://`. RACF will allow any characters to be entered for the remaining portion of the URL, but you should ensure that the URL conforms to TCP/IP conventions. For example, parentheses, commas, blanks, semicolons, and single quotation marks are not typically allowed in a host name. The LDAP URL can be entered with or without single quotation marks.

RACF does not ensure that a valid LDAP URL has been specified.

NOLDAPHOST

Deletes the URL of the LDAP server which the z/OS LDAP server will contact when acting as a proxy on behalf of a requester.

BINDDN | NOBINDDN

BINDDN(*bind_distinguished_name*)

Specifies the distinguished name (DN) which the z/OS LDAP server will use when acting as a proxy on behalf of a requester. This DN will be used in conjunction with the BIND password, if the z/OS LDAP server needs to supply an administrator or user identity to BIND with another LDAP server. A DN is made up of *attribute:value* pairs, separated by commas. For example:

```
cn=Ben Gray,ou=editing,o=New York Times,c=US
cn=Lucille White,ou=editing,o=New York Times,c=US
cn=Tom Brown,ou=reporting,o=New York Times,c=US
```

When you define a BIND DN to RACF, it can contain 1 - 1023 characters. The BIND DN can consist of any characters and can be entered with or without single quotation marks. The following rules apply:

- If parentheses, commas, blanks, or semicolons are to be entered as part of the BIND DN, the character string must be enclosed in single quotation marks.
- If a single quotation mark is intended to be part of the BIND DN, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered. For more information about LDAP distinguished names, see *z/OS IBM Tivoli Directory Server Administration and Use for z/OS.*

If you issue the RALTER command as a RACF operator command and you specify the BIND DN in lowercase, you must include the BIND DN within single quotations.

RACF does not ensure that a valid BIND DN has been specified.

NOBINDDN

Deletes the distinguished name (DN) used by the z/OS LDAP server when acting as a proxy on behalf of a requester.

BINDPW | NOBINDPW

BINDPW

Specifies the password which the z/OS LDAP server will use when acting as a proxy on behalf of a requester.

When you define a BIND password to RACF, it can contain 1 - 128 characters. The BIND password can consist of any characters (except where noted in the following rules) and can be entered with or without single quotation marks. The following rules apply:

- The BIND password cannot start with a left brace { character (X'8B').
- If parentheses, commas, blanks, or semicolons are to be entered as part of the BIND password, the character string must be enclosed in single quotation marks.

- If a single quotation mark is intended to be part of the BIND password, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered. For more information about LDAP passwords, see *z/OS IBM Tivoli Directory Server Administration and Use for z/OS.*.

If you issue the RALTER command as a RACF operator command and you specify the BIND password in lowercase, you must include the BIND password within single quotations.

RACF does not ensure that a valid BIND password has been specified.

NOBINDPW
Deletes the password used by the z/OS LDAP server when acting as a proxy on behalf of a requester.

NOPROXY
Deletes LDAP proxy information.

SECLABEL | NOSECLABEL

SECLABEL(*seclabel-name*)
Specifies an installation-defined security label for this profile. A security label corresponds to a particular security level (such as CONFIDENTIAL) with a set of zero or more security categories (such as PAYROLL or PERSONNEL).

If you are authorized to use the SECLABEL, RACF stores the name of the security label you specify in the resource profile.

If you are not authorized to the SECLABEL or if the name you had specified is not defined as a SECLABEL profile in the SECLABEL class, the resource profile is not updated. If the SECLABEL class is active and the security level is specified in this profile, any security levels and categories in the profile are ignored.

NOSECLABEL
Removes the security label, if one had been specified, from the profile.

SECLEVEL | NOSECLEVEL

SECLEVEL(*seclevel-name*)
Specifies the name of an installation-defined security level. This name corresponds to the number that is the minimum security level that a user must have to access the resource. The *seclevel-name* must be a member of the SECLEVEL profile in the SECDATA class.

When you specify SECLEVEL and the SECDATA class is active, RACF adds security level access checking to its other authorization checking. If global access checking does not grant access, RACF compares the security level allowed in the user profile with the security level required in the resource profile. If the security level in the user profile is less than the security level in the resource profile, RACF denies the access. If the security level in the user profile is equal to or greater than the security level in the resource profile, RACF continues with other authorization checking.

RACF does not perform security level checking for a started task that has the RACF privileged or trusted attribute. The RACF privileged or trusted attribute can be assigned to a started task through the RACF started procedures table or STARTED class. Also, RACF does not enforce security level information specified on profiles in the PROGRAM class.

If the SECDATA class is not active, RACF stores the name you specify in the resource profile. When the SECDATA class is activated and the name you specified is defined as a SECLEVEL profile, RACF can perform security level access checking for the resource profile. If the name you specify is not defined as a SECLEVEL profile, you are prompted to provide a valid *seclevel-name*.

NOSECLEVEL
Specifies that the RALTER command is to delete the security level name from the profile. RACF no longer performs security level checking for the resource.

SESSION | NOSESSION

SESSION

Controls the establishment of sessions between logical units under LU6.2. This operand is only valid for the APPCLU resource class. It allows the following suboperand to add, change, or delete SESSION segment field values when changing an APPCLU class profile.

CONVSEC | NOCONVSEC

CONVSEC(*security-checking-level*)

Specifies the level or levels of security checking performed when conversations are established with the LU protected by this profile.

The *security-checking-level* value can be one of the following levels.

Guideline: Specify a CONVSEC option for each APPCLU profile.

NONE

All inbound allocate requests pass without RACF checking for a valid user ID. No RACROUTE REQUEST=VERIFY is issued.

CONV

APPC/MVS issues a RACROUTE REQUEST=VERIFY to verify the user ID and password for all inbound allocate requests.

ALREADYV

APPC/MVS RACF does *not* verify the user ID and password for any inbound allocate requests. If you specify ALREADYV, you assume that user IDs and passwords have already been verified by the partner LU. You must specify this only if the partner LU is trustworthy.

PERSISTV

Specifies persistent verification.

AVPV

The user ID/password is already verified *and* persistent verification is requested. In general, you should select one of NONE, CONV, and ALREADYV for each APPCLU profile.

NOCONVSEC

Delete any existing conversation security parameters.

INTERVAL | NOINTERVAL

INTERVAL(*n*)

Sets the maximum number of days the session key is valid. This value of *n* is 1 - 32767. If the key interval is longer than the installation maximum (set with SETROPTS SESSIONINTERVAL), the INTERVAL is not changed.

NOINTERVAL

There is no limit on the number of days the key is valid.

LOCK | NOLOCK

LOCK

Marks the profile as locked.

NOLOCK

Unlocks a previously locked profile.

SESSKEY | NOSESSKEY

SESSKEY(*session-key*)

Changes the key for this profile. The *session-key* value can be expressed in two ways:

- X'*y*' where *y* is a hexadecimal number of 1 - 16 digits
- *z* or '*z*' where *z* is a string of 1 - 8 characters

If the entire 16 digits or 8 characters are not used, the field is padded to the right with binary zeros.

Note: Session keys are 64-bit Data Encryption Standard (DES) keys. With DES, 8 of the 64 bits are reserved for use as parity bits, so those 8 bits are not part of the 56-bit key. In hexadecimal notation, the DES parity bits are: X'0101 0101 0101 0101'. Any two 64-bit keys are equivalent DES keys if their only difference is in one or more of these parity bits. For instance, the following SESSKEY values, although appearing to be quite different, are equivalent because they differ only in the last bit of each byte:

- BDF0KM4Q, which is X'C2C4 C6F0 D2D4 F4D8'
- CEG1LN5R, which is X'C3C5 C7F1 D3D5 F5D9'

NOSESSKEY
Deletes the session key for this profile.

NOSESSION
Deletes the SESSION segment from this profile.

SIGVER | NOSIGVER

SIGVER
Specifies the options for verifying the signatures of programs that are protected by this general resource profile.

Rule: Specify SIGVER only for profiles in the PROGRAM class. Any options specified with the SIGVER operand are ignored for profiles in a class other than the PROGRAM class.

Restriction: Digital signature verification is supported only for program objects that are stored as members of a partitioned data set extended (PDSE) library. Digital signature verification is *not* supported for programs that are stored as members of a partitioned data set (PDS) library.

Any options specified with the SIGVER operand are ignored for unsupported programs.

Note: Regardless of the SIGREQUIRED setting, specifying FAILLOAD(NEVER) and SIGAUDIT(NONE) is equivalent to having no SIGVER segment.

For detailed information, see Program signing and verification in *z/OS Security Server RACF Security Administrator's Guide*.

SIGREQUIRED | NOSIGREQUIRED

SIGREQUIRED
Specifies whether programs that are protected by this profile must be digitally signed.

YES
Specifies that programs must be digitally signed.

When you specify SIGREQUIRED(YES), the following conditions apply to any program that is protected by this general resource profile:

- If the program has a digital signature:
  - Signature verification processing occurs.
  - The program continues to load according to the FAILLOAD setting.
  - Logging occurs according to the SIGAUDIT setting.
- If the program has no digital signature:
  - Signature verification processing occurs, resulting in a signature verification failure.
  - The program continues to load according to the FAILLOAD setting.
  - Logging occurs according to the SIGAUDIT setting.

Important: If you share the RACF database with other z/OS systems, do not specify SIGREQUIRED(YES) until you determine if another version of any program that is protected by this profile runs on a shared system. If so, ensure that each version of a protected program on the shared system is digitally signed. An unsigned version of a program that is protected with SIGREQUIRED(YES) might fail to load. Alternatively, consider protecting the other version with a separate program profile.

NO

Specifies that programs need not be digitally signed.

When you specify SIGREQUIRED(NO), the following conditions apply to any program that is protected by this general resource profile:

- If the program has a digital signature:
  - Signature verification processing occurs.
  - The program continues to load according to the FAILLOAD setting.
  - Logging occurs according to the SIGAUDIT options.
- If the program has no digital signature:
  - No signature verification occurs.
  - The program continues to load. The FAILLOAD setting is ignored.
  - No logging occurs. The SIGAUDIT setting is ignored.

NOSIGREQUIRED

Resets the SIGREQUIRED value to NO.

FAILLOAD | NOFAILLOAD

FAILLOAD

Specifies the conditions under which the program fails to load in the event that a signature verification failure occurs.

ANYBAD

Specifies that the program fails to load when a signature verification failure occurs, regardless of the cause. Such failures include those resulting from an incorrect signature, or an error establishing the trust of the signer. This setting includes failures related to administrative errors, such as a missing or incorrectly defined key ring.

The ANYBAD setting includes the failures covered by the BADSIGONLY setting, and also includes errors establishing the trust of the signer.

BADSIGONLY

Specifies that the program fails to load only when the signature verification failure is caused by an incorrect digital signature. Such failures include only those resulting from a signature that fails verification or a signature structure that is missing or improperly formatted.

In contrast to ANYBAD, the BADSIGONLY setting does not cause a program to fail to load when the program has a valid signature originating from an untrusted signer.

NEVER

Specifies that the program never fails to load when a signature verification failure is detected.

NOFAILLOAD

Resets the FAILLOAD value to NEVER.

SIGAUDIT | NOSIGAUDIT

SIGAUDIT

Specifies which signature verification events are logged. Messages are issued to the console only for signature verification failures that are logged.

ALL

Logs all signature verifications, whether successful or not.

SUCCESS

Logs only signature verification successes. In other words, the digital signature is valid and the root CA certificate is trusted.

ANYBAD

Logs all signature verification failures, regardless of the cause of the failure. Such failures include those resulting from an incorrect signature, or an error establishing the trust of the signer. This setting includes failures related to administrative errors, such as a missing or incorrectly defined key ring.

The ANYBAD setting logs the failures covered by the BADSIGONLY setting, and also logs errors encountered when establishing the trust of the signer.

BADSIGONLY

Logs only signature verification failures caused by an incorrect digital signature. Such failures include only those resulting from a signature that fails verification or a signature structure that is missing or improperly formatted.

In contrast to ANYBAD, the BADSIGONLY setting does not log a signature verification failure when the program has a valid signature originating from an untrusted signer.

NONE

Logs no digital signature verification events.

NOSIGAUDIT

Resets the SIGAUDIT value to NONE.

NOSIGVER

Deletes the SIGVER segment.

SINGLEDSN | NOSINGLEDSN

SINGLEDSN

Specifies that the tape volume can contain only one data set. SINGLEDSN is valid only for a TAPEVOL profile. If the volume already contains more than one data set, RACF issues a message and ignores the operand.

NOSINGLEDSN

Specifies that the tape volume can contain multiple data sets, up to a maximum of 9999. NOSINGLEDSN is valid only for a TAPEVOL profile.

SSIGNON | NOSSIGNON

SSIGNON

Defines PassTicket keys and associated configuration settings.

RACF PassTickets can be configured with two different algorithms:

- The legacy PassTicket algorithm
- The enhanced PassTicket algorithm

The legacy PassTicket algorithm is the original PassTicket implementation and uses a DES secret key. The enhanced PassTicket algorithm is an updated version of the PassTicket algorithm and uses an HMAC secret key. RACF supports generation and evaluation of PassTickets with either the legacy PassTicket algorithm or the enhanced PassTicket algorithm based on the SSIGNON segment keywords.

The KEYMASKED, KEYENCRYPTED, ENCRYPTKEY and KEYLABEL keywords control the key to be used for the generation and evaluation of legacy PassTickets. These keywords indicates the method you want to use to protect the legacy PassTicket key value within the RACF database. You can mask or encrypt the key. The *key-value* represents a 64-bit (8-byte) key that must be represented as 16 hexadecimal characters. The valid characters are `0 - 9` and `A - F`.

The EPTKEYLABEL, TYPE, TIMEOUT and REPLAY keywords control the key and settings to be used for the generation and evaluation of enhanced PassTickets.

Note:

1. Before defining PassTicket keys, please read and understand the PassTicket documentation in the *z/OS Security Server RACF Security Administrator's Guide*, specifically, the topic

Protecting PassTicket keys. That documentation contains important information on setup and authorization issues, especially pertaining to the use of ICSF with encrypted keys.

2. As with RACF passwords, the database unload facility does not unload application keys or PassTicket keys. It will, however, indicate the method of protection of the key, and if the key is encrypted, the key label name.
3. The RLIST command does not list the value of the application key or the PassTicket key. Therefore, when you define the keys, you should note the value and keep it in a secure place. Note that RLIST will, however, indicate the method of protection of the key, and if the key is encrypted, the key label name.
4. The KEYMASKED, KEYENCRYPTED, ENCRYPTKEY and KEYLABEL legacy PassTicket keywords all work against the same field in the RACF database. Use of any of these RALTER keywords replaces the previous legacy PassTicket key (or its label) in the RACF database.

KEYMASKED(*legacy-passticket-key-value*)

Specifies that you want to mask the legacy PassTicket key value using the masking algorithm.

Note:

1. IBM **STRONGLY** recommends that masked PassTicket keys are not used outside of a test environment.
2. You can specify this operand only once for each application key.
3. If you mask a key, you *cannot* encrypt it. These are mutually exclusive.

KEYENCRYPTED(*legacy-passticket-key-value*)

Specifies that you want to encrypt the legacy PassTicket key value.

Note:

1. Before using the KEYENCRYPTED keyword, please read and understand the documentation describing Encrypting the PassTicket key in the *z/OS Security Server RACF Security Administrator's Guide*.
2. You can specify this operand only once for each application key.
3. If you encrypt a key, you *cannot* mask it. These are mutually exclusive.
4. ICSF must be installed and active on the system.

You can use the RLIST command to verify that the key is protected.

ENCRYPTKEY

Specifies that you want to request conversion of a legacy PassTicket key to a KEYENCRYPTED key with a key label.

If the existing key is KEYMASKED, it is converted to a KEYENCRYPTED key and the data in the RACF database is replaced with the ICSF key label. Knowledge of the existing key value is not necessary.

If the existing key is KEYENCRYPTED in the form of a key token, it is moved into the ICSF CKDS and data in the RACF database is replaced with a key label. Knowledge of the existing key value is not necessary.

If the existing key is KEYENCRYPTED and already referenced by a key label, message **IRR52254I** is issued and ENCRYPTKEY is ignored.

RACF generates key label names in the form *IRR.SSIGNON.sysname.mmddyyyy.hhmmss.nnnnnn*. The key label name is not user configurable. RLIST displays the key label name. *Sysname* indicates the name of the system on which the ENCRYPTKEY operation was performed.

The **SEARCH** command with the CLIST option provides a way of creating a 'utility' to convert all your PassTicket keys to KEYENCRYPTED in ICSF.

KEYLABEL(*legacy-passticket-label-value*)

Specifies the name of an ICSF key label to be used when generating or evaluating a legacy PassTicket.

ICSF must be installed and active, and the key must be defined in the ICSF CKDS at the time of use. However, this is not checked when the KEYLABEL keyword is specified.

When using KEYLABEL, RACF does not make any calls to ICSF. The key label is saved in the RACF database, and it is up to the installation to ensure that the key is added to the ICSF CKDS before any PassTicket operations occur which need it. The key must refer to a DES key with a type of DATA and a length of 8 bytes.

Note:

The KEYLABEL operand cannot be used to override the key label generated by RACF when KEYENCRYPTED or ENCRYPTKEY is specified.

NOLEGACYKEY

Removes an existing legacy PassTicket key from the PTKTDATA profile set by the KEYMASKED, KEYENCRYPTED or KEYLABEL keywords.

EPTKEYLABEL | NOEPTKEYLABEL

EPTKEYLABEL(*enhanced-passticket-label-value*)

Specifies the name of an ICSF key label to be used when generating or evaluating an enhanced PassTicket.

ICSF must be installed and active, and the key must be defined in the ICSF CKDS at the time of use. However, this is not checked when the EPTKEYLABEL keyword is specified.

When using EPTKEYLABEL, RACF does not make any calls to ICSF. The key label is saved in the RACF database, and it is up to the installation to ensure that the key is added to the ICSF CKDS before any enhanced PassTicket operations occur which need it.

The key label must refer to an ICSF HMAC key with a key algorithm of HMAC, a key type of MAC and the key usage fields must indicate GENERATE. The supported HMAC key size range is from 32 to 256 bytes. The recommended minimum key size is 64 bytes.

The RACF enhanced PassTicket support uses ICSF HMAC keys which require that the ICSF CKDS is defined in either the variable length record format or common record format (KDSR). For more information on ICSF CKDS formats, please refer to Introduction to z/OS ICSF in *z/OS Cryptographic Services ICSF System Programmer's Guide*.

The label name cannot exceed 64 characters. The first character must be an alphabetic character or a national character (#, @, or $). Subsequent characters can be a period character (.) or any alphanumeric or national character.

NOEPTKEYLABEL

Removes the enhanced PassTicket key label.

TYPE | NOTYPE

TYPE(UPPER | MIXED)

Specifies the character set to use for generating and evaluating an enhanced PassTicket.

The type must be one of the following values:

- **UPPER –** The enhanced PassTicket will be generated and evaluated with only uppercase characters `A - Z` and digits `0 - 9`.
- **MIXED –** The enhanced PassTicket will be generated and evaluated with only uppercase characters `A - Z`, lowercase characters `a - z`, digits `0 - 9` and the symbols dash (–) and underscore (_).

Using type MIXED is recommended as it provides a larger set of possible PassTicket values and therefore provides more security. Type UPPER may be required when an application does not yet support mixed case passwords.

The default value is MIXED.

NOTYPE

Resets TYPE to the default value of MIXED.

TIMEOUT | NOTIMEOUT

TIMEOUT(*timeout-seconds*)

Specifies the number of seconds that the enhanced PassTicket is active.

The value of timeout-seconds can be between 1 and 600 seconds (10 minutes).

The default value is 60 seconds.

NOTIMEOUT

Resets TIMEOUT to the default value of 60 seconds.

REPLAY (YES | NO)

Specifies whether an enhanced PassTicket is allowed to be replayed within the TIMEOUT value.

The default value is NO.

This setting only applies to enhanced PassTickets and does not apply to legacy PassTickets.

The replay protection setting in the APPLDATA field only applies to legacy PassTickets and does not apply to enhanced PassTickets.

NOSSIGNON

Specifies that the SSIGNON segment should be deleted.

STDATA | NOSTDATA

STDATA

Used to control security for started tasks. STDATA should only be specified for profiles in the STARTED class.

USER | NOUSER

USER(*userid*)

Specifies the user ID to be associated with this entry.

RACF issues a warning message if the specified *userid* does not exist, but information is added to the STDATA segment. If the error is not corrected, RACF uses the started procedures table to process START requests that would have used this STARTED profile.

USER(=MEMBER)

Specifies that the procedure name should be used as the user ID. If =MEMBER is specified for USER, a *group-name* value should be specified for the GROUP operand. If =MEMBER is specified for both USER and GROUP, a warning message is issued and problems might result when the profile is used. For information, see *z/OS Security Server RACF Security Administrator's Guide*.

NOUSER

Specifies the user ID should be deleted from this entry, leaving it unspecified. A warning message is issued because the absence of a user specification in the STDATA segment normally indicates that the segment information is incomplete. IF NOUSER is specified, RACF uses the started procedures table to process START requests that would have used this STARTED profile.

GROUP | NOGROUP

GROUP(*group-name*)

Specifies the group name to be associated with this entry.

RACF issues a warning message if the specified *group-name* does not exist. If *userid* and *group-name* are specified, RACF verifies that the user is connected to the group. If there is an error in the specification of the group name, the started task runs as an undefined user.

GROUP(=MEMBER)

Specifies that the procedure name should be used as the group name. If =MEMBER is specified for GROUP, a *userid* value must be specified for the USER operand or RACF uses the started procedures table to assign an identifier for this started task. If =MEMBER is specified for both USER and GROUP, a warning message is issued and problems might result when the profile is used. For information, see *z/OS Security Server RACF Security Administrator's Guide*.

NOGROUP

Specifies the group name should be deleted from this entry, leaving it unspecified. IF NOGROUP is specified, the started task runs with the default group of the specified user ID.

PRIVILEGED(YES | NO) | NOPRIVILEGED

Specifies whether the started task should run with the RACF PRIVILEGED attribute. The PRIVILEGED attribute allows the started task to pass most authorization checking. No installation exits are called, no SMF records are generated, and no statistics are updated. (Note that bypassing authorization checking includes bypassing the checks for security classification of users and data.) For more information, see Associating started procedures and jobs with user IDs in *z/OS Security Server RACF System Programmer's Guide*.

PRIVILEGED(NO) and NOPRIVILEGED indicate that the started task should run without the PRIVILEGED attribute.

If neither PRIVILEGED nor NOPRIVILEGED is specified, PRIVILEGED(NO) is the default.

TRACE(YES | NO) | NOTRACE

Specifies whether a message should be issued to the operator when this entry is used to assign an ID to the started task.

If TRACE(YES) is specified, RACF issues an informational message to the operator to record the use of this entry when it is used to assign an ID to a started task. This record can be useful in finding started tasks that do not have a specific entry defined and in diagnosing problems with the user IDs assigned for started tasks.

TRACE(NO) and NOTRACE specify that an informational message should not be issued when this entry is used to assign an ID to the started task.

If neither TRACE nor NOTRACE is specified, TRACE(NO) is the default.

TRUSTED(YES | NO) | NOTRUSTED

Specifies whether the started task should run with the RACF TRUSTED attribute. The TRUSTED attribute is similar to the PRIVILEGED attribute except that auditing can be requested using the SETROPTS LOGOPTIONS command. For more information about the TRUSTED attribute, see Associating started procedures and jobs with user IDs in *z/OS Security Server RACF System Programmer's Guide*.

TRUSTED(NO) and NOTRUSTED indicate that the started task should run without the RACF TRUSTED attribute.

If neither TRUST nor NOTRUSTED is specified, TRUSTED(NO) is the default.

NOSTDATA

Specifies that all the STDATA information for this entry should be deleted. When this entry is used, and no STDATA was specified (or when the STDATA has been deleted), then RACF issues a message and use the started procedures table to assign information for this START command.

SVFMR | NOSVFMR

SVFMR

Defines profiles associated with a particular SystemView for MVS application.

SCRIPTNAME | NOSCRIPTNAME

SCRIPTNAME(*script-name*)

Specifies the name of the list of default logon scripts associated with this application. This operand is optional. If you omit this operand, no scripts are changed for the application.

The *script-name* is the 1 - 8 character alphanumeric name of a member of an MVS partitioned data set (PDS). RACF accepts both uppercase and lowercase characters for *script-name*, but lowercase characters are translated to uppercase.

The PDS member specified by *script-name* contains a list of other PDS members that contain the scripts associated with this application's profile. The PDS and members, including the member that contains the list of other members, are created by the administrator of the SystemView for MVS application.

NOSCRIPTNAME

Specifies that the logon script name should be deleted from this entry.

PARMNAME | NOPARMNAME

PARMNAME(*parm-name*)

Specifies the name of the parameter list associated with this application. This operand is optional. If this operand is omitted, no parameters are changed for the application.

The *parm-name* is the 1 - 8 character alphanumeric name of a member of an MVS partitioned data set (PDS). RACF accepts both uppercase and lowercase characters for *parm-name*, but lowercase characters are translated to uppercase.

The PDS member specified by *parm-name* contains a list of other PDS members that contain the parameters associated with this application's profile. The PDS and members, including the list of other members, are created by System View for the MVS administrator.

NOPARMNAME

Specifies that the parameter list name should be deleted from this entry.

NOSVFMR

Specifies that the SVFMR segment should be deleted.

TIMEZONE | NOTIMEZONE

TIMEZONE({E | W} *hh*[.*mm*])

Specifies the time zone in which a terminal resides. TIMEZONE is valid only for resources in the TERMINAL class; RACF ignores it for all other resources.

Specify TIMEZONE only when the terminal is not in the same time zone as the processor on which RACF is running. In this situation, TIMEZONE provides the information RACF needs to calculate the time and day values correctly. If you identify more than one terminal in the *profile-name* operand, all the terminals must be in the same time zone.

On TIMEZONE, you specify whether the terminal is east (E) or west (W) of the system and by how many hours (*hh*) and, optionally, minutes (*mm*). The terminal time zone is different from the processor time zone. Valid hour values are 0 - 11, and valid minute values are 00 - 59.

For example, if the processor is in New York and the terminal is in Los Angeles, specify TIMEZONE(W 3). If the processor is in Houston and the terminal is in New York, specify TIMEZONE(E 1).

If you change the local time on the processor (to accommodate daylight saving time, for instance), RACF adjusts its time calculations accordingly. However, if the processor time zone and the terminal time zone do not change in the same way, you must adjust the terminal time zones yourself, as described for the WHEN(TIME) operand.

NOTIMEZONE

Specifies that the terminal is in the same time zone as the processor. NOTIMEZONE is valid only for resources in the terminal class; RACF ignores it for all other resources.

TME | NOTME

TME

Specifies that information for the Tivoli Security Management Application is to be added, changed, or deleted.

Note: The TME segment fields are intended to be updated only by the Tivoli Security Management Application, which manages updates, permissions, and cross references. A security administrator should only directly update Tivoli Security Management fields on an exception basis.

All TME suboperands, with the exception of those for ROLES, can be specified when changing a resource profile in the ROLE class. Conversely, only the ROLES suboperand can be specified when changing a resource profile in any other class.

CHILDREN | NOCHILDREN | ADDCHILDREN | DELCHILDREN

CHILDREN(*profile-name ...*)

Specifies the complete list of roles which inherit attributes from this role. A role is a discrete general resource profile defined in the ROLE class.

ADDCHILDREN(*profile-name ...*)

Specifies the addition of specific child roles to the current list of roles.

DELCHILDREN(*profile-name ...*)

Specifies the removal of specific child roles from the current list of roles.

NOCHILDREN

Specifies the removal of the entire list of child roles.

GROUPS | NOGROUPS | ADDGROUPS | DELGROUPS

GROUPS(*group-name ...*)

Specifies the complete list of groups which should be permitted to resources defined in this role profile.

The *group-name* value should be the name of a defined group.

ADDGROUPS(*group-name ...*)

Specifies the addition of specific groups to the current list of groups.

DELGROUPS(*group-name ...*)

Specifies the removal of specific groups from the current list of groups.

NOGROUPS

Specifies the removal of the entire list of groups.

PARENT | NOPARENT

PARENT(*profile-name*)

Specifies the name of a role from which this role inherits attributes. A role is a discrete general resource profile defined in the ROLE class.

NOPARENT

Specifies the deletion of the parent role from this profile.

RESOURCE | NORESOURCE | ADDRESOURCE | DELRESOURCE

RESOURCE(*resource-access-specification ...*)

Specifies the complete list of resources and associated access levels for groups defined in this role profile.

One or more *resource-access-specification* values can be specified, each separated by blanks. Each value should contain no imbedded blanks and should have the following format:

```
origin-role:class-name:profile-name:authority
  [:conditional-class:conditional-profile]
```

where *origin-role* is the name of the role profile from which the resource access is inherited. The *class-name* value is an existing resource class name and *profile-name* is a resource profile defined in that class. The *authority* is the access authority (NONE, EXECUTE, READ, UPDATE, CONTROL, or ALTER) with which groups in the role definition should be permitted to the resource.

The *conditional-class* value is a class name (APPCPORT, CONSOLE, JESINPUT, PROGRAM, TERMINAL, or SYSID) for conditional access permission, and is followed by the *conditional-profile* value, a resource profile defined in the conditional class.

ADDRESOURCE(*resource-access-specification ...*)
Specifies the addition of specific resource-access-specifications to the current list.

DELRESOURCE(*resource-access-specification ...*)
Specifies the removal of specific resource-access-specifications from the current list.

NORESOURCE
Specifies the removal of the entire list of resources.

ROLES | NOROLES | ADDROLES | DELROLES

ROLES(*role-access-specification ...*)
Specifies a list of roles and associated access levels related to this profile.

One or more *role-access-specification* values can be specified, each separated by blanks. Each value should contain no imbedded blanks and should have the following format:

```
role-name:authority
  [:conditional-class:conditional-profile]
```

where *role-name* is a discrete general resource profile defined in the ROLE class. The *authority* value is the access authority (NONE, EXECUTE, READ, UPDATE, CONTROL, or ALTER) with which groups in the role definition should be permitted to the resource.

The *conditional-class* value is a class name (APPCPORT, CONSOLE, JESINPUT, PROGRAM, TERMINAL, or SYSID) for conditional access permission, and is followed by the *conditional-profile* value, a resource profile defined in the conditional class.

ADDROLES(*role-access-specification ...*)
Specifies that specific roles and access levels are to be added to the current list.

DELROLES(*role-access-specification ...*)
Specifies that specific roles from the current list of roles are to be removed.

NOROLES
Specifies that the entire list of roles be removed.

NOTME
Specifies that RACF delete the TME segment from the profile.

TVTOC | NOTVTOC

TVTOC
Specifies, for a TAPEVOL profile, that RACF is to create a TVTOC in the TAPEVOL profile when a user creates the first output data set on the volume.

Specifying TVTOC affects the access list for the TAPEVOL profile:

1. When RACF processes the RALTER command with the TVTOC operand, it places the user ID of the command issuer (perhaps the tape librarian) in the access list with ALTER authority.

2. When the first output data set is created on the volume, RACF adds the user ID associated with the job or task to the access list with ALTER authority.

See *z/OS Security Server RACF Security Administrator's Guide* for further information.

The TVTOC operand is valid only for a discrete profile in the TAPEVOL class. If you specify TVTOC and the volume already contains a TVTOC, RACF issues a message and ignores the operand.

NOTVTOC

Specifies that RACF cannot create a TVTOC in the resource profile. The NOTVTOC operand is valid only for a discrete profile in the TAPEVOL class. It is also invalid if a TVTOC with at least one entry already exists in the TAPEVOL profile. When NOTVTOC is invalid, RACF issues a message and ignores the operand. If your installation uses DFSMShsm and you activate tape data set protection, the TVTOC for DFSMShsm tapes might become too large. To avoid this problem, issue the following RALTER command:

```
RALTER TAPEVOL HSMHSM NOTVTOC
```

UACC(*access-authority*)

Specifies the universal access authority to be associated with this resource. The universal access authorities are ALTER, CONTROL, UPDATE, READ, EXECUTE (for controlled programs only), and NONE.

Note:

1. For tape volumes and DASD volumes, RACF treats CONTROL authority as UPDATE authority.
2. For all other resources listed in the class descriptor table, RACF treats CONTROL and UPDATE authority as READ authority.
3. If a user accessing a data set has the RESTRICTED attribute, RACF treats the universal access authority (UACC) as NONE for that access attempt.

WARNING | NOWARNING

WARNING

Specifies that even if access authority is insufficient, RACF is to issue a warning message and allow access to the resource. RACF also records the access attempt in the SMF record if logging is specified in the profile.

Restriction: RACF does *not* issue a warning message for a resource when the resource is:

- In the PROGRAM or NODES class
- In a class for which an application has built in-storage profiles using RACROUTE REQUEST=LIST.

When SETROPTS MLACTIVE(FAILURES) is in effect: A user or task can access a resource that is in WARNING mode and has no security label even when MLACTIVE(FAILURES) is in effect and the class requires security labels. The user or task receives a warning message and gains access.

Applications that use REQUEST=LIST: Some applications, such as IMS and CICS, load all the profiles for a given class into storage. After these profiles are in storage, the applications can do a *fast* authorization check using RACROUTE REQUEST=FASTAUTH. Fast authorization checking is different from normal authorization checking in several ways. One difference is that, in some cases, fast authorization checking does not issue warning messages, notification messages or support auditing. In cases where it does not, return and reason codes are returned to the application to allow support of these functions. The application can examine the return and reason codes and use RACROUTE REQUEST=AUTH to create the messages and audit records. If the application uses RACROUTE REQUEST=AUTH to support auditing or specifies LOG=ASIS on the RACROUTE REQUEST=FASTAUTH, the specified user is notified. Otherwise, notification, warning, and so on, does not occur.

For details on using RACF with IMS, visit IMS in IBM Documentation (www.ibm.com/docs/en/ims).

For details on using RACF with CICS, visit CICS Transaction Server for z/OS (www.ibm.com/docs/en/cics-ts).

NOWARNING

Specifies that if access authority is insufficient, RACF is to deny the user access to the resource and not issue a warning message.

WHEN

Specifies, for resources in the TERMINAL class, the days of the week or the hours in the day when the terminal can be used to access the system. The day-of-week and time restrictions apply only when a user logs on to the system; that is, RACF does not force the user off the system if the end-time occurs while the user is logged on.

If you specify the WHEN operand, you can restrict the use of the terminal to certain days of the week or to a certain time period on each day. You can also restrict access to both certain days of the week and to a certain time period within each day.

DAYS(*day-info*)

Specifies days of the week when the terminal can be used. The *day-info* value can be any one of the following:

ANYDAY

Allows use of the terminal on any day.

WEEKDAYS

Allows use of the terminal only on weekdays (Monday through Friday).

day ...

Allows use of the terminal only on the days specified, where *day* can be MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, or SUNDAY, and you can specify the days in any order.

TIME(*time-info*)

Specifies the time period each day when the terminal can be used. The *time-info* value can be any one of the following:

ANYTIME

RACF allows use of the terminal at any time.

start-time*:*end-time

RACF allows use of the terminal only during the specified time period. The format of both the *start-time* and *end-time* values is *hhmm*, where *hh* is the hour in 24-hour notation (00 - 24) and *mm* is the minutes (00 - 59) within the range 0001 - 2400. Note that `2400` indicates 12:00 a.m. (midnight).

If *start-time* is greater than *end-time*, the interval spans midnight and extends into the following day.

Specifying *start-time* and *end-time* is straightforward when the processor on which RACF is running and the terminal are in the same time zone; you specify the time values in local time.

However, if the terminal is in a different time zone from the processor and you want to restrict access to certain time periods, you have two choices. You can specify the TIMEZONE operand to allow RACF to calculate the time and day values correctly. Or, you can adjust the time values yourself, by translating the *start-time* and *end-time* for the terminal to the equivalent local time for the processor.

For example, assume that the processor is in New York and the terminal is in Los Angeles, and you want to allow access to the terminal from 8:00 A.M. to 5:00 P.M. in Los Angeles. In this situation, you would specify TIME(`1100:2000`). If the processor is in Houston and the terminal is in New York, you would specify TIME(`0900:1800`).

If you omit DAYS and specify TIME, the time restriction applies to any day-of-week restriction already specified in the profile. If you omit TIME and specify DAYS, the days restriction applies to any time restriction already specified in the profile. If you specify both DAYS and TIME, RACF allows use of the terminal only during the specified time period and only on the specified days.

Examples

Example	Activity label	Description
1	*Operation*	User TRA02 wants to change the owner and universal access for terminal TERMID01 and restrict use of the terminal to weekdays during regular business hours (8:00 A.M. - 6:00 P.M.).
	Known	User TRA02 has the SPECIAL attribute. Terminal TERMID01 is defined to RACF. Terminal TERMID01 is in the same time zone as the processor on which RACF is running. User TRA02 wants to issue the command as a RACF TSO command.
	Command	`RALTER TERMINAL TERMID01 OWNER(TRA02) UACC(ALTER) WHEN(DAYS(WEEKDAYS)TIME(0800:1800))`
	Defaults	None.
2	*Operation*	User RFF23 wants to delete the two data fields associated with the terminal T3E8. The user wants to be notified whenever the terminal profile denies access to the terminal.
	Known	User RFF23, who is a RACF-defined user, is the owner of the T3E8 terminal entry. User RFF23 wants to issue the command as a RACF operator command, and the RACF subsystem prefix is `@`.
	Command	`@RALTER TERMINAL T3E8 NODATA NOAPPLDATA NOTIFY(RFF23)`
	Defaults	None.
3	*Operation*	User ADM1 wants to delete the data fields associated with the generic profile `*` in the TERMINAL class.
	Known	User ADM1 has the SPECIAL attribute. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`RALTER TERMINAL * NODATA NOAPPLDATA`
	Defaults	None.
4	*Operation*	User PAYADM1 wants to add the PAYROLL category to the list of security categories known to RACF.
	Known	User PAYADM1 has the SPECIAL attribute. RACF security category checking is active. User PAYADM1 wants to issue the command as a RACF TSO command.
	Command	`RALTER SECDATA CATEGORY ADDMEM(PAYROLL)`
	Defaults	None.

Example	Activity label	Description
5	*Operation*	User RFF22 wants to add volume TAP02 to the tape volume set, change the level of the tape volume set, and change the AUDIT and GLOBALAUDIT logging options.
	Known	User RFF22 is the owner of the tape volume set. User RFF22 has the AUDITOR attribute. TAP01 is a volume of the tape volume set. User RFF22 wants to issue the command as a RACF TSO command.
	Command	`RALTER TAPEVOL TAP01 AUDIT(SUCCESS(READ)) LEVEL(22) GLOBALAUDIT(SUCCESS(UPDATE)FAILURES(READ)) ADDVOL(TAP02)`
	Defaults	None.
6	*Operation*	User ADM1 wants to add AMASPZAP to the in-storage profile table of controlled programs. AMASPZAP requires program-accessed data set checking.
	Known	User ADM1 has the SPECIAL attribute. AMASPZAP resides in SYS1.LINKLIB on the SYSRES volume. RACF program control is active. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`RALTER PROGRAM AMASPZAP ADDMEM('SYS1.LINKLIB'/SYSRES/PADCHK)`
	Defaults	None.
7	*Operation*	User ADM1 wants to add all load modules that start with IKF to the in-storage profile table of controlled programs. These load modules do not require program-accessed data set checking. User ADM1 wants to direct the command to run at the local node under the authority of user EMILIE and prohibit the command from being automatically directed to other nodes.
	Known	Users ADM1 and EMILY have the SPECIAL attribute. All load modules whose names begin with IKF reside in SYS1.COBLIB on the SYSRES volume. RACF program control is active. Users ADM1 and EMILIE have an already established user ID association. User ADM1 wants to issue the command as a RACF TSO command.

	Command	`RALTER PROGRAM IKF* ONLYAT(.EMILIE)`
		`  ADDMEM('SYS1.COBLIB'/SYSRES/NOPADCHK)`

	Results	The command is only processed on the local node and not automatically directed to any other nodes in the RRSF configuration.
8	*Operation*	The security administrator wants to change the key value of a profile in the PTKTDATA class so the value becomes encrypted.
	Known	NONNEL is the user ID of the security administrator. The profile name is TSOR004. The *key-value* is B004194019641980. The security administrator wants to issue the command as a RACF TSO command.

	Command	`RALTER PTKTDATA TSOR004`
		`  SSIGNON(KEYENCRYPTED(B004194019641980))`

	Defaults	None.

Example	Activity label	Description
9	*Operation*	The administrator wants to change the script and parameter definitions for an existing SystemView for MVS application that has been defined to the SYSMVIEW class.
	Known	The new script definition is APPL2SC. The new parameter definition is APPL2P.

	Command	`RALTER SYSMVIEW APPL1.HOST1.USER1`
		`  SVFMR(SCRIPTNAME(APPL2SC) PARMNAME(APPL2P))`

	Defaults	None.
10	*Operation*	Local realm `KRB2000.IBM.COM` is being defined with a minimum ticket lifetime of 5 minutes, a default ticket lifetime of 10 hours, a maximum ticket lifetime of 24 hours, and a password of 744275. All of the ticket lifetime values are specified in seconds.
	Known	The administrator has access to the KERBDFLT profile in the REALM class.

	Command	`RALTER REALM KERBDFLT KERB(KERBNAME(KRB2000.IBM.COM)`
		`  MINTKTLFE(300) DEFTKTLFE(36000) MAXTKTLFE(86400)`
		`  PASSWORD(744275))`

	Defaults	None.
11	*Operation*	A trust relationship is being defined between the `kerb390.endicott.ibm.com` realm and the realm at `ker2000.endicott.ibm.com`.
	Known	The administrator has access to the `/.../KERB390.ENDICOTT.IBM.COM/KRBTGT/KER2000.ENDICOTT.IBM.COM` profile in the REALM class.
	Command	`RALTER REALM /.../KERB390.ENDICOTT.IBM.COM/KRBTGT/KER2000.ENDICOTT.IBM.COM KERB(PASSWORD(12345678))`
	Defaults	None.
12	*Operation*	The system default EIM values are being altered by changing the *domaindn* and disabling it.
	Known	IRR.PROXY.DEFAULTS is the profile being changed in the FACILITY class. The EIM domain distinguished name begins with Pok `EIM Domain,o=IBM,c=US`.

	Command	`RALTER FACILITY IRR.PROXY.DEFAULTS`
		`  EIM(DOMAINDN('ibm-eimDomainName=Pok EIM Domain,o=IBM,c=US')`
		`  OPTIONS(DISABLE))`

	Defaults	None.

Example	Activity label	Description
13	*Operation*	The security administrator wants to change an attribute of the installation-defined class TSTCLAS8. He wants to change the value of RACLIST(REQUIRED) to RACLIST(ALLOWED).
	Known	The administrator has the SPECIAL attribute.
	Command	`RALTER CDT TSTCLAS8 CDTINFO(RACLIST(ALLOWED))` **Note:** The dynamic CDT must be refreshed to make this change effective: `SETROPTS RACLIST(CDT) REFRESH`
	Defaults	None.
14	*Operation*	At Rui's installation, identity mappings in EIM change frequently and identity mapping changes are not refreshed often enough. She wants to reduce the MAPPINGTIMEOUT value so that mappings in the identity cache expire sooner and are refreshed more frequently from EIM. She reduces the timeout value to 1800 seconds (one-half hour).
	Known	When the IRR.ICTX.DEFAULTS profile was defined in the LDAPBIND class, the MAPPINGTIMEOUT value was defaulted to 3600 seconds (one hour).
	Command	`RALTER LDAPBIND IRR.ICTX.DEFAULTS ICTX(MAPPINGTIMEOUT(1800))`
	Defaults	None.
15	*Operation*	At Rui's installation, identity mappings in EIM change frequently and identity mapping changes are not refreshed often enough. She wants to reduce the MAPPINGTIMEOUT value so that mappings in the identity cache expire sooner and are refreshed more frequently from EIM. She reduces the timeout value to 1800 seconds (one-half hour).
	Known	When the IRR.ICTX.DEFAULTS profile was defined in the LDAPBIND class, the MAPPINGTIMEOUT value was defaulted to 3600 seconds (one hour).
	Command	`RALTER LDAPBIND IRR.ICTX.DEFAULTS ICTX(MAPPINGTIMEOUT(1800))`
	Defaults	None.
16	*Operation*	The security administrator uses a custom field called ADDRESS in her user profiles. She wants to update the help text and modify the maximum length of this custom field.
	Known	The user has the SPECIAL attribute. The changes in the custom field are not effective until the system programmer rebuilds the dynamic parse table using the IRRDPI00 UPDATE command.

	Command	`RALTER CFIELD USER.CSDATA.ADDRESS`
		`    CFDEF(MAXLENGTH(200)`
		`    HELP('HOME ADDRESS, 1-200 characters') )`

	Defaults	None.

Example	Activity label	Description
17	*Operation*	User SECADM wants to update the signature verification options for a controlled program called MYPROG14 program to specify that it must now be digitally signed before it can be loaded, that the program should fail to load if its digital signature cannot be verified for any reason, and that logging of signature verification events should occur for only failures.
	Known	The user has the SPECIAL attribute. The MYPROG14 program is a program object that resides in a partitioned data set extended (PDSE) library.

	Command	`RALTER PROGRAM MYPROG14`
		`    SIGVER(SIGREQUIRED(YES) FAILLOAD(ANYBAD) SIGAUDIT(ANYBAD))`

	Defaults	None.

RDEFINE (Define general resource profile)

Purpose

Use the RDEFINE command to:

- Define to RACF all resources belonging to classes specified in the class descriptor table.
- Create entries in the global access checking table.
- Define security categories and security levels.
- Define classes (as profiles in the RACGLIST class) for which RACF saves RACLISTed results on the RACF database.
- Define the attributes of classes in the dynamic class descriptor table.
- Define a custom field and its attributes.

The RDEFINE command adds a profile for the resource to the RACF database in order to control access to the resource. It also places your user ID on the access list and gives you ALTER authority to the resource unless SETROPTS NOADDCREATOR is in effect.

You cannot use the RDEFINE command to define users, groups, data sets, certificates, certificate key rings, or certificate mappings.

To have changes take effect after defining a generic profile if the class is not RACLISTed by either the SETROPTS RACLIST or RACROUTE REQUEST=LIST, GLOBAL=YES, one of the following steps is required:

- The security administrator issues the SETROPTS command:

  ```
  SETROPTS GENERIC(class-name) REFRESH
  ```

  See the SETROPTS command for authorization requirements.
- The user of the resource logs off and logs on again.

To have changes take effect after defining a generic profile if the class is RACLISTed, the security administrator issues the following command:

```
SETROPTS RACLIST(class-name) REFRESH
```

For more information, refer to *z/OS Security Server RACF Security Administrator's Guide*.

Attention:

- When the RDEFINE command is issued from ISPF, the TSO command buffer (including SESSKEY and SSIGNON) is written to the ISPLOG data set. As a result, you should not issue this command from ISPF or you must control the ISPLOG data set carefully.

- If the RDEFINE command is issued as a RACF operator command, the command and all data is written to the system log. Therefore, use of RDEFINE as a RACF operator command should either be controlled or you should issue the command as a TSO command.

Issuing options

The following table identifies the eligible options for issuing the RDEFINE command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	Yes	Yes	Yes	Yes

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, "RACF operator commands," on page 21.

You must be logged on to the console to issue this command as a RACF operator command.

Related commands

- To create a group profile, see "ADDGROUP (Add group profile)" on page 23.
- To create a data set profile, see "ADDSD (Add data set profile)" on page 31.
- To create a user profile, see "ADDUSER (Add user profile)" on page 45.
- To permit or deny access to a general resource profile, see "PERMIT (Maintain resource access lists)" on page 237.
- To change a general resource profile, see "RALTER (Alter general resource profile)" on page 382.
- To delete a general resource profile, see "RDELETE (Delete general resource profile)" on page 502.
- To obtain a list of general resource profiles, see "SEARCH (Search RACF database)" on page 541.
- To list a general resource profile, see "RLIST (List general resource profile)" on page 512.

Authorization required

When issuing this command as a RACF operator command, you might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

To use the RDEFINE command, you must have either the SPECIAL attribute or minimally the CLAUTH authority for the class.

If you have CLAUTH authority but not the SPECIAL attribute, you may need to be authorized as follows:

- If you have CLAUTH authority for the GLOBAL class, and group-SPECIAL authority in a group, you can add members whose high-level qualifier is the group name or a user ID in the scope of the group. This applies only to classes that are sensitive to high-level qualifiers, such as DATASET.
- If the resource to be defined is a discrete name already defined to RACF as a member of a resource group, you can define it as a resource to RACF if you have ALTER authority, or if the resource group profile is within the scope of a group in which you have the group-SPECIAL attribute, or if you are the owner of the resource group profile. If authority conflicts arise because the resource is a member of more than one group and the user's authority in those groups differs, RACF resolves the conflict by using the least restrictive authority (unless modified by the installation).

- If the member-class profile to be defined is a generic name already defined to RACF as a member of a resource group, you can define the profile if the resource group profile is within the scope of a group in which you have the group-SPECIAL attribute, or if you are the owner of the resource group profile. If multiple grouping class profiles contain the generic name being defined, and these profiles have different owners, the owner used in authority checking is undefined.
- If you do not have the SPECIAL attribute and the SETROPTS GENERICOWNER option is in effect, and if an existing generic profile protects the profile name you are defining, you need to own the *less* specific profile.
  - If the *less* specific profile is within the scope of a group in which you have group-SPECIAL, you are considered to own the profile.
  - GENERICOWNER does not apply to the PROGRAM general resource class.
  - For additional information on the GENERICOWNER option and restricting the creation of general resource profiles, see *z/OS Security Server RACF Security Administrator's Guide*.
- To assign a security category to a profile, you must have the category in your user profile.
- To assign a security level to a profile, your own profile must have a security level that is equal to or greater than the security level you are defining.
- To use the ADDMEM operand, see the description of the ADDMEM operand for information on the authority required to use the operand.
- To specify the AT keyword, you must have READ authority to the DIRECT.*node* resource in the RRSFDATA class and a user ID association must be established between the specified *node.userid* pair(s).
- To specify the ONLYAT keyword you must have the SPECIAL attribute, the *userid* specified on the ONLYAT keyword must have the SPECIAL attribute, and a user ID association must be established between the specified *node.userid* pair(s) if the user IDs are not identical.
- To define segments other than the base segment, such as DLFDATA, you must have the SPECIAL attribute or your installation must permit you to do so through field-level access checking.
- To assign a security label to a profile, you must have READ access to the security label profile. However, the security administrator can limit the ability to assign security labels to only users with the SPECIAL attribute.
- Only a SPECIAL user can define a delegated resource (by specifying the `RACF-DELEGATED` string in the APPLDATA of the profile protecting the resource) when the resource has a SECLABEL and SETROPTS SECLABELCONTROL is in effect.

To define a profile in the FILE or DIRECTRY class, one of the following must be true:

- The second qualifier of the profile name must match your user ID.
- You must have the SPECIAL attribute.
- The profile name must be within the scope of a group in which you have the group-SPECIAL attribute.

Model profiles: To specify a model profile (using, as required, FROM, FCLASS, FGENERIC, and FVOLUME), you must have sufficient authority over the model profile (the *from* profile). RACF makes the following checks until one of the conditions is met:

- You have the SPECIAL attribute.
- The *from* profile is within the scope of a group in which you have the group-SPECIAL attribute.
- You are the owner of the *from* profile.
- If the FCLASS operand is DATASET, the high-level qualifier of the profile name (or the qualifier supplied by the naming conventions routine or a command installation exit) is your user ID.
- For a discrete profile, you have ALTER authority.[10]

[10] More information about ALTER authority and how to limit it can be found in Limiting ALTER access authority in discrete profiles in *z/OS Security Server RACF Security Administrator's Guide*.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the RDEFINE command is:

[*subsystem-prefix*]{RDEFINE | RDEF}
class-name
(*profile-name-1* ...)
[ADDCATEGORY(*category-name* ...)]
[ADDMEM(*member* ...)]
[APPLDATA('*application-data*')]
[AT([*node*].*userid* ...) | ONLYAT([*node*].*userid* ...)]
[AUDIT(*access-attempt*[(*audit-access-level*)] ...)]
[CDTINFO([CASE(UPPER | ASIS)] [DEFAULTRC(0 | 4 | 8)] [DEFAULTUACC(ACEE | ALTER | CONTROL | UPDATE | READ | NONE)] [FIRST(*characters-allowed* ...)] [GENERIC(ALLOWED | DISALLOWED)] [GENLIST(ALLOWED | DISALLOWED)] [GROUP(*grouping-class-name*)] [KEYQUALIFIERS(0 | *nnn*)] [MACPROCESSING(NORMAL | REVERSE | EQUAL)] [MAXLENGTH(8 | *nnn*)] [MAXLENX(*nnn*)] [MEMBER(*member-class-name*)] [OPERATIONS(YES | NO)] [OTHER(*characters-allowed* ...)] [POSIT(*nnn*)] [PROFILESALLOWED(YES | NO)] [RACLIST(ALLOWED | DISALLOWED | REQUIRED)] [SECLABELSREQUIRED(YES | NO)] [SIGNAL(YES | NO)])]

```
[ CFDEF(
      [ TYPE( CHAR | FLAG | HEX | NUM ) ]
      [ FIRST( ALPHA | ALPHANUM | ANY
            | NONATABC | NONATNUM | NUMERIC ) ]
      [ HELP( help-text ) ]
      [ LISTHEAD( list-heading-text ) ]
      [ MAXLENGTH( maximum-field-length ) ]
      [ MAXVALUE( maximum-numeric-value ) ]
      [ MINVALUE( minimum-numeric-value ) ]
      [ MIXED( YES | NO ) ]
      [ OTHER( ALPHA | ALPHANUM | ANY
            | NONATABC | NONATNUM | NUMERIC ) ]
      [ VALREXX( REXX-exec-name ) ]
      ) ]

[ CSDATA(
      [ custom-field-name(custom-field-value) | NOcustom-field-name ] ...
   )
   | NOCSDATA ]

         [ DATA('installation-defined-data') ]

[ DLFDATA(
      [ RETAIN( YES | NO ) ]
      [ JOBNAMES(jobname-1 ...) ]
      ) ]

[ EIM(
      [ DOMAINDN(eim_domain_dn) ]
      [ OPTIONS( ENABLE | DISABLE ) ]
      [ LOCALREGISTRY(registry_name) ]
      [ KERBREGISTRY(registry_name) ]
      [ X509REGISTRY(registry_name) ]
      ) ]

[ FCLASS(profile-name-2-class) ]

[ FGENERIC ]

[ FROM(profile-name-2) ]

[ FVOLUME(profile-name-2-serial) ]
[ ICSF(
      [ ASYMUSAGE(
            [ HANDSHAKE | NOHANDSHAKE ]
            [ SECUREEXPORT | NOSECUREEXPORT ]
            ) ]
      [ SYMEXPORTABLE(BYANY | BYLIST | BYNONE) ]
      [ SYMEXPORTCERTS([qualifier]/label-name ... | *) ]
      [ SYMEXPORTKEYS(ICSF-key-label ... | *) ]
      [ SYMCPACFWRAP( YES | NO ) ]
      [ SYMCPACFRET( YES | NO ) ]
      ) ]
```

```
[ ICTX(
      [ USEMAP( YES | NO ) ]
      [ DOMAP( YES | NO ) ]
      [ MAPREQUIRED( YES | NO ) ]
      [ MAPPINGTIMEOUT(nnnn) ]
      ) ]
```

```
[ IDTPARMS(
      [ SIGTOKEN( pkcs11-token-name ) ]
      [ SIGSEQNUM( pkcs11-sequence-number ) ]
      [ SIGCAT( pkcs11-category ) ]
      [ SIGALG(HS256 | HS384 | HS512) ]
      [ ANYAPPL(YES | NO) ]
      [ IDTTIMEOUT(timeout-minutes) ]
      [ PROTALLOWED (YES | NO) ]
      ) ]
```

```
[ JES(
      [ KEYLABEL(key-label) ]
      ) ]
```

```
[ KERB(
      [ CHECKADDRS( YES | NO ) ]
      [ DEFTKTLFE(def-ticket-life) ]
      [ ENCRYPT(
            [ DES | NODES ]
            [ DES3 | NODES3 ]
            [ DESD | NODESD ]
            [ AES128 | NOAES128 ]
            [ AES256 | NOAES256 ]
            [ AES128SHA2 | NOAES128SHA2 ]
            [ AES256SHA2 | NOAES256SHA2 ]
            ) ]
      [ KERBNAME(kerberos-realm-name) ]
      [ MAXTKTLFE(max-ticket-life) ]
      [ MINTKTLFE(min-ticket-life) ]
      [ PASSWORD(kerberos-password) ]
      ) ]

[ LEVEL(nn) ]

[ MFA ]

[ MFPOLICY(
      [ FACTORS(factor-name...) ]
      [ TOKENTIMEOUT(timeout-seconds) ]
      [ REUSE(YES|NO)])
      ) ]

[ NOTIFY(userid) ]

[ OWNER(userid or group-name) ]

[ PROXY(
      [ LDAPHOST(ldap_url) ]
      [ BINDDN(bind_distinguished_name) ]
      [ BINDPW(bind_password) ]
      ) ]

[ SECLABEL(seclabel-name) ]

[ SECLEVEL(seclevel-name) ]
[ SESSION(
      [ CONVSEC( NONE | CONV | ALREADYV | PERSISTV | AVPV ) ]
      [ INTERVAL(n) ]
      [ LOCK ]
      [ SESSKEY(session-key) ]
      ) ]
```

```
[ SIGVER(
      [ SIGREQUIRED( YES | NO ) ]
      [ FAILLOAD( ANYBAD | BADSIGONLY | NEVER ) ]
      [ SIGAUDIT( ALL | SUCCESS | ANYBAD | BADSIGONLY | NONE ) ]
      ) ]
```

```
[ SINGLEDSN ]
```

```
[ SSIGNON(
      [ KEYMASKED(legacy-passticket-key-value)
         | KEYENCRYPTED(legacy-passticket-key-value)
         | KEYLABEL(legacy-passticket-label-value) ]
      [ EPTKEYLABEL(enhanced-passticket-label-value) ]
      [ TYPE(UPPER | MIXED) ]
      [ TIMEOUT(timeout-seconds) ]
      [ REPLAY( YES | NO ) ]
      ) ]
```

```
[ STDATA(
      [ USER(userid | =MEMBER) ]
                [ GROUP(group-name | =MEMBER) ]
      [ PRIVILEGED( YES | NO ) ]
      [ TRACE( YES | NO ) ]
      [ TRUSTED( YES | NO ) ]
      ) ]
```

```
[ SVFMR(
      [ SCRIPTNAME(script-name) ]
      [ PARMNAME(parm-name) ]
      ) ]
```

```
[ TIMEZONE( {E | W} hh[.mm]) ]
```

[TME([CHILDREN(*profile-name* ...)] [GROUPS(*group-name* ...)] [PARENT(*profile-name*)] [RESOURCE(*resource-access-specification* ...)] [ROLES(*role-access-specification* ...)])]
[TVTOC]
[UACC(*access-authority*)]
[WARNING]
[WHEN([DAYS(*day-info*)] [TIME(*time-info*)])]

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

class-name

Specifies the name of the class to which the resource belongs. The valid class names are those defined in the class descriptor table. For a list of general resource classes defined in the class descriptor table supplied by IBM, see Appendix B, “Supplied RACF resource classes,” on page 647.

This operand is required and must be the first operand following RDEFINE.

This command is not intended to be used for profiles in the following classes:

- DCEUUIDS
- DIGTCERT
- DIGTNMAP
- DIGTRING
- IDIDMAP
- NDSLINK
- NOTELINK

- ROLE
- UNIXMAP

Note: If you have the CLAUTH attribute (class authority) to a member or grouping class, the member or grouping class must be active in order for you to define profiles in that class.

profile-name-1

Specifies the name of the discrete or generic profile you want to add to the specified class. RACF uses the class descriptor table to determine if the class is defined to RACF, the syntax of resource names within the class, and whether the resource is a group resource. For more information, see Appendix A, “Naming considerations for resource profiles,” on page 637 and in *z/OS Security Server RACF Security Administrator's Guide*.

Mixed-case profile names are accepted and preserved when *class-name* refers to a class defined in the static class descriptor table with CASE=ASIS or in the dynamic class descriptor table with CASE(ASIS).

This operand is required and must be the second operand following RDEFINE.

- If you specify more than one profile name, you must enclose the list of names in parentheses.
- In general, you should not specify profile names within single quotation marks because most classes will not allow this, and the RDEFINE command will fail. Classes such as FACILITY (or others whose class definition allows *any* character as the first character) will allow RDEFINE to work, but this will result in defining a profile whose name contains the single quotation mark. As a result, during authorization checking, the profile might not protect the resources intended to be protected. In fact, such a profile can only work if you also have a resource manager that encloses its resource names in single quotation marks, but most resource managers do not.
- If you specify *class-name* as GLOBAL, *profile-name-1* must be either DATASET or a valid class name (other than a resource group class) as specified in the class descriptor table. If you specify *class-name* as GLOBAL or SECDATA and also specify ADDMEM, you can specify only one profile name.
- If you want RACF to store the results from a SETROPTS RACLIST or a RACROUTE REQUEST=LIST,GLOBAL=YES in the RACGLIST class, define the base profile for the class by issuing the following RDEFINE command, where *profile-name-1* is a valid class in the class descriptor table:

  ```
  RDEFINE RACGLIST profile-name-1
  ```

  If the RACGLIST class is active when the class *profile-name-1* is RACLISTed, RACF stores the RACLISTed results as *profile-name-1_nnnnn* profiles on the RACF database. For example, the following RDEFINE command creates a base profile DASDVOL:

  Example:

  ```
  RDEFINE RACGLIST DASDVOL
  ```

  The following SETROPTS command stores the RACLIST results as profiles `DASDVOL_00001`, `DASDVOL_00002`, and so on, in the RACGLIST class.

  Example:

  ```
  SETROPTS RACLIST(DASDVOL)
  ```

  Restrictions: The following classes can *not* be specified as profile names for RACGLIST:

  - The CDT, GLOBAL, RACGLIST, USER, CONNECT, GROUP, and DATASET classes
  - Any class noted in Appendix B, “Supplied RACF resource classes,” on page 647 as not allowing profiles in the class (for example, the DIRAUTH class)
  - Any class noted in Appendix B, “Supplied RACF resource classes,” on page 647 as not intended for use with any RACF command (for example, the SCDMBR class)

  - Any resource grouping class, other than the NODES and RACFVARS grouping classes which are allowed.
- If *class-name* is a resource grouping class (other than NODES or RACFVARS), you cannot specify a generic *profile-name-1*. If *class-name* is DLFCLASS, you should not specify a generic *profile-name-1* as it is ignored by DLF processing.
- If you specify *class-name* as PROGRAM, you can specify only one profile name, and you must specify the ADDMEM operand.
- If you specify *class-name* as PROGRAM, *profile-name* must be the name of a load module. If you specify the full name of the load module, the profile applies only to that module. If you specify the last character of the name as an asterisk (*), the profile applies to all load modules that match the preceding part of the name, and these load modules must all reside in the same library. For example, IKF* identifies all load module names that begin with IKF. If you specify *profile-name* as an asterisk (*), the profile applies to all load modules that reside in the library you identify on the ADDMEM operand.
- If you are activating field-level access checking, you must specify *class-name* as FIELD. To define a profile (*profile-name-1*) in the FIELD class, you must follow the profile naming conventions described in Field-level access checking in *z/OS Security Server RACF Security Administrator's Guide*.
- If you specify *class-name* as STARTED, you must specify two qualifiers for the profile name. Follow the profile naming conventions described in Specifying STARTED class profile names in *z/OS Security Server RACF Security Administrator's Guide*.
- If you specify *class-name* as CFIELD, you must follow the profile naming conventions described in Profiles in the CFIELD class in *z/OS Security Server RACF Security Administrator's Guide*.

Note:

1. Do not specify a generic character unless SETROPTS GENERIC (or SETROPTS GENCMD) is in effect.
2. RACF processes each resource you specify independently, and all operands you specify apply to each named resource. If an error occurs while it is processing a resource, RACF issues a message and continues processing with the next resource.

ADDCATEGORY(*category-name ...*)

Specifies one or more names of installation-defined security categories. The names you specify must be defined as members of the CATEGORY profile in the SECDATA class. For information on defining security categories, see *z/OS Security Server RACF Security Administrator's Guide*.

When the SECDATA class is active and you specify ADDCATEGORY, RACF performs security category checking in addition to its other authorization checking. If a user requests access to a resource, RACF compares the list of security categories in the user's profile with the list of security categories in the resource profile. If RACF finds any security category in the resource profile that is not in the user's profile, RACF denies access to the resource. If the user's profile contains all the required security categories, RACF continues with other authorization checking.

Note: RACF does not perform security category checking for a started task with the RACF privileged or trusted attribute. The RACF privileged or trusted attribute can be assigned to a started task through the RACF started procedures table or STARTED class. Also, RACF does not enforce security category information specified on profiles in the PROGRAM class.

ADDMEM(*member ...*)

Specifies the member names that RACF is to add to the profile indicated by *profile-name-1*. The meaning of *member* varies, depending on the class.

You can use the ADDMEM operand to perform tasks such as defining security categories and security levels, entries in the global access checking table, and entries for program control, or to implement security labels on a system basis, as described in the following sections.

When you specify ADDMEM to add multiple members, they are added to the RACFVARS profile in the same order that you specify them with the ADDMEM operand of the RDEFINE command. For example, if you specify ADDMEM(A B) with the RDEFINE command, the members are stored in the RACFVARS profile as A B.

Mixed-case member names are accepted and preserved when *class-name* refers to a class defined in the static class descriptor table with CASE=ASIS or in the dynamic class descriptor table with CASE(ASIS). When *class-name* is GLOBAL and *profile-name* is the name of a class defined in the static class descriptor table with CASE=ASIS or in the dynamic class descriptor table with CASE(ASIS), the name part of a member entry in the GLOBAL access table is preserved as entered.

If you define a profile and use generic characters such as (*) to add members to the profile, RLIST RESGROUP will not return any of the matching profiles in its output because it does not support generic matches. For example, you have:

```
RDEF GIMS GIMSGRP ADDMEM(ABC*)
```

and you are looking for a specific member, so you enter:

```
RLIST TIMS ABCD RESGROUP
```

The GIMS profile GIMSGRP will not appear in the output.

Note: When considering this example, if you are unable to define the profile ABCD, it might be due to a generic definition somewhere in GIMS.

For ADDMEM with the GLOBAL DATASET class, no characters including generic characters, such as the asterisk (*) and the percent sign (%), can be combined with the value `&RACUID` to form a single qualifier level of the member name. This restriction does not exist for ADDMEM with classes other than GLOBAL DATASET.

For ADDMEM with the RACFVARS class, the following rules apply:

- Do not specify generic characters, such as the ampersand (&), the asterisk (*) and the percent sign (%) in a member name.
- Issue the SETROPTS RACLIST(RACFVARS) REFRESH command to activate your member change.
- If your member change affects profiles in a class with in-storage profiles processed by RACLIST or GENLIST, you must also refresh that class to activate your change.

For important guidelines, see How RACF uses the RACFVARS member list in *z/OS Security Server RACF Security Administrator's Guide*.

In addition to the authority needed to issue the RDEFINE command, you need one of the following authorities to add members using the RDEFINE command:

1. For classes other than SECLABEL, PROGRAM, SECDATA, GLOBAL, RACFVARS, and NODES, if the member resources are already RACF-protected by a member class profile or as a member of a profile in the same grouping class, one of the following must be true:
   - You have ALTER access authority to the member.[11]
   - You are the owner of the member resource.
   - The member resource is within the scope of a group in which you have the group-SPECIAL attribute.
   - You have the SPECIAL attribute.
2. For classes other than SECLABEL, PROGRAM, SECDATA, GLOBAL, RACFVARS, and NODES, if the member resources are not RACF-protected (that is, there is no profile defined for that member), one of the following must be true:
   - You have CLAUTH authority to define resources in the member resource class.
   - You have the SPECIAL attribute.

[11] More information about ALTER authority and how to limit it can be found in Limiting ALTER access authority in discrete profiles in *z/OS Security Server RACF Security Administrator's Guide*.

3. To add a member to a profile in the RACFVARS or NODES class, one of the following must be true:
   - You have CLAUTH authority to define resources in the specified class (for example, RACFVARS or NODES).
   - You have the SPECIAL attribute.
   - You are the owner of the profile indicated by *profile-name-1*.
4. To add a member to a profile in the SECLABEL, PROGRAM or SECDATA class, one of the following must be true:
   - You have CLAUTH authority to define resources in the specified class (for example, PROGRAM or SECDATA).
   - You have the SPECIAL attribute.
5. To add a member to a profile in the GLOBAL class (other than the GLOBAL DATASET, GLOBAL DIRECTRY, or GLOBAL FILE profile) using the following syntax:

   ```
   RDEF GLOBAL class-name
      ADDMEM(resource-name/access-level)
   ```

   - If the profile *resource-name* is already RACF-protected by a profile in class *class-name,* one of the following must be true:
     - You have ALTER access authority to the profile *resource-name* in class *class-name*.[12]
     - You are the OWNER of the profile *resource-name*.
     - The profile *resource-name* in class *class-name* is within the scope of a group in which you have the group-SPECIAL attribute.
     - You have the SPECIAL attribute.
   - If the profile *resource-name* is not already RACF-protected (that is, there is no profile defined for that member in class *class-name*):
     - You have CLAUTH authority to define resources in the class *class-name*.
     - You have the SPECIAL attribute.
6. To add a member to the GLOBAL DATASET profile, one of the following must be true:
   - The member is within the scope of a group in which you have the group-SPECIAL attribute, or the high-level qualifier of the member name is your user ID.
   - You have the SPECIAL attribute.
7. To add a member to the GLOBAL DIRECTRY or GLOBAL FILE profile, you must have the SPECIAL attribute.

RACF ignores the ADDMEM operand if the class name you specify is not a resource grouping class, SECLABEL, GLOBAL, SECDATA, NODES, or PROGRAM.

Specifying member on the ADDMEM operand:

The following sections describe how to specify members for each of the following classes:

- Resource grouping classes
- SECLABEL
- GLOBAL
- SECDATA
- NODES
- PROGRAM.

The descriptions for these classes follow.

[12] More information about ALTER authority and how to limit it can be found in Limiting ALTER access authority in discrete profiles in *z/OS Security Server RACF Security Administrator's Guide*.

When a resource grouping class is the class name

Resource Grouping Class: If the class name is a resource grouping class, the members you specify through the ADDMEM operand protects the resources in the related member class.

If generic profile checking is active for the related member class, you can include a generic character (*, **, &, or % only) in the member to protect multiple resources.

For more information on resource grouping classes and their related member classes, see *z/OS Security Server RACF Security Administrator's Guide*.

When SECLABEL is the class name

Security Label By System: You can define a security label for use on specific systems. Issue the RDEFINE command specifying the system identifier (SMFID) of the system on which the security label can be used. Note that RACF-defined SECLABELs (SYSHIGH, SYSLOW, SYSNONE, and SYSMULTI) are not affected by SECLABEL by System.

The format of this command is as follows:

```
RDEFINE SECLABEL profile-name
   ADDMEM(system-identifier)
```

The *system-identifier* is the 4-character value specified for the SID parameter of the SMFPRMxx member of SYS1.PARMLIB. See *z/OS MVS Initialization and Tuning Reference* for additional information on SMFPRMxx. RACF does not check that the specified *system-identifier* actually exists in SMFPRMxx.

The security label will only be restricted to the systems specified by ADDMEM if the SETR SECLBYSYSTEM option is active. If this option is not active, or ADDMEM is not specified, the security label can be used on all systems. Changes to profiles in the SECLABEL class are activated by issuing SETR RACLIST(SECLABEL) REFRESH.

When GLOBAL is the class name

Global Access Checking: You can define an entry in the global access checking table by issuing the RDEFINE command with the following operands:

- GLOBAL as the *class-name*
- The appropriate resource class name as *profile-name*
- ADDMEM with the name of the entry you are defining (as *member*). (If the name you specify as *member* contains a generic character (* or %), generic profile checking (SETROPTS command with the GENERIC operand) must be active for the resource class you specify as *profile-name*.)
- The access level you are assigning to the entry (member) using the following format:

```
member[/{ALTER|CONTROL|NONE|READ|UPDATE}]
```

The format of this command is as follows:

```
RDEFINE GLOBAL profile-name
   ADDMEM(member/access-level)
```

Each entry you define controls global access checking for the resources matching that entry name.

Important: Because RACF performs global access checking before security classification processing, an entry in the global access checking table might allow access to a resource you are protecting with a security category, security level, or both. To avoid a security exposure to a sensitive resource, do not define an entry in the global access checking table for a resource you are protecting with security classification processing.

When you define an entry in the global access checking table, specify *member* on the ADDMEM operand as described in the following sections.

Global access checking for data sets

When you define an entry in the global access checking table for a data set, enclose the entry name in single quotation marks if you do not want your TSO prefix (which might be your user ID) used as the high-level qualifier of the entry name.

For example, assume that your user ID is SMITH. If you issue the following command, you define the entry SMITH.ABC in the global access table.

```
RDEFINE GLOBAL DATASET ADDMEM('SMITH.ABC'/READ)
```

If you do not enclose the entry name in single quotation marks, your TSO prefix is used as the high-level qualifier of the entry name. For example, if you issue the following command, you define the entry SMITH.ABC in the global access table.

```
RDEFINE GLOBAL DATASET ADDMEM(ABC/READ)
```

If the entry name you specify contains * as the high-level qualifier and you do not enclose the name in single quotation marks, RACF creates the entry exactly as you specify it (your TSO prefix is *not* used as the high-level qualifier of the entry name). For example, if you issue the following command, you define the entry *.ABC in the global access table. If you enclose *.ABC in single quotation marks, you define the same entry (*.ABC) in the global access table.

```
RDEFINE GLOBAL DATASET ADDMEM(*.ABC/READ)
```

Global access checking for general resources

To define an entry in the global access checking table for a general resource, specify any valid class name in the class descriptor table as a profile name. (For a list of general resource classes defined in the class descriptor table supplied by IBM, see Appendix B, “Supplied RACF resource classes,” on page 647.) The member name you specify with the ADDMEM operand can contain one or more generic characters (%, *, or **). For information on using generic characters, see Appendix A, “Naming considerations for resource profiles,” on page 637 in *z/OS Security Server RACF Command Language Reference.*.

When SECDATA is the class name

Security Classification of Users and Data: To define a security category or security level for your installation, specify *class-name* as SECDATA and *profile-name* as one of the following:

- CATEGORY when defining a security category
- SECLEVEL when defining a security level.

If you specify SECDATA CATEGORY, the ADDMEM operand specifies the name of an installation-defined category of users.

For example, to define three categories of users named CODE, TEST, and DOC, issue:

```
RDEFINE SECDATA CATEGORY ADDMEM(CODE TEST DOC)
```

If you specify SECDATA SECLEVEL, the ADDMEM operand specifies both the name of an installation-defined security level and the number you assign to that level, in the form:

```
seclevel-name/seclevel-number
```

You must separate the two items by a forward slash character (/). The *seclevel-name* can contain 1 - 44 characters and must not contain a blank, comma, semicolon, or right parenthesis. The *seclevel-number* can be any number 1 - 254. The higher the number, the higher the security level. For example, to define three security levels, where CONFIDENTIAL is the most restrictive, enter:

```
RDEFINE SECDATA SECLEVEL
   ADDMEM(GENERAL/10 EXPERIMENTAL/75 CONFIDENTIAL/150)
```

Because RACF keeps track of security levels by number, replacing an existing security level name does not affect the protection that the security level number provides. If you had defined the security levels shown in the preceding example and then replaced `GENERAL/10` with `INTERNAL/10`, a listing of a user or resource profile that included security level `10` would show the new name. Because the security level number is the same, there is no need to change any resource or user profiles.

When you actually change an existing CATEGORY profile or SECLEVEL profile, however, RACF issues a warning message to remind you that the change is not reflected in existing resource or user profiles. In this case, you can use the SEARCH command to locate the profiles you must modify.

When NODES is the class name

Specify only one value with the ADDMEM operand. If you specify multiple values, RACF stores them in the NODES profile but translates using only the last one specified.

Restriction: Specify only one value with the ADDMEM operand. If you specify multiple values, RACF stores them in the NODES profile but translates using only the last one specified.

Guideline: If one or more values are already defined in a NODES profile, use the DELMEM operand to remove them before specifying the new value.

For information on setting up NODES profiles, see *z/OS Security Server RACF Security Administrator's Guide*.

Translation of User IDs, Group Name, or Security Labels on Inbound Jobs or SYSOUT:

If the class name is NODES, you can specify how user IDs, group names, and security labels are translated. The translation depends on the second and third qualifiers of the profile name, as follows:

If the second qualifier is...	The ADDMEM value specifies...
RUSER	The user ID to be used on this system for the jobs originating from NJE nodes to which the profile applies
USERJ	The user ID to be used on this system for the inbound jobs to which the profile applies
USERS	The user ID to be used on this system for the inbound SYSOUT to which the profile applies
GROUPJ	The group name to be used on this system for the inbound jobs to which the profile applies
GROUPS	The group name to be used on this system for the inbound SYSOUT to which the profile applies
SECLJ	The security label to be used on this system for the inbound jobs to which the profile applies
SECLS	The security label to be used on this system for the inbound SYSOUT to which the profile applies

When PROGRAM is the class name

Program Control: If you specify *class-name* as PROGRAM, *profile-name* must identify one or more controlled programs (load modules or program objects), and *member* identifies the library containing the programs, the volume serial of that library, and a processing option. Additionally, APPLDATA may contain information that RACF will process. You specify the member entry in the following format: `library-name/volume-serial/PADCHK` or `NOPADCHK`

library-name

Specifies the name of the library in which the controlled programs reside. If *profile-name* is * or **, RACF treats all load modules in the specified library as controlled programs.

If it is necessary to define a program that resides in the system's LPA or dynamic LPA as a controlled program (for example: to give it the `MAIN` or `BASIC` attribute), define the program with a *profile-name* that does not end in `*`, specify `'LPALST'` as the library name, and omit the volume serial.

When it is necessary to define a specific profile for a program in the LPA, `'LPALST'` should be used as the library name and the volume serial should be omitted.

The following represent valid ADDMEM values for program XYZ which exists in one of the LPA libraries or in the dynamic LPA:

- `'LPALST'`
- `'LPALST'//PADCHK`
- `'LPALST'//NOPADCHK`

volume-serial (optional)

Specifies the serial number of the volume on which the library resides. You can use six asterisks within single quotation marks to specify the current SYSRES volume: *`library-name`*`/'******'/PADCHK` or `NOPADCHK`.

Note:

1. The `'******'` value works when the SYSRES resides on more than one volume, but it applies only when the data set lives on the IPL volume
2. If *volume-serial* is not specified, the specified library can exist on any volume. The alternate formats are:

   `library-name``//NOPADCHK`
   or
   `library-name`

PADCHK | NOPADCHK

Specifies that RACF is to make (PADCHK) or not to make (NOPADCHK) the checks for program-accessed data sets when a user is executing the controlled programs. If you specify PADCHK, RACF verifies that (1) the conditional access list in the profile for a program-accessed data set allows the access and (2) no task in the user's address space has previously loaded a non-controlled program.

If you specify NOPADCHK, RACF does not perform this extra checking to verify that a non-controlled program cannot access a program-accessed data set. NOPADCHK allows you, for example, to define entire libraries of modules (such as ISPF) as controlled programs without then having to grant each of these modules access to many program-accessed data sets. "Examples" on page 497 show two ways to define controlled programs. Before defining or modifying PROGRAM profiles, see the program control sections of *z/OS Security Server RACF Security Administrator's Guide*.

APPLDATA('*application-data*')

Specifies a text string that is associated with each of the named resources. The text string can contain a maximum of 255 characters and must be enclosed in single quotation marks. It can also contain double-byte character set (DBCS) data.

Rules:

- For profiles in the PROGRAM class, RACF will examine the APPLDATA value (if any) and perform special processing if you have specified `MAIN` or `BASIC` (optionally followed by blanks).
  - This processing will occur only for profiles whose names do not end in `*`, and only when you have enabled enhanced PGMSECURITY mode.
  - For details of this processing, see *z/OS Security Server RACF Security Administrator's Guide*.
- For the FACILITY class, RACF examines the APPLDATA value of the following profiles:
  - **BPX.UNIQUE.USER**

The APPLDATA value specifies the name of a user profile from which RACF can copy OMVS segment information (other than UID) when assigning unique UIDs through a callable service.

– **BPX.DEFAULT.USER**

  The APPLDATA value specifies a user ID and group name from which RACF can retrieve default OMVS segment information. Beginning with z/OS Version 1 Release 11, the BPX.DEFAULT.USER profile is ignored when the BPX.UNIQUE.USER profile is defined. Beginning with z/OS Version 2 Release 1, the BPX.DEFAULT.USER profile is no longer supported.

– **BPX.NEXT.USER**

  The APPLDATA value specifies information that RACF will use for the automatic assignment of OMVS UIDs and GIDs.

– **IRR.PGMSECURITY**

  The APPLDATA value specifies whether RACF will operate in *basic*, *enhanced*, or *enhanced-warning* PGMSECURITY mode.

  - If the APPLDATA value contains the string `ENHANCED`, then RACF will run in enhanced PGMSECURITY mode.
  - If the APPLDATA value contains the string `BASIC`, then RACF will run in basic PGMSECURITY mode.
  - If the APPLDATA is empty or contains any other value, RACF will run in enhanced PGMSECURITY mode but in warning mode rather than failure mode.

– **IRR.PROGRAM.SIGNING.*group.userid***

– **IRR.PROGRAM.SIGNING.*userid***

– **IRR.PROGRAM.SIGNING.*group***

– **IRR.PROGRAM.SIGNING**

  For any of the IRR.PROGRAM.SIGNING profiles, the APPLDATA value specifies the signing hash algorithm, and the SAF key ring to use when signing a program.

– **IRR.PROGRAM.SIGNATURE.VERIFICATION**

  The APPLDATA value specifies the SAF key ring to use when verifying the signature of a signed program.

– **IRR.IDIDMAP.PROFILE.CODEPAGE**

  The APPLDATA value specifies the code page which is to be used when processing the USERDIDFILTER NAME and REGISTRY values with the RACMAP command. The code page is specified in the form: `APPLDATA(CCSID(`*nnnnn*`))`

  The valid values for the code page *nnnnn* are:

  00037
  EBCDIC US 037

  00870
  EBCDIC LATIN 2

  00875
  EBCDIC GREEK

  00924
  EBCDIC US 1047 with the Euro sign

  01047
  EBCDIC US 1047

  01140
  EBCDIC US 037 with the Euro sign

  01153
  EBCDIC LATIN 2 with the Euro sign #2

04971
EBCDIC GREEK with the Euro sign

Note:

- If the IRR.IDIDMAP.PROFILE.CODEPAGE profile does not exist, then RACF uses code page IBM-1047.
- If the IRR.IDIDMAP.PROFILE.CODEPAGE profile does exist, but contains no APPLDATA or the APPLDATA references a code page other than one of the supported code pages, then RACF uses code page IBM-1047

- For the TIMS and GIMS class, specify *application-data* as REVERIFY to force the user to reenter his password whenever the transaction or transactions listed in the *profile-name* or ADDMEM operands are used.
- For the PTKTDATA class, the application data field can be used to control the replay protection function of legacy PassTicket support. This setting applies only to legacy PassTickets and does not control the replay behavior of enhanced PassTickets.
  - PassTicket replay protection prevents the use of user IDs to be shared among multiple users. However, in some events it is desirable to bypass this replay protection function.
  - Specifying no `replay protection` in the application data field indicates that replay protection is to be bypassed. For example, the following command would successfully result in replay protection being bypassed.

    ```
    RDEFINE PTKTDATA profile-name
       APPLDATA('NO REPLAY PROTECTION')
    ```

    Note the following:

    - There *must* be a single space between the words no and `replay`, and between `replay` and `protection`. Lack of spaces, *or* additional spaces or characters, will make the command ineffective. For example, entering the following command would not result in replay protection being bypassed.

      ```
      RDEFINE PTKTDATA profile-name
         APPLDATA('NOREPLAY PROTECTION')
      ```

    - The text string no `replay protection` will always be translated to uppercase.
    - The text string no `replay protection` can appear anywhere in the APPLDATA field.
  - See *z/OS Security Server RACF Security Administrator's Guide* for more information on the PassTicket function.
- For the APPL class, when the APPLDATA value contains the `RACF-INITSTATS(DAILY)` string, RACF records statistics only for the first user verification of the day for the applications protected by this profile. The `RACF-INITSTATS(DAILY)` string is reserved text and may appear anywhere in the APPLDATA field. For more information about statistics collection, see *z/OS Security Server RACF Security Administrator's Guide*.
- Specifying the `RACF-DELEGATED` string in the APPLDATA designates the resources protected by the profile as delegated, meaning that RACROUTE REQUEST=FASTAUTH should honor a nested ACEE during access checking to this resource. The `RACF-DELEGATED` string is reserved text and may appear anywhere in the APPLDATA field. For more information on nested ACEEs and delegated resources, see *z/OS Security Server RACF Security Administrator's Guide*.

RACF does not validate the APPLDATA value during RALTER. Depending on the function, RACF might or might not issue any messages during subsequent processing if it finds an unexpected value.

The APPLDATA value, if present, can be displayed with the RLIST command.

For detailed information about each APPLDATA value, see *z/OS Security Server RACF Security Administrator's Guide*.

AT | ONLYAT

The AT and ONLYAT keywords are only valid when the command is issued as a RACF TSO command.

AT ([*node*].*userid* ...)

Specifies that the command is to be directed to the node specified by *node*, where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed to the local node.

ONLYAT ([*node*].*userid* ...)

Specifies that the command is to be directed only to the node specified by *node* where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed only to the local node.

AUDIT(*access-attempt*[(*audit-access-level*)])

Specifies which access attempts and access levels you want logged to the SMF data set.

access-attempt

Specifies which access attempts you want logged to the SMF data set. The following options are available:

ALL

Specifies that you want to log both authorized accesses and detected unauthorized access attempts.

FAILURES

Specifies that you want to log detected unauthorized access attempts. This is the default value if you do not specify *access-attempt*.

NONE

Specifies that you do not want any logging to be done.

SUCCESS

Specifies that you want to log authorized accesses to the resource.

audit-access-level

Specifies which access levels you want logged to the SMF data set. The levels you can specify are:

ALTER

Logs ALTER access-level attempts only.

CONTROL

Logs access attempts at the CONTROL and ALTER levels.

READ

Logs access attempts at any level. This is the default value if no access level is specified.

UPDATE

Logs access attempts at the UPDATE, CONTROL, and ALTER levels.

FAILURES(READ) is the default value if the AUDIT operand is omitted from the command.

You cannot audit access attempts for the EXECUTE level.

CDTINFO

Specifies information used in the definition of an installation-defined class in the dynamic class descriptor table (CDT). For details about defining classes in the dynamic CDT, see Administering the Dynamic Class Descriptor Table (CDT) in *z/OS Security Server RACF Security Administrator's Guide*.

Note: CDTINFO should only be specified for profiles in the CDT class.

CASE (UPPER | ASIS)

Specifies whether mixed-case profile names are allowed for the class.

ASIS

When ASIS is specified, RACF commands preserve the case of profile names for the specified class. Lowercase characters are allowed in any position of the profile name where alphabetic characters are allowed, based on the character restrictions in the FIRST and OTHER keywords.

UPPER

When UPPER is specified, RACF translates the profile names for the specified class to uppercase. If CASE is not specified, CASE(UPPER) is the default.

DEFAULTRC

Specifies the return code that RACF will provide from RACROUTE REQUEST=AUTH or REQUEST=FASTAUTH when both RACF and the class are active and (if required) the class has been processed using SETROPTS RACLIST, but RACF doesn't find a profile to protect the resource specified on the AUTH or FASTAUTH request. The return codes are interpreted as follows:

0

The access request was accepted.

4

No profile exists.

8

The access request was denied.

If DEFAULTRC is not specified, DEFAULTRC(4) is the default.

DEFAULTUACC

DEFAULTUACC (ALTER | CONTROL | UPDATE | READ | NONE)

Specifies the minimum access allowed if the access level is not set when a resource profile is defined in the class.

DEFAULTUACC (ACEE)

If no universal access level is specified at the time the profile is created, RACF uses the default universal access authority from the command issuer's ACEE, as specified on the UACC operand of the ADDUSER, ALTUSER or CONNECT command.

If DEFAULTUACC is not specified, DEFAULTUACC(NONE) is the default.

FIRST (*characters-allowed ...*)

Specifies a character type restriction for the first character of the profile name. One or more of the following may be specified.

- **ALPHA** - Allows an alphabetic character (A - Z)
- **NUMERIC**—Allows a digit (0 - 9)
- **NATIONAL**—Allows characters # (X'7B'), @ (X'7C'), and $ (X'5B')
- **SPECIAL**—Allows any character except the following:
  - a blank
  - a comma
  - a parenthesis
  - a semicolon
  - those characters in ALPHA, NUMERIC, or NATIONAL.

Note: This option includes the period ('.') and is needed if you intend to use it as a delimiter.

If FIRST is not specified, FIRST(ALPHA, NATIONAL) is the default.

GENERIC (ALLOWED | DISALLOWED)

Specifies whether or not SETROPTS GENERIC and SETROPTS GENCMD are allowed for the class. The SETROPTS GENERIC command activates generic profile checking for a class. The SETROPTS GENCMD command activates generic profile command processing.

If GENERIC is not specified, GENERIC(ALLOWED) is the default. If GENERIC(DISALLOWED) is specified, GENLIST(ALLOWED) cannot also be specified.

Because generic processing is not allowed for grouping classes, GENERIC(DISALLOWED) should be specified if MEMBER(*member-class-name*) is also specified. If GENERIC(ALLOWED) is specified or defaulted for a grouping class, a warning message is issued. Subsequent processing for the dynamic class being defined and for profiles in that class will be treated as if GENERIC(DISALLOWED) was specified.

Rule: If the dynamic class you are defining shares a POSIT number with other classes, all classes with the shared POSIT number must have the same GENERIC keyword value. This is because the SETROPTS GENERIC and SETROPTS GENCMD commands process all classes that share a POSIT number. If at least one class specifies GENERIC(DISALLOWED) and at least one class specifies GENERIC(ALLOWED), RACF issues a warning message. When you subsequently add this class to the dynamic class descriptor table using the SETROPTS RACLIST(CDT) command, RACF might change the value of the GENERIC keyword to match the GENERIC keyword value of the other classes sharing the POSIT number.

- If this dynamic class shares a POSIT number with an IBM-supplied class, RACF changes the value of the GENERIC keyword in the dynamic class to match the IBM class. (The class attribute in the IBM-supplied class takes precedence).
- If this dynamic class shares a POSIT number with an installation-defined class (static or dynamic), RACF determines the least restrictive attribute - GENERIC(ALLOWED) is less restrictive than GENERIC(DISALLOWED) - and changes the GENERIC(DISALLOWED) class attribute to GENERIC(ALLOWED).

Exception: A grouping class and member class can share a POSIT number although their GENERIC keyword values need not match. You must specify GENERIC(DISALLOWED) for the grouping class. However, you can specify either ALLOWED or DISALLOWED for the member class.

GENLIST (ALLOWED | DISALLOWED)

Specifies whether SETROPTS GENLIST is to be allowed for the class. If you GENLIST the class on the SETROPTS command and a user then requests access to a resource protected by a generic profile, a copy of that profile will be brought into the common storage area rather than into the user's address space. RACF uses those generic profiles in common storage to check the authorization of any users who want to access the resource. The profiles remain in common storage until a REFRESH occurs.

If GENLIST is not specified, GENLIST(DISALLOWED) is the default.

GROUP (*grouping-class-name*)

Specifies the name of the class that groups the resources within the specified class. If GROUP is not specified, RACF does not allow resource grouping for the class. The *grouping-class-name* must be 1 - 8 characters.

When GROUP is specified, the class being defined is a member class.

If GROUP is specified, then *grouping-class-name* must also be defined in the CDT class and its MEMBER keyword should refer to the class being defined. The GROUP and MEMBER keywords must have matching class entries before SETROPTS RACLIST(CDT) is issued to build or refresh the dynamic CDT or before the system is restarted; otherwise, the class in error will not be added to the dynamic class descriptor table.

KEYQUALIFIERS (0 | *nnn*)

Specifies the number of matching qualifiers RACF uses when loading generic profilenames to satisfy an authorization request if a discrete profile does not exist for a resource. For example, if you specify two for the class, all generic profile names whose highest level qualifiers match the two highest qualifiers of the entity name are loaded into the user's storage when the user requests access to a resource. The *nnn* value must be a number 0 - 123.

If KEYQUALIFIERS is not specified, the default is 0 and profile names for the entire class are loaded and searched.

The maximum value you can specify is 123, which is the maximum number of qualifiers in a name 246 characters long.

When KEYQUALIFIERS(*nnn*) is specified, generic profiles created in that class may not contain generic characters in the first *nnn* qualifiers of the profile name.

When KEYQUALIFIERS(*nnn*) is greater than 0 for a class, all discrete and generic profiles in that class must have at least *nnn*+1 qualifiers in each profile name. The number of qualifiers a profile name is determined by counting the number of period characters in the profile and adding one; the first character is not examined.

Examples of valid profile names for KEYQUALIFIERS(2) are:

```
A.B.C
A.B.**
A.B.C.D*
```

Guideline: Specify KEYQUALIFIERS(*nnn*) greater than 0 for classes that have the following characteristics:

- The class is not usually RACLISTed or GENLISTed.
- Profile names in the class follow a naming convention where many generic profiles have the same nnn qualifiers at the beginning of the profile name.

For example, if you have an application that uses an installation-defined class to protect reports on terminal usage, you might have profiles such as these for each user on your z/OS system:

```
REPORTS.USER1.TERMUSE.*
REPORTS.USER1.TERMUSE.DEPT60.*
REPORTS.USER1.TERMUSE.2006.JAN.*
REPORTS.USER1.TERMUSE.2006.FEB.*
REPORTS.USER1.TERMUSE.2006.MAR.*
REPORTS.USER1.TERMUSE.2006.APR.*
REPORTS.USER1.TERMUSE.2006.MAY.*
REPORTS.USER1.TERMUSE.2006.JUN.*
REPORTS.USER1.TERMUSE.2006.JUL.*
REPORTS.USER1.TERMUSE.2006.AUG.*
REPORTS.USER1.TERMUSE.2006.SEP.*
REPORTS.USER1.TERMUSE.2006.OCT.*
REPORTS.USER1.TERMUSE.2006.NOV.*
REPORTS.USER1.TERMUSE.2006.DEC.*
```

In this example, you might define your installation class using KEYQUALIFIERS(3) so that when RACF checks authorization checks for resources in your class, only generic profile names that match the first three qualifiers of your report are loaded into storage for RACF to check.

MACPROCESSING (NORMAL | REVERSE | EQUAL)

Specifies which type of mandatory access control (MAC) processing is required for the class. If MACPROCESSING is not specified, MACPROCESSING(NORMAL) is the default.

- **NORMAL** - specifies normal MAC processing is required. If and when a MAC check is performed, the user's SECLABEL must dominate that of the resource.
- **REVERSE** - specifies reverse MAC processing is required. If and when a MAC check is performed, the SECLABEL of the resource must dominate that of the user.
- **EQUAL** - specifies equal MAC processing is required. If and when a MAC check is performed, the SECLABEL of the user must be equivalent to that of the resource. MACPROCESSING(EQUAL) should be used for classes where two-way communication is expected. Writedown (SETROPTS MLS) does not apply to classes where MACPROCESSING(EQUAL) is specified.

MAXLENGTH (8 | *nnn*)

Specifies the maximum length of resource and profile names for the specified class when MAXLENX is not specified. When MAXLENX is also specified, MAXLENGTH represents the maximum length of a resource name only when a RACROUTE macro is invoked with the ENTITY keyword. The value of *nnn* must be 1 - 246.

If MAXLENGTH is not specified, the default is 8.

MAXLENX (*nnn*)

Specifies the maximum length of resource and profile names for the specified class when a RACROUTE macro is invoked with the ENTITYX keyword, or when a profile is added or changed using a RACF command processor. The value of *nnn* value must be 1 - 246.

If MAXLENX is not specified before SETROPTS RACLIST(CDT) is issued to build or refresh the dynamic CDT or before the system is restarted, the value specified for MAXLENGTH is used for MAXLENX in subsequent processing for the dynamic class.

MEMBER (***member-class-name*** **)**

Specifies the name of the class grouped by the resources within the specified class. The *member-class-name* must be 1 - 8 characters.

When MEMBER is specified, the class being defined is a resource group.

If MEMBER is specified, then *member-class-name* must also be defined in the CDT class and its GROUP keyword should refer to the class being defined. The GROUP and MEMBER keywords must have matching class entries before SETROPTS RACLIST(CDT) is issued to build or refresh the dynamic CDT or before the system is restarted; otherwise, the class in error will not be added to the dynamic class descriptor table.

OPERATIONS (YES | NO)

Specifies whether RACF is to take the OPERATIONS attribute into account when it performs authorization checking. If YES is specified, RACF considers the OPERATIONS attribute; if NO is specified, RACF ignores the OPERATIONS attribute.

If OPERATIONS is not specified, OPERATIONS(NO) is the default.

OTHER (***characters-allowed ...*****)**

Specifies a character type restriction for the characters of the profile name other than the first character. One or more of the following may be specified:

- **ALPHA** - Allows an alphabetic character (A - Z)
- **NUMERIC**—Allows a digit (0 - 9)
- **NATIONAL**—Allows characters # (X'7B'), @ (X'7C'), and $ (X'5B')
- **SPECIAL**—Allows any character except the following:
  - a blank
  - a comma
  - a parenthesis
  - a semicolon
  - those characters in ALPHA, NUMERIC, or NATIONAL.

Note: This option includes the period ('.') and is needed if you intend to use it as a delimiter.

If OTHER is not specified, OTHER(ALPHA, NATIONAL) is the default.

POSIT (***nnn*** **)**

Specifies the POSIT number associated with the class. Each class in the class descriptor table has a POSIT number specified which identifies a set of option flags that control the following RACF processing options:

- Whether authorization checking should take place for the class (SETROPTS CLASSACT).
- Whether auditing should take place for resources within the class (SETROPTS AUDIT).
- Whether statistics should be kept for resources within the class (SETROPTS STATISTICS).
- Whether generic profile access checking is active for the class (SETROPTS GENERIC).
- Whether generic command processing is active for the class (SETROPTS GENCMD).
- Whether global access checking is active for the class (SETROPTS GLOBAL).
- Whether the user has CLAUTH to a resource class.
- Whether special resource access auditing applies to the class (SETROPTS LOGOPTIONS).
- Whether SETROPTS RACLIST will occur for this class (when RACLIST(ALLOWED) or RACLIST(REQUIRED) is also specified).

- For all classes that have the same POSIT number specified, these options are identical. If you change an option for one class, this change will also affect all other classes that share the same POSIT number.

Before you issue SETROPTS RACLIST(CDT) to build or refresh the dynamic class descriptor table, you must decide whether to use a unique set of option flags for each RACF class or whether to have two or more RACF classes share the same set of option flags. If you choose to use a unique set of option flags for a class, assign the class a unique POSIT number. If you choose to share the same set of option flags among several classes, assign those classes the same POSIT number.

Before you issue SETROPTS RACLIST(CDT), the POSIT keyword must specify a valid value on the RDEFINE command. Otherwise, the new class will not be added to the dynamic class descriptor table.

Once you issue SETROPTS RACLIST(CDT) to build or refresh the dynamic class descriptor table, you can activate the classes that comprise it and their respective set of option flags by using the appropriate keywords on the SETROPTS command.

There are 1024 POSIT numbers that can identify 1024 sets of option flags. Installations can specify POSIT numbers 19 - 56 and 128 - 527. POSIT numbers 0 - 18, 57 - 127 and 528 - 1023 are reserved for IBM use and should not be specified for installation-defined classes unless an installation intends that one of its classes share SETROPTS options with an IBM-defined class.

Guideline: A RACF class that has a default return code 8 should *not* share a POSIT value with a RACF class having a different default return code. If a class with a default return code 8 is activated but no profiles are defined, user activity that requires access in that class will be prevented.

PROFILESALLOWED (YES | NO)

Specifies whether you want RACF to allow profiles to be defined for this RACF class. If you specify PROFILESALLOWED(NO), RACF will not allow profiles to be defined to this RACF class; if a user attempts to define a profile to that class, the RDEFINE command responds with an appropriate message.

If PROFILESALLOWED is not specified, PROFILESALLOWED(YES) is the default.

RACLIST

Specifies whether SETROPTS RACLIST is to be allowed, disallowed or required for the specified class. If you process this class using SETROPTS RACLIST, RACF brings copies of all discrete and generic profiles within that class into storage in a data space. RACF uses those profiles in storage to check the authorization of any users who want to access the resources. The profiles remain in storage until removed by SETROPTS NORACLIST.

ALLOWED

Specifies that SETROPTS RACLIST may be used for the class, but is not required for authorization checking.

DISALLOWED

Specifies that SETROPTS RACLIST may not be used for the class.

REQUIRED

Specifies that you must process the class using SETROPTS RACLIST in order to use RACROUTE REQUEST=AUTH. The purpose of this keyword is to allow routines that cannot tolerate I/O to invoke RACF. When this keyword is specified and the class is not processed by SETROPTS RACLIST and a RACROUTE REQUEST=AUTH is attempted, the return code is 4.

If RACLIST is not specified, RACLIST(DISALLOWED) is the default.

SECLABELSREQUIRED (YES | NO)

Specifies whether a SECLABEL is required for the profiles of the specified class when SETROPTS MLACTIVE is on.

SECLABELSREQUIRED(NO) means that RACF will not require a SECLABEL for profiles in this class; however, if a SECLABEL exists for this profile and the SECLABEL class is active, RACF will use it during authorization checking. SECLABELSREQUIRED(NO) applies to general resource classes that have no profiles, such as DIRAUTH, or for classes that contain no data, such as OPERCMDS and SECLABEL.

SECLABELSREQUIRED(YES) means that RACF will require a SECLABEL for profiles in this class when SETROPTS MLACTIVE is on.

If SECLABELSREQUIRED is not specified, SECLABELSREQUIRED(NO) is the default.

SIGNAL (YES | NO)

Specifies whether an ENF signal should be sent to listeners when RACLISTed profiles are created, updated or deleted for authorization checking.

When SIGNAL(YES) is specified, RACF will send an ENF signal to listeners when a SETROPTS RACLIST, SETROPTS NORACLIST or a SETROPTS RACLIST REFRESH is issued for the class to activate, deactivate or update the profiles used for authorization checking. For more information, see ENF signals in *z/OS Security Server RACF System Programmer's Guide*.

When SIGNAL(NO) is specified, no ENF signal is sent.

SIGNAL(YES) is not valid if RACLIST(DISALLOWED) is specified.

If SIGNAL is not specified, SIGNAL(NO) is the default.

CFDEF

Defines a custom field for profiles in the CFIELD class, and specifies the name and attributes for the custom field. The custom fields you define with the CFDEF operand can be used in the CSDATA segment of RACF profiles. For more information about custom fields, including the profile name format, see *z/OS Security Server RACF Security Administrator's Guide*.

New custom fields are not effective until the system programmer rebuilds the dynamic parse table using the IRRDPI00 UPDATE command. For information about using the IRRDPI00 command, see *z/OS Security Server RACF System Programmer's Guide*.

Rule: Specify CFDEF only for profiles in the CFIELD class.

TYPE

Specifies the data type of the custom field. If you do not specify TYPE, CHAR is the default.

For each data type, you can restrict the content of the custom field using the attributes shown in Table 48 on page 469. For each attribute shown, the default values based on data type, are as follows.

Rule: For each data type, do not specify attributes noted in Table 48 on page 469 with a dash (—).

Table 48. Default values for attributes that restrict the content of a custom field, based on data type.

Attribute	**Default value based on the TYPE attribute**			
	CHAR	**FLAG**	**HEX**	**NUM**
FIRST	ALPHA	NONATABC	NONATNUM	NUMERIC
MAXLENGTH	1100	3	512	10
MAXVALUE	-	-	-	(See **Note**.)
MINVALUE	-	-	-	0
MIXED	NO	-	-	-
OTHER	ALPHA	NONATABC	NONATNUM	NUMERIC

Note: If you do not specify MAXVALUE with TYPE(NUM), it defaults to the length of the highest value based on the MAXLENGTH value.

CHAR

Specifies that the custom field is a character field.

Guidelines:

- When you specify TYPE(CHAR), specify values for the following attributes:
  - FIRST: The default value is ALPHA.
  - MAXLENGTH: The default value is 1100.
  - MIXED: The default value is NO.
  - OTHER: The default value is ALPHA.
- To allow a custom field value to be specified as a quoted string, specify FIRST(ANY) and OTHER(ANY).

Rule: Do not specify MAXVALUE or MINVALUE with TYPE(CHAR).

FLAG

Specifies that the custom field is a flag field.

Rule: Do not specify any attributes with TYPE(FLAG). The default values are sufficient and required. The default values are FIRST(NONATABC), OTHER(NONATABC), and MAXLENGTH(3).

HEX

Specifies that the custom field is a hexadecimal field.

Guideline: When you specify TYPE(HEX), specify a value for the MAXLENGTH attribute. The default value is 512. Specify an even number because hexadecimal data is stored and displayed as an even number of characters.

Rule: Do not specify FIRST, OTHER, MAXVALUE, MINVALUE, or MIXED with TYPE(HEX).

NUM

Specifies that the custom field is a numeric field.

Guidelines:

- When you specify TYPE(NUM), specify values for the MAXVALUE and MINVALUE attributes.
- You need not specify MAXLENGTH with TYPE(NUM) because MAXVALUE limits the numeric value.

Rule: Do not specify FIRST, OTHER, or MIXED with TYPE(NUM).

FIRST

Specifies a character restriction for the first character in the custom field.

Guideline: Do not specify FIRST for custom fields with FLAG, HEX, or NUM data type. If you incorrectly specify the FIRST value for the data type, the custom field might be unusable.

Rules: The valid options for the FIRST attribute apply as follows, based on TYPE value (data type).

Valid options	Data type based on TYPE attribute			
	CHAR	FLAG	HEX	NUM
ALPHA	X			
ALPHANUM	X			
ANY	X			
NONATABC	X	X		
NONATNUM	X		X	
NUMERIC	X			X

For each option of the FIRST attribute, the characters allowed in the custom field are as follows:

Valid options	Characters allowed			
	Alphabetic characters (A - Z)	National characters # (X'7B'), @ (X'7C'), and $ (X'5B')	Numeric characters (0 - 9)	Any other character
ALPHA	X	X		
ALPHANUM	X	X	X	
ANY	X	X	X	X
NONATABC	X			
NONATNUM	X		X	
NUMERIC			X	

ALPHA
Allows alphabetic characters (A - Z) and national characters # (X'7B'), @ (X'7C'), and $ (X'5B').

ALPHANUM
Allows alphabetic characters (A - Z), numbers (0 - 9), and national characters # (X'7B'), @ (X'7C'), and $ (X'5B').

ANY
Allows alphabetic characters (A - Z), numbers (0 - 9), national characters # (X'7B'), @ (X'7C'), and $ (X'5B'), and any other character. When you specify both FIRST(ANY) and OTHER(ANY), also allows quoted strings.

NONATABC
Allows alphabetic characters, and excludes numbers and national characters # (X'7B'), @ (X'7C'), and $ (X'5B').

NONATNUM
Allows alphabetic characters and numbers, but excludes national characters # (X'7B'), @ (X'7C'), and $ (X'5B').

NUMERIC
Allows numbers (0 - 9).

If you do not specify FIRST, the values default as follows, based on TYPE value (data type).

Data type
Default value

CHAR
ALPHA

FLAG
NONATABC

HEX
NONATNUM

NUM
NUMERIC

HELP(***help-text*** **)**
Specifies the help text for this custom field. The help text is displayed when the user is in TSO PROMPT mode and presses the PF1 key or enters a question mark (?). Lowercase alphabetic characters in the *help-text* value are translated to uppercase.

Rules:

- Length: 1 - 255 characters.
- If the help text contains parentheses, commas, blanks, or semicolons, enclose the entire text string in single quotation marks.
- If a single quotation mark is intended to be part of the help text, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string in single quotation marks.

  Example: To define help text for a customer's address and indicate that the field can be up to 100 characters, you might specify the following value:

  ```
  HELP('CUSTOMER''S ADDRESS. SPECIFY UP TO 100 CHARACTERS')
  ```

If you do not specify HELP, the value defaults to the custom field name defined in CFIELD profile name.

LISTHEAD(*list-heading-text*)

Specifies the heading to display in the output for the LISTUSER or LISTGRP command whenever the CSDATA segment is listed. Lowercase alphabetic characters in the *list-heading-text* value are translated to uppercase.

Rules:

- Length: 1 - 40 characters.
- If the heading text contains parentheses, commas, blanks, or semicolons, enclose the entire text string in single quotation marks.
- If a single quotation mark is intended to be part of the help text, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string in single quotation marks.

  Example:

  ```
  LISTHEAD('CUSTOMER''S ADDRESS =')
  ```

Guidelines: If you specify a LISTHEAD value, avoid confusion for users who use the LISTUSER or LISTGRP command to list custom field values by following these guidelines:

- Ensure that each custom field has a unique heading.
- Append an equal sign (=) or other delimiter to your LISTHEAD value to indicate in the list output where the heading ends and the data begins.

If you do not specify LISTHEAD, the value defaults to the custom field name defined in CFIELD profile name and an equal sign (=) is appended to the end of the value.

MAXLENGTH(*maximum-field-length*)

Specifies the maximum length of the custom field. You can specify MAXLENGTH with any TYPE value (data type).

Guideline: Do not specify with TYPE(FLAG) because 3 is the default value and the only valid value.

Rules: The valid values or value ranges shown in Table 49 on page 472 apply based on data type.

Table 49. Valid values or value range and default values for the MAXLENGTH attribute, based on data type

Data type	Valid value or range	Default value
CHAR	1 - 1100	1100
FLAG	3	3
HEX	1 - 512	512
NUM	1 - 10	10

If you do not specify MAXLENGTH, the default values shown in Table 49 on page 472 apply based on data type.

MAXVALUE(***maximum-numeric-value*** **)**

Specifies the maximum numeric value for a custom field with TYPE(NUM).

Rules:

- Valid range: 0 - 2 147 483 647
- Do not specify a MAXVALUE value for custom fields with CHAR, FLAG, or HEX data type.
- Do not specify a MAXVALUE value less than the MINVALUE value.
- Do not specify a MAXVALUE value longer than the highest value based on MAXLENGTH value.

If you do not specify MAXVALUE, the value defaults to the length of the highest value based on the MAXLENGTH value. For example, if you specify `MAXLENGTH(4)`, the default MAXVALUE is 9999.

MINVALUE(***minimum-numeric-value*** **)**

Specifies the minimum numeric value for a custom field with TYPE(NUM).

Rules:

- Valid range: 0 - 2 147 483 647
- Do not specify a MINVALUE value for fields with CHAR, FLAG, or HEX data type.
- Do not specify a MINVALUE value higher than the MAXVALUE value.
- Do not specify a MINVALUE value longer than the highest value based on MAXLENGTH value.

If you do not specify MINVALUE, the value defaults to 0.

MIXED(YES | NO)

Specifies whether mixed-case alphabetic characters are allowed for a custom field with TYPE(CHAR).

YES

Lowercase characters are allowed in any position of the custom field where alphabetic characters are allowed, based on the character restrictions specified with the FIRST and OTHER attributes. RACF commands, such as ADDUSER, do *not* translate lowercase alphabetic characters in the field to uppercase.

Rule: Do not specify MIXED(YES) for custom fields with FLAG, HEX, or NUM data type.

NO

RACF commands translate lowercase alphabetic characters in the field to uppercase.

If you do not specify MIXED, the value defaults to NO.

OTHER

Specifies a character restriction for characters in the custom field other than the first character.

Guideline: Do not specify OTHER for custom fields with FLAG, HEX, or NUM data type. If you incorrectly specify the OTHER value for the data type, the custom field might be unusable.

For each option of the OTHER attribute, the characters allowed in the custom field are as follows:

Valid options	Characters allowed			
	Alphabetic characters (A - Z)	National characters # (X'7B'), @ (X'7C'), and $ (X'5B')	Numeric characters (0 - 9)	Any other character
ALPHA	X	X		
ALPHANUM	X	X	X	

Valid options	Characters allowed			
	Alphabetic characters (A - Z)	National characters # (X'7B'), @ (X'7C'), and $ (X'5B')	Numeric characters (0 - 9)	Any other character
ANY	X	X	X	X
NONATABC	X			
NONATNUM	X		X	
NUMERIC			X	

ALPHA
Allows alphabetic characters (A - Z) and national characters # (X'7B'), @ (X'7C'), and $ (X'5B').

ALPHANUM
Allows alphabetic characters (A - Z), numbers (0 - 9), and national characters # (X'7B'), @ (X'7C'), and $ (X'5B').

ANY
Allows alphabetic characters (A - Z), numbers (0 - 9), national characters # (X'7B'), @ (X'7C'), and $ (X'5B'), and any other character. When you specify both FIRST(ANY) and OTHER(ANY), also allows quoted strings.

NONATABC
Allows alphabetic characters, and excludes numbers and national characters # (X'7B'), @ (X'7C'), and $ (X'5B').

NONATNUM
Allows alphabetic characters and numbers, but excludes national characters # (X'7B'), @ (X'7C'), and $ (X'5B').

NUMERIC
Allows numbers (0 - 9).

Rules: The valid options for the OTHER attribute apply as follows, based on TYPE value (data type).

Valid options	Data type based on TYPE attribute			
	CHAR	FLAG	HEX	NUM
ALPHA	X			
ALPHANUM	X			
ANY	X			
NONATABC	X	X		
NONATNUM	X		X	
NUMERIC	X			X

If you do not specify OTHER, the values default as follows, based on TYPE value (data type).

Data type
Default value

CHAR
ALPHA

FLAG
NONATABC

HEX
NONATNUM

NUM
NUMERIC

VALREXX(*REXX-exec-name*)
Specifies the name of a REXX exec that RACF will call to perform validation on the value of the custom field as it is being assigned. The REXX exec must reside in the system rexx concatenations.

CSDATA | NOCSDATA

CSDATA
Specifies information to add, change, or remove a custom field for this general resource.

custom-field-name ...* | NO*custom-field-name ...

***custom-field-name*(*custom-field-value*) ...**
Specifies the name and value of a custom field for this general resource. You can specify values for multiple custom fields with a single RDEFINE command.

Usage for each custom field is defined using the CFDEF operand of the RDEFINE command for resource profiles in the CFIELD class. Contact your security administrator to see how custom fields are used at your installation. For more information about custom fields, see *z/OS Security Server RACF Security Administrator's Guide*.

Rules:

- You must use the same *custom-field-name* as defined by the CFIELD profile named GENERAL.CSDATA.*custom-field-name*. (The CFIELD profile is defined using the CFDEF operand of the RDEFINE command.)
- You must specify a *custom-field-value* that is valid for the attributes of this custom field. (The attributes, such as data type, are defined in the CFDEF segment of the CFIELD profile.)

NO*custom-field-name* ...
Removes the custom field information for this general resource. You can remove values for multiple custom fields with a single RDEFINE command.

When you append the prefix **NO** to the name of the custom field, you delete the value for that custom field from the user's profile. For example, if your installation has defined a custom field named ADDRESS and you want to remove the ADDRESS field from the profile of the user SHANNON, you might issue the following command:

Example:

```
GENERAL SHANNON CSDATA(NOADDRESS)
```

NOCSDATA
Deletes the CSDATA segment from the general resource profile.

DATA('*installation-defined-data*')
Specifies up to 255 characters of installation-defined data to be stored in the profile for the resource and the data must be enclosed in single quotation marks. It can also contain double-byte character set (DBCS) data.

This information is listed by the RLIST command.

DLFDATA
Specifies information used in the control of DLF objects in profiles in the DLFCLASS.

RETAIN(YES | NO)
Specifies whether the DLF object can be retained after use.

JOBNAMES(*jobname-1 ...*)

Specifies the list of objects which can access the DLF objects protected by this profile.

You can specify any job name valid on your system. You can also specify generic job names with an asterisk (*) as the last character of the job name. For example, JOBNAMES(ABC) allows only job ABC to access the DLF objects protected by the profile. JOBNAMES(ABC*) allows any job whose name begins with ABC (such as ABC, ABC1, or ABCDEF and so forth) to access the DLF objects.

If DLFDATA is not specified, or is specified without the RETAIN suboperand, RETAIN(NO) is defaulted.

EIM

The EIM and PROXY segment keywords and subkeywords combine to define the EIM domain, the LDAP host it resides on, and the bind information required by the EIM services to establish a connection with an EIM domain. The EIM services will attempt to retrieve this information when it is not explicitly supplied with the invocation parameters.

DOMAINDN(*eim_domain_dn*)

Specifies the distinguished name of the EIM domain. A valid EIM domain distinguished name begins with `ibm-eimDomainName=`. Uppercase and lowercase characters are accepted and maintained in the case in which they are entered. The EIM domain distinguished name is one component of an EIM domain name.

An EIM domain name identifies the LDAP server that stores the EIM domain information. The EIM domain name begins with the *ldap_url* from the LDAPHOST suboperand of the PROXY keyword, followed by / and ends with the *eim_domain_dn* from the DOMAINDN suboperand. The length of a valid EIM domain name is determined by the combination of those factors. RACF allows the input of 1023 characters for the domain distinguished name. RACF does not ensure that an EIM domain name created from the LDAP URL and EIM domain distinguished name forms a valid EIM domain name.

For more information about LDAP distinguished names, see *z/OS IBM Tivoli Directory Server Administration and Use for z/OS*.

OPTIONS

Specifies options that control the EIM configuration.

ENABLE | DISABLE

ENABLE

Specifies that new connections may be established with the specified EIM domain. This is the default.

DISABLE

Specifies that new connections may not be established with the specified EIM domain.

LOCALREGISTRY(*registry_name*)

Specifies the name of the local RACF registry in EIM domains. This operand is valid only with the following profiles and is ignored for all others:

- The IRR.PROXY.DEFAULTS profile in the FACILITY class
- The IRR.ICTX.DEFAULTS.*sysid* profile in the LDAPBIND class
- The IRR.ICTX.DEFAULTS profile in the LDAPBIND class.

EIM uses the *registry_name* value defined in the IRR.PROXY.DEFAULTS profile. The ICTX identity cache *registry_name* uses the value defined in the IRR.ICTX.DEFAULTS.*sysid* or IRR.ICTX.DEFAULTS profile.

The *registry_name* value is 1 - 255 characters in length. It can consist of any characters and can be entered with or without single quotation marks. The following rules apply:

- If parentheses, commas, blanks, or semicolons are intended as part of the *registry_name*, you must enclose the entire character string in single quotation marks.

- If a single quotation mark is intended as part of the *registry_name*, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.
- Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered.

KERBREGISTRY(*registry_name*)
Specifies the name of the Kerberos registry in the EIM domain that the system is configured to use. This operand is only valid for the IRR.PROXY.DEFAULTS FACILITY class profile. The value is ignored when used on other profiles.

The Kerberos *registry_name* may be 1 - 255 characters long. Uppercase and lowercase characters are allowed, but are not significant because the Kerberos registry name is stored in the RACF database in uppercase.

X509REGISTRY(*registry_name*)
Specifies the name of the X.509 registry in the EIM domain that the system is configured to use. This operand is only valid for the IRR.PROXY.DEFAULTS FACILITY class profile. The value is ignored when used on other profiles.

The X.509 *registry_name* may be 1 - 255 characters long. Uppercase and lowercase characters are allowed, but are not significant because the X.509 registry name is stored in the RACF database in uppercase.

FCLASS(*profile-name-2-class*)
Specifies the name of the class to which *profile-name-2* belongs. The valid class names are DATASET and those classes defined in the class descriptor table. For a list of general resource classes defined in the class descriptor table supplied by IBM, see Appendix B, "Supplied RACF resource classes," on page 647.

If you omit this operand, RACF assumes that *profile-name-2* belongs to the same class as *profile-name-1*. This operand is valid only when you also specify the FROM operand; otherwise, RACF ignores it.

FGENERIC
Specifies that RACF is to treat *profile-name-2* as a generic name, even if it is fully qualified (meaning that it does not contain any generic characters). This operand is needed only if *profile-name-2* is a DATASET profile.

FROM(*profile-name-2*)
Specifies the name of an existing discrete or generic profile that RACF is to use as a model for the new profile. The model profile name you specify on the FROM operand overrides any model name specified in your user or group profile. If you specify FROM and omit FCLASS, RACF assumes that *profile-name-2* is the name of a profile in the same class as *profile-name-1*.

Mixed-case profile names are accepted and preserved when FCLASS refers to a class defined in the static class descriptor table with CASE=ASIS or in the dynamic class descriptor table with CASE(ASIS).

To specify FROM, you must have sufficient authority to both *profile-name-1* and *profile-name-2,* as described under "Authorization Required".

Possible Changes to Copied Profiles When Modeling Occurs: When a profile is copied during profile modeling, the new profile might differ from the model in the following ways:

- Certain conditional access list conditions are valid only for specific classes. For example, WHEN(SYSID) is only valid for the PROGRAM class and WHEN(PROGRAM) is only valid for data sets and the SERVAUTH class. PROGRAM and SYSID entries in the conditional access list of *profile-name-2* will be copied to the conditional access list of *profile-name-1* only if the condition is valid for the class of *profile-name-1*.
- RACF places the user's ID on the access list with ALTER access authority or, if the user's ID is already on the access list, RACF changes the user's access authority to ALTER. However, if

NOADDCREATOR is in effect, RACF copies the access list authorities exactly as they appear in the model's access list.

- If the model profile contains members (specified with the ADDMEM operand), the members are not copied into the new profile.
- If the SETROPTS MLS option is in effect, the security label (if specified in the model profile) is not copied. Instead, the user's current security label is used.

  Exception: When SETROPTS MLS and MLSTABLE are both in effect and the user has the SPECIAL attribute, the security label specified in the model profile is copied to the new profile.
- For TAPEVOL profiles, TVTOC information is not copied to the new profile.
- Information in the non-BASE segments (for example, the SESSION or DLFDATA segment) is not copied.

For information about automatic profile modeling, refer to *z/OS Security Server RACF Security Administrator's Guide*.

FVOLUME(*volume-serial*)

Specifies the volume RACF is to use to locate the model profile (*profile-name-2*).

If you specify FVOLUME and RACF does not find *profile-name-2* associated with that volume, the command fails. If you omit this operand and *profile-name-2* appears more than once in the RACF data set, the command fails.

FVOLUME is valid only when FCLASS either specifies or defaults to DATASET and when *profile-name-2* specifies a discrete profile. Otherwise, RACF ignores FVOLUME.

ICSF

Specifies ICSF attributes for the keys that are controlled by this profile. ICSF attributes are valid only for profiles in the CSFKEYS, GCSFKEYS, XCSFKEY, and GXCSFKEY classes.

ASYMUSAGE

Specifies how an asymmetric key that is controlled by this profile is eligible to be used. If you do not specify ASYMUSAGE, the key is eligible for all uses.

<u>SECUREEXPORT</u> | NOSECUREEXPORT

Specifies whether the key is eligible to be used to export or import symmetric keys.

<u>HANDSHAKE</u> | NOHANDSHAKE

Specifies whether the key is eligible to be used to protect communication channels.

SYMEXPORTABLE

Specifies which public keys, if any, are eligible for use to export a symmetric key that is controlled by this profile. If you do not specify SYMEXPORTABLE, any public key is eligible.

<u>BYANY</u>

Any public key is eligible. The SYMEXPORTCERTS and SYMEXPORTKEYS settings are ignored. This option is the default setting.

BYLIST

Only public keys specified with the SYMEXPORTCERTS or SYMEXPORTKEYS option are eligible. If neither option is set for this symmetric key, no public key is eligible (as if BYNONE were specified).

BYNONE

No public key is eligible. The SYMEXPORTCERTS and SYMEXPORTKEYS settings are ignored.

SYMEXPORTCERTS([*qualifier*]/*label-name* ... | *)

Specifies a list of the labels of digital certificates that are eligible to be used to export the symmetric keys controlled by this profile.

Each listed certificate must exist in the ICSF key store (the SAF key ring or PKCS #11 token specified by an ICSF configuration setting). For information about the ICSF key store, see *z/OS Cryptographic Services ICSF Administrator's Guide*.

Specify an asterisk (*) to indicate that any certificate in the ICSF key store is eligible to be used to export the symmetric keys controlled by this profile. Specifying an asterisk (*) overrides any listed labels.

Specify each certificate label using a certificate label string in the form of *qualifier/label-name*.

qualifier

Specifies an optional qualifier in the certificate label string when multiple certificates have the same label. If specified, RACF translates the qualifier value to uppercase characters before storing it in the profile. The meaning of the qualifier value depends on where the certificate resides.

When the certificate resides in a ...	The qualifier value is ...
SAF key ring	The RACF user ID of the certificate owner.
PKCS #11 token	The value of the `CKA_ID` attribute of the certificate. The `CKA_ID` value consists of up to 64 hexadecimal characters. Valid characters are `0 - 9` and `A - F`.

/label-name

Specifies the certificate label assigned when the certificate was created. You must specify the forward slash character (/) followed by the certificate label.

If the certificate label contains blanks, or special characters that cause problems with TSO/E, such as the comma, parenthesis, or comment delimiter (/*), the entire certificate label string must be enclosed in single quotation marks.

Any leading or trailing blanks specified in *label-name* are removed from this value before storing it in the profile.

Examples of certificate label strings:

```
DENICE/CertForDenice
'ROGERS/Cert for Rogers'
'/DLR cert'
```

SYMEXPORTKEYS(*ICSF-key-label ...* | *)

Specifies a list of the ICSF key labels of public keys that are eligible to be used to export the symmetric keys controlled by this profile. Each listed public key must reside in the ICSF PKA key data set (PKDS).

Specify an asterisk (*) to indicate that any public key in the ICSF PKDS is eligible to be used to export the symmetric keys controlled by this profile. Specifying an asterisk (*) overrides any listed labels.

ICSF-key-label

Specifies the ICSF key label for the public key. The label name cannot exceed 64 characters. The first character must be an alphabetic character or a national character (`#`, `@`, or `$`). Subsequent characters can be a period character (`.`) or any alphanumeric or national character.

SYMCPACFWRAP

Specifies whether the encrypted symmetric keys that are controlled by this profile are eligible to be rewrapped by CP Assist for Cryptographic Function (CPACF). If you do not specify SYMCPACFWRAP, the keys are ineligible.

YES

Specifies that the encrypted symmetric keys that are controlled by this profile are eligible to be rewrapped by CPACF.

NO

Specifies that the encrypted symmetric keys that are controlled by this profile are ineligible to be rewrapped by CPACF. This option is the default setting.

SYMCPACFRET

Specifies whether the encrypted symmetric keys that are controlled by this profile and are rewrapped by CP Assist for Cryptographic Function (CPACF) are eligible to be returned to an authorized caller.

If you specify the ICSF operand to create a new ICSF segment and omit the SYMCPACFRET option, NO is the default setting.

YES

Specifies that the encrypted symmetric keys that are controlled by this profile and are rewrapped by CP Assist for Cryptographic Function (CPACF) are eligible to be returned to an authorized caller.

NO

Specifies that the encrypted symmetric keys that are controlled by this profile and are rewrapped by CP Assist For Cryptographic Function (CPACF) are ineligible to be returned to an authorized caller.

ICTX

Specifies the ICTX configuration options that control the ICTX identity cache.

The ICTX identity cache uses an in-storage copy of the configuration options. Use SETROPTS RACLIST processing for the LDAPBIND class to activate these options. See the *z/OS Security Server RACF Security Administrator's Guide* for more information about SETROPTS RACLIST processing.

For details about the ICTX configuration options, see *z/OS Integrated Security Services EIM Guide and Reference*.

The following operands are used only for the following profiles in the LDAPBIND class and are ignored for other profiles:

- IRR.ICTX.DEFAULTS.*sysid*
- IRR.ICTX.DEFAULTS

USEMAP (YES | NO)

Specifies whether the ICTX identity cache stores a valid identity mapping to a z/OS user ID when provided by the application. If you do not specify this, USEMAP(YES) is the default.

YES

When the application provides a valid mapping to a local z/OS user ID, the ICTX identity cache stores it. (This is the default value.)

NO

Identity mappings provided by the application are not stored.

DOMAP (YES | NO)

Specifies whether the ICTX identity cache uses Enterprise Identity Mapping (EIM) services to find a mapping to a z/OS user ID for an authenticated user, and then stores the mapping. If you do not specify this, DOMAP(NO) is the default.

YES

When EIM finds a mapping to a z/OS user ID for an authenticated user, the ICTX identity cache stores it.

NO

The ICTX identity cache will not use EIM to find an identity mapping. (This is the default value.)

MAPREQUIRED(YES | NO)

Specifies whether the ICTX identity cache requires identity mapping to a z/OS user ID for an authenticated user. If you do not specify this, MAPREQUIRED(NO) is the default.

YES

The ICTX identity cache fails the request when no valid mapping is provided by the application or found using EIM.

NO

The ICTX identity cache does *not* fail the request when no valid mapping is provided by the application or found using EIM.

MAPPINGTIMEOUT(1 - 3600)

Specifies how long (one second to one hour) the ICTX identity cache stores an identity mapping to a z/OS user ID for an authenticated user. If you do not specify this, MAPPINGTIMEOUT(3600) is the default.

Guideline: If you frequently modify your EIM mappings, consider a low MAPPINGTIMEOUT value. A shorter timeout period causes the ICTX identity cache to invoke EIM more frequently. This allows your cached mappings to be refreshed more frequently and improves their currency.

IDTPARMS

Specifies information for the IDTDATA class profile being changed.

SIGTOKEN(*pkcs11-token-name*)

Specifies the name of an ICSF PKCS#11 token name for the generation and validation of Identity Token (IDT) signatures associated with this profile.

The token name may consist of alphanumeric characters, national characters (@, #, $) and the period symbol. The token name is not case sensitive.

The minimum token name length is 1. The maximum token name length is 32.

There is no default value.

PROTALLOWED (YES | NO)

Specifies whether an Identity Token (IDT) validated with this profile can be used to authenticate a protected user.

SIGSEQNUM(*pkcs11-sequence-number*)

Specifies the ICSF PKCS#11 sequence number of the key for the generation and validation of Identity Token (IDT) signatures associated with this profile.

The sequence number must be a hexadecimal number.

The minimum sequence number is 1. The maximum sequence number length is 8 hexadecimal digits. The default value is 1.

SIGCAT(*pkcs11-categor*)

Specifies the ICSF PKCS#11 category of the key for the generation and validation of Identity Token (IDT) signatures associated with this profile.

The category must be one of the following values:

T - Specifies a clear token object.
Y - Specifies a secure token object.

The default value is T.

SIGALG(HS256 | HS384 | HS512)

Specifies the signature algorithm for the generation of Identity Token (IDT) signatures associated with this profile. The default value is HS256.

HS256

Specifies the signature algorithm as HMAC with SHA256.

HS384

Specifies the signature algorithm as HMAC with SHA-384.

HS512

Specifies the signature algorithm as HMAC with SHA-512.

ANYAPPL(YES | NO)

Specifies whether the IDT that RACROUTE generates can be used for any application name or only for the application name that performed authentication. The default value is YES.

When ANYAPPL(YES) is specified, RACROUTE will generate the IDT so it can be used for any application name.

When ANYAPPL(NO) is specified, RACROUTE will generate IDT so that it can only be used by the application name that performed authentication.

When an IDT is generated by RACROUTE, which is not for an end user, by specifying the IDTA parameter field with IDTA_End_User_IDT set to off, RACROUTE will ignore this setting and generate the IDT so that it can be used with any application name.

IDTTIMEOUT(*timeout-minutes*)

Specifies the number of minutes that the Identity Token (IDT) associated with the profile is active.

The value of timeout-minutes can be between 1 and 1440. The default value is 5.

JES

Specifies the JES information for the profile being added.

KEYLABEL(*key-label*)

Specifies the name of an ICSF key label to be used when encrypting spool data for resources that are covered by the profile.

KERB

Specifies z/OS Integrated Security Services Network Authentication Service information for a REALM class profile.

CHECKADDRS

Specifies whether the Kerberos server validates addresses in tickets as part of ticket validation processing.

This keyword is only applicable when defining the KERBDFLT REALM profile for the local realm.

YES

The server validates addresses in tickets.

NO

The server ignores addresses in tickets. This is the default value.

DEFTKTLFE(*def-ticket-life*)

Specifies the default ticket lifetime for the local z/OS Network Authentication Service in seconds. The value of DEFTKTLFE is 1 - 2 147 483 647. Note that 0 is not a valid value.

This keyword is only applicable when defining the KERBDFLT REALM profile for the local realm.

If DEFTKTLFE is specified, MAXTKTLFE and MINTKTLFE must also be specified.

ENCRYPT

Specifies which keys can be used by the z/OS Network Authentication Service realm you are defining.

ENCRYPT is the default value when you specify KERB. The default values for ENCRYPT are DES, DES3, DESD, AES128, AES256, AES128SHA2, and AES256SHA2.

DES | NODES

Whether DES encrypted keys can be used.

DES3 | NODES3

Whether DES3 encrypted keys can be used.

DESD | NODESD

Whether DESD encrypted keys can be used.

AES128 | NOAES128

Whether AES128 encrypted keys can be used.

AES256 | NOAES256

Whether AES256 encrypted keys can be used.

AES128SHA2 | NOAES128SHA2

AES128 SHA2 encryption keys can be used.

AES256SHA2 | NOAES256SHA2
AES256 SHA2 encryption keys can be used.

When a realm's password changes, a key of each type is generated and stored in the principal's user profile. The use of each key is based on the z/OS Network Authentication Service configuration.

See *z/OS Integrated Security Services Network Authentication Service Administration* for information about how z/OS Network Authentication Service uses keys and how to customize environment variables related to keys.

KERBNAME(*kerberos-realm-name*)
Specifies the local realm name or a trust relationship for z/OS Network Authentication Service. The maximum length of this field is 117 characters.

- When you specify the local realm name for the KERBDFLT realm, you must specify KERBNAME using the *unqualified* form of the local realm name. For example:

```
RDEFINE REALM KERBDFLT KERB(KERBNAME(KRB2000.IBM.COM)
```

- When you specify a trust relationship, you must specify the *fully qualified* principal name using the following form:

```
/.../kerberos_realm_name_1/krbtgt/kerberos_realm_name_2
```

For more information about defining trust relationships, see *z/OS Integrated Security Services Network Authentication Service Administration*.

Syntax rules for naming your local realm:

The local realm name that you define to RACF can consist of any character, except the / (X'61') character. You can enter the name with or without single quotation marks, depending on the following:

- If parentheses, commas, blanks, or semicolons are entered as part of the name, the character string must be enclosed in single quotation marks.
- If a single quotation mark is intended to be part of the name and the entire character string is enclosed in single quotation marks, you must use two single quotation marks together to represent each single quotation mark within the string.
- If the first character of the name is a single quotation mark, you must enter the string within single quotation marks, with two single quotation marks entered for the single quotation mark.

Regardless of the case in which it is entered, RACF translates the name of the local z/OS Network Authentication Service realm to uppercase. However, RACF does not ensure that a valid *kerberos-realm-name* has been specified.

Guidelines for naming your local realm:

- Avoid using EBCDIC variant characters to prevent problems with different code pages.
- Carefully consider the length of the local realm name. Its length limits the length of local principal names because fully qualified local principal names use the following form and cannot exceed 240 characters:

```
/.../kerberos_realm_name/principal_name
```

The length of the fully qualified local principal name is checked by RACF only when a local *kerberos-principal-name* is added or altered. Therefore, plan ahead to ensure that the maximum length of your principal names is sufficient and help you avoid renaming the local realm. If you rename your local realm (using the RALTER command), the keys for existing principals become unusable.

MAXTKTLFE(*max-ticket-life*)
Specifies the *max-ticket-life* for the local z/OS Network Authentication Service in seconds. The value of MAXTKTLFE is 1 - 2 147 483 647. Note that 0 is not a valid value.

This keyword is only applicable when defining the KERBDFLT REALM profile for the local z/OS Network Authentication Service realm.

If MAXTKTLFE is specified, DEFTKTLFE and MINTKTLFE must also be specified.

MINTKTLFE(*min-ticket-life*)

Specifies the *min-ticket-life* for the z/OS Network Authentication Service in seconds. The value of MINTKTLFE is 1 - 2 147 483 647. Note that 0 is not a valid value.

This keyword is only applicable when defining the KERBDFLT REALM profile for the local Kerberos realm.

If MINTKTLFE is specified, DEFTKTLFE and MAXTKTLFE must also be specified.

PASSWORD(*kerberos-password*)

Specifies the value of the *kerberos-password*. The maximum length of this value is 128 characters. The PASSWORD keyword is applicable to all REALM class profile definitions. A password must be associated with the definition of a trust relationship or else the definition is incomplete.

Guideline: Avoid using EBCDIC variant characters to prevent problems with different code pages.

The password that you define to RACF can consist of any character. You can enter a password with or without single quotation marks, depending on the following:

- If parentheses, commas, blanks, or semicolons are entered as part of the password, the character string must be enclosed in single quotation marks.
- If a single quotation mark is intended to be part of the password and the entire character string is enclosed in single quotation marks, you must use two single quotation marks together for each single quotation mark within the string.
- If the first character of the password is a single quotation mark, you must enter the string within single quotation marks, with two single quotation marks entered for the character.

Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered.

Note: This keyword is intended for administrators to be able to associate a *kerberos-password* with the definition of a realm. It is not the same as a RACF user password and is not constrained by the SETROPTS password rules or change interval values that might be established for RACF user passwords. ICSF must be available prior to changing the password as the encryption keys for the REALM class profile are generated using ICSF services.

LEVEL(*nn*)

Specifies a level indicator, where *nn* is an integer from 0 - 99. The default is 0.

Your installation assigns the meaning of the value. It is included on all records that log resource accesses and is listed by the RLIST command.

MFA

Specifies that RACF create an MFA segment in the MFADEF class profile. The MFA segment is intended to be updated only by IBM Multi-Factor Authentication for z/OS.

MFPOLICY

Specifies multi-factor authentication policy information for the MFADEF class profile being changed.

FACTORS(*factor-name1 ...*)

Specifies the list of factor names that are required in order to satisfy the authentication policy.

TOKENTIMEOUT(*timeout-seconds*)

Specifies the number of seconds for which out-of-band authentication with the policy is valid. That is, after having authenticated out-of-band with the policy to IBM MFA, the user must logon to a z/OS application within this number of seconds or the out-of-band authentication record will time out. When an out-of-band authentication record times out, a user must authenticate out-of-band again on IBM MFA in order to logon.

The value of timeout-seconds can be between 1 and 86,400 (the number of seconds in a day).

The default value is 300 (5 minutes).

REUSE(YES|NO)

Specifies whether this out-of-band authentication policy allows multiple z/OS logons using the out-of-band token within the TOKENTIMEOUT setting. When REUSE(NO) is specified the user must authenticate out-of-band with the policy prior to every z/OS logon.

REUSE(NO) is the default.

NOTIFY[(*userid*)]

Specifies the user ID of a user to be notified whenever RACF uses this profile to deny access to a resource. If you specify NOTIFY without specifying a user ID, RACF takes your user ID as the default; you are notified whenever the profile denies access to a resource.

A user who is to receive NOTIFY messages should log on frequently to take action in response to the unauthorized access attempt described in each message. RACF sends NOTIFY messages to the SYS1.BRODCAST data set. When the resource profile also includes WARNING, RACF might have granted access to the resource to the user identified in the message.

When RACF denies access to a resource, it does *not* notify a user:

- When the resource is in the PROGRAM class
- When the resource is in a class for which an application has built in-storage profiles using RACROUTE REQUEST=LIST

  Some applications, such as IMS and CICS, load all the profiles for a given class into storage. After these profiles are in storage, the applications can do a *fast* authorization check using RACROUTE REQUEST=FASTAUTH. One difference is that, in some cases, fast authorization checking does not issue warning messages, notification messages, or support auditing. In cases where it does not, return and reason codes are returned to the application to allow support of these functions. Return and reason codes are returned to the application to allow support of these functions. The application can examine the return and reason codes and use RACROUTE REQUEST=AUTH to create the messages and audit records. If the application uses RACROUTE REQUEST=AUTH to support auditing, the specified user is notified. Otherwise, notification, warning, and such does not occur.

  For details on using RACF with IMS, visit IMS in IBM Documentation (www.ibm.com/docs/en/ims).

  For details on using RACF with CICS, visit CICS Transaction Server for z/OS (www.ibm.com/docs/en/cics-ts).
- When the profile is used to disallow the creation or deletion of a data set

  NOTIFY is used only for resource access checking, not for resource creation or deletion.

OWNER(*userid or group-name*)

Specifies a RACF-defined user or group to be assigned as the owner of the resource you are defining. If you omit this operand, you are defined as the owner. The user specified as the owner does not automatically have access to the resource. Use the PERMIT command to add the owner to the access list as desired.

PROXY

Specifies information which the z/OS LDAP server will use when acting as a proxy on behalf of a requester. The `R_proxyserv` (IRRSPY00) SAF callable service will attempt to retrieve this information when it is not explicitly supplied with the invocation parameters. Applications or other services which use the `R_proxyserv` callable service, such as IBM Policy Director Authorization Services for z/OS and OS/390, may instruct their invokers to define PROXY segment information.

LDAPHOST(*ldap_url*)

Specifies the URL of the LDAP server which the z/OS LDAP server will contact when acting as a proxy on behalf of a requester. An LDAP URL has a format such as `ldap://123.45.6:389` or `ldaps://123.45.6:636`, where `ldaps` indicates that an SSL connection is desired for a higher level of security. LDAP will also allow you to specify the host name portion of the URL using either the text form (BIGHOST.POK.IBM.COM) or the dotted decimal address (123.45.6). The port number is appended to the host name, separated by a colon `:` (X'7A').

For more information about LDAP URLs and how to enable LDAP servers for SSL connections, see *z/OS IBM Tivoli Directory Server Administration and Use for z/OS*.

The LDAP URL that you define to RACF can consist of 10 - 1023 characters. A valid URL must start with either `ldap://` or `ldaps://`. RACF will allow any characters to be entered for the remaining portion of the URL, but you should ensure that the URL conforms to TCP/IP conventions. For example, parentheses, commas, blanks, semicolons, and single quotation marks are not typically allowed in a host name. The LDAP URL can be entered with or without single quotation marks, however, in both cases, it will be translated to uppercase.

RACF does not ensure that a valid LDAP URL has been specified.

BINDDN(*bind_distinguished_name*)

Specifies the distinguished name (DN) which the z/OS LDAP server will use when acting as a proxy on behalf of a requester. This DN will be used in conjunction with the BIND password, if the z/OS LDAP server needs to supply an administrator or user identity to BIND with another LDAP server. A DN is made up of attribute value pairs, separated by commas. For example:

```
cn=Ben Gray,ou=editing,o=New York Times,c=US
cn=Lucille White,ou=editing,o=New York Times,c=US
cn=Tom Brown,ou=reporting,o=New York Times,c=US
```

When you define a BIND DN to RACF, it can contain 1 - 1023 characters. The BIND DN can consist of any characters and can be entered with or without single quotation marks. The following rules apply:

- If parentheses, commas, blanks, or semicolons are to be entered as part of the BIND DN, the character string must be enclosed in single quotation marks.
- If a single quotation mark is intended to be part of the BIND DN, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered. For more information about LDAP distinguished names, see *z/OS IBM Tivoli Directory Server Administration and Use for z/OS*.

If you issue the RDEFINE command as a RACF operator command and you specify the BIND DN in lowercase, you must include the BIND DN within single quotations.

RACF does not ensure that a valid BIND DN has been specified.

BINDPW

Specifies the password which the z/OS LDAP server will use when acting as a proxy on behalf of a requester.

When you define a BIND password to RACF, it can contain 1 - 128 characters. The BIND password can consist of any characters (see exception that follows) and can be entered with or without single quotation marks. The following rules apply:

- The BIND password cannot start with a left brace { character (X'8B').
- If parentheses, commas, blanks, or semicolons are to be entered as part of the BIND password, the character string must be enclosed in single quotation marks.
- If a single quotation mark is intended to be part of the BIND password, use two single quotation marks together for each single quotation mark within the string, and enclose the entire string within single quotation marks.

Both uppercase and lowercase characters are accepted and maintained in the case in which they are entered. For more information about LDAP passwords, see *z/OS IBM Tivoli Directory Server Administration and Use for z/OS*.

If you issue the RDEFINE command as a RACF operator command and you specify the BIND password in lowercase, you must include the BIND password within single quotations.

RACF does not ensure that a valid BIND password has been specified.

Attention:

- When the command is issued from ISPF, the TSO command buffer (including possible BINDPW password data) is written to the ISPLOG data set. As a result, you should not issue this command from ISPF or you must control the ISPLOG data set carefully.
- When the command is issued as a RACF operator command, the command and the possible BINDPW password data is written to the system log. Therefore, use of RDEFINE as a RACF operator command should either be controlled or you should issue the command as a TSO command.

SECLABEL(*seclabel-name*)

Specifies the installation-defined security label for this profile.

A security label corresponds to a particular security level (such as CONFIDENTIAL) with a set of zero or more security categories (such as PAYROLL or PERSONNEL).

RACF stores the name of the security label you specify in the resource profile if you are authorized to use that SECLABEL.

If you are not authorized to the SECLABEL or if the name you had specified is not defined as a SECLABEL profile in the SECLABEL class, the resource profile is not created.

If SECLABEL is not specified, the created profile will not have a SECLABEL associated with the resource, unless the SETROPTS MLACTIVE option is turned on. In this case, the user's current logon SECLABEL will automatically be assigned to the profile.

SECLEVEL(*seclevel-name*)

Specifies the name of an installation-defined security level. The name corresponds to the number that is the minimum security level that a user must have to access the resource. The *seclevel-name* must be a member of the SECLEVEL profile in the SECDATA class.

When you specify SECLEVEL and the SECDATA class is active, RACF adds security level checking to its other authorization checking. If global access checking grants access, RACF compares the security level allowed in the user profile with the security level required in the resource profile. If the security level in the user profile is less than the security level in the resource profile, RACF denies the access. If the security level in the user profile is equal to or greater than the security level in the resource profile, RACF continues with other authorization checking. The SECLEVEL operand is required for the SECLABEL class.

Note: RACF does not perform security level checking for a started task that has the RACF privileged or trusted attribute. The RACF privileged or trusted attribute can be assigned to a started task through the RACF started procedures table or STARTED class. Also, RACF does not enforce security level information specified on profiles in the PROGRAM class.

If the SECDATA class is not active, RACF stores the name you specify in the resource profile. When the SECDATA class is activated and the name you specified is defined as a SECLEVEL profile, RACF can perform security level access checking for the resource profile. If the name you specify is not defined as a SECLEVEL profile, you are prompted to provide a valid SECLEVEL name.

SESSION

Is only valid for the APPCLU resource class. It specifies that when changing an APPCLU class profile, the following suboperands add, change, or delete SESSION segment field values. The SESSION segment is used to control the establishment of sessions between logical units under LU6.2.

CONVSEC

Specifies the level or levels of security checking performed when conversations are established with the LU protected by this profile.

Guideline: Specify a CONVSEC option for each APPCLU profile.

ALREADYV

APPC/MVS RACF does *not* verify the user ID and password for any inbound allocate requests. If you specify ALREADYV, you assume that user IDs and passwords have already been verified by the partner LU. You must specify this only if the partner LU is trustworthy.

AVPV
The user ID/password is already verified and persistent verification is requested.

CONV
APPC/MVS issues a RACROUTE REQUEST=VERIFY to verify the user ID and password for all inbound allocate requests.

NONE
All inbound allocate requests pass without RACF checking for a valid user ID. No RACROUTE REQUEST=VERIFY is issued.

PERSISTV
Specifies persistent verification.

INTERVAL(*n*)
Sets the maximum number of days the session key is valid. The *n* value can be 1 - 32767. If the key interval is longer than the installation maximum (set with SETROPTS SESSIONINTERVAL), then the profile is created.

If the key interval is not specified and there is a SETROPTS SESSIONINTERVAL value, the profile is created with that value. If there is no SETROPTS SESSIONINTERVAL value, there is no limit to the number of days the session key is valid.

LOCK
Mark the profile as locked. This prevents all session establishment from succeeding.

SESSKEY(*session-key*)
Change the key for this profile. The *session-key* value can be expressed in two ways:

- X'*y*' where *y* is a hexadecimal number of 1 - 16 digits
- *z* or '*z*' where *z* is a string of 1 - 8 characters

If the entire 16 digits or 8 characters are not used, the field is padded to the right with binary zeros.

Note: Session keys are 64-bit Data Encryption Standard (DES) keys. With DES, 8 of the 64 bits are reserved for use as parity bits, so those 8 bits are not part of the 56-bit key. In hexadecimal notation, the DES parity bits are: `X'0101 0101 0101 0101'`. Any two 64-bit keys are equivalent DES keys if their only difference is in one or more of these parity bits. For instance, the following SESSKEY values, although appearing to be quite different, are equivalent because they differ only in the last bit of each byte:

- `BDF0KM4Q`, which is `X'C2C4 C6F0 D2D4 F4D8'`
- `CEG1LN5R`, which is `X'C3C5 C7F1 D3D5 F5D9'`

SIGVER
Specifies the options for verifying the signatures of programs that are protected by this general resource profile.

Rule: Specify SIGVER only for profiles in the PROGRAM class. Any options specified with the SIGVER operand are ignored for profiles in a class other than the PROGRAM class.

Restriction: Digital signature verification is supported only for program objects that are stored as members of a partitioned data set extended (PDSE) library. Digital signature verification is *not* supported for programs that are stored as members of a partitioned data set (PDS) library.

Any options specified with the SIGVER operand are ignored for unsupported programs.

Note: Regardless of the SIGREQUIRED setting, specifying FAILLOAD(NEVER) and SIGAUDIT(NONE) is equivalent to having no SIGVER segment.

For detailed information, see Program signing and verification in *z/OS Security Server RACF Security Administrator's Guide*.

SIGREQUIRED
Specifies whether programs that are protected by this profile must be digitally signed.

YES

Specifies that programs must be digitally signed.

When you specify SIGREQUIRED(YES), the following conditions apply to any program that is protected by this general resource profile:

- If the program has a digital signature:
  - Signature verification processing occurs.
  - The program continues to load according to the FAILLOAD setting.
  - Logging occurs according to the SIGAUDIT setting.
- If the program has no digital signature:
  - Signature verification processing occurs, resulting in a signature verification failure.
  - The program continues to load according to the FAILLOAD setting.
  - Logging occurs according to the SIGAUDIT setting.

NO

Specifies that programs need not be digitally signed.

When you specify SIGREQUIRED(NO), the following conditions apply to any program that is protected by this general resource profile:

- If the program has a digital signature:
  - Signature verification processing occurs.
  - The program continues to load according to the FAILLOAD setting.
  - Logging occurs according to the SIGAUDIT options.
- If the program has no digital signature:
  - No signature verification occurs.
  - The program continues to load. The FAILLOAD setting is ignored.
  - No logging occurs. The SIGAUDIT setting is ignored.

If SIGREQUIRED is not specified, SIGREQUIRED(NO) is the default value.

FAILLOAD

Specifies the conditions under which the program fails to load in the event that a signature verification failure occurs.

ANYBAD

Specifies that the program fails to load when a signature verification failure occurs, regardless of the cause. Such failures include those resulting from an incorrect signature, or an error establishing the trust of the signer. This setting includes failures related to administrative errors, such as a missing or incorrectly defined key ring.

The ANYBAD setting includes the failures covered by the BADSIGONLY setting, and also includes errors establishing the trust of the signer.

BADSIGONLY

Specifies that the program fails to load only when the signature verification failure is caused by an incorrect digital signature. Such failures include only those resulting from a signature that fails verification or a signature structure that is missing or improperly formatted.

In contrast to ANYBAD, the BADSIGONLY setting does not cause a program to fail to load when the program has a valid signature originating from an untrusted signer.

NEVER

Specifies that the program never fails to load when a signature verification failure is detected.

If FAILLOAD is not specified, FAILLOAD(NEVER) is the default value.

SIGAUDIT

Specifies which signature verification events are logged. Messages are issued to the console only for signature verification failures that are logged.

ALL

Logs all signature verifications, whether successful or not.

SUCCESS

Logs only signature verification successes. In other words, the digital signature is valid and the root CA certificate is trusted.

ANYBAD

Logs all signature verification failures, regardless of the cause of the failure. Such failures include those resulting from an incorrect signature, or an error establishing the trust of the signer. This setting includes failures related to administrative errors, such as a missing or incorrectly defined key ring.

The ANYBAD setting logs the failures covered by the BADSIGONLY setting, and also logs errors encountered when establishing the trust of the signer.

BADSIGONLY

Logs only signature verification failures caused by an incorrect digital signature. Such failures include only those resulting from a signature that fails verification or a signature structure that is missing or improperly formatted.

In contrast to ANYBAD, the BADSIGONLY setting does not log a signature verification failure when the program has a valid signature originating from an untrusted signer.

NONE

Logs no digital signature verification events.

If SIGAUDIT is not specified, SIGAUDIT(NONE) is the default value.

SINGLEDSN

Specifies that the tape volume can contain only one data set. SINGLEDSN is valid only for a TAPEVOL profile. If the volume already contains more than one data set, RACF issues a message and ignores the operand.

SSIGNON

Defines PassTicket keys and associated configuration settings.

RACF PassTickets can be configured with two different algorithms:

- The legacy PassTicket algorithm
- The enhanced PassTicket algorithm

The legacy PassTicket algorithm is the original PassTicket implementation and uses a DES secret key. The enhanced PassTicket algorithm is an updated version of the PassTicket algorithm and uses an HMAC secret key. RACF supports generation and evaluation of PassTickets with either the legacy PassTicket algorithm or the enhanced PassTicket algorithm based on the SSIGNON segment keywords.

The KEYMASKED, KEYENCRYPTED, ENCRYPTKEY and KEYLABEL keywords control the key to be used for the generation and evaluation of legacy PassTickets. These keywords indicate the method you want to use to protect the legacy PassTicket key value within the RACF database on the host. You can mask or encrypt the key. The *key-value* represents a 64-bit (8-byte) key that must be represented as 16 hexadecimal characters. The valid characters are `0 - 9` and `A - F`.

The EPTKEYLABEL, TYPE, TIMEOUT and REPLAY keywords control the key and settings to be used for the generation and evaluation of enhanced PassTickets.

Note:

1. Before defining PassTicket keys, please read and understand the PassTicket documentation in the *z/OS Security Server RACF Security Administrator's Guide*, specifically, the topic Protecting

PassTicket keys. That documentation contains important information on setup and authorization issues, especially pertaining to the use of ICSF with encrypted keys.

2. As with RACF passwords, the database unload facility does not unload application keys or PassTicket keys. It will, however, indicate the method of protection of the key, and if the key is encrypted, the key label name.
3. The RLIST command does not list the value of the application key or the PassTicket key. Therefore, when you define the keys, you should note the value and keep it in a secure place. Note that RLIST will, however, indicate the method of protection of the key, and if the key is encrypted, the key label name.
4. The KEYMASKED, KEYENCRYPTED, ENCRYPTKEY and KEYLABEL legacy PassTicket keywords all work against the same field in the RACF database. Use of any of these RALTER keywords replaces the previous legacy PassTicket key (or its label) in the RACF database.

KEYMASKED(*legacy-passticket-key-value*)
Specifies that you want to mask the legacy PassTicket key value using the masking algorithm.

Note:

1. IBM **STRONGLY** recommends that masked PassTicket keys are not used outside of a test environment.
2. You can specify this operand only once for each application key.
3. If you mask a key, you *cannot* encrypt it. These are mutually exclusive.

KEYENCRYPTED(*legacy-passticket-key-value*)
Specifies that you want to encrypt the legacy PassTicket key value.

Note:

1. Before using the KEYENCRYPTED keyword, please read and understand the documentation describing Encrypting the PassTicket key in the *z/OS Security Server RACF Security Administrator's Guide*.
2. You can specify this operand only once for each application key.
3. If you encrypt a key, you *cannot* mask it. These are mutually exclusive.
4. ICSF must be installed and active on the system.

You can use the RLIST command to verify that the key is protected.

KEYLABEL(*legacy-passticket-label-value*)
Specifies the name of an ICSF key label to be used when generating or evaluating a legacy PassTicket.

ICSF must be installed and active, and the key must be defined in the ICSF CKDS at the time of use. However, this is not checked when the EPTKEYLABEL keyword is specified.

When using KEYLABEL, RACF does not make any calls to ICSF. The key label is saved in the RACF database, and it is up to the installation to ensure that the key is added to the CKDS before any PassTicket operations occur which need it. The key must refer to a DES key with a type of DATA and a length of 8 bytes.

Note:

The KEYLABEL operand cannot be used to override the key label generated by RACF when KEYENCRYPTED is specified.

EPTKEYLABEL(*enhanced-passticket-label-value*)
Specifies the name of an ICSF key label to be used when generating or evaluating an enhanced PassTicket.

ICSF must be installed and active, and the key must be defined in the ICSF CKDS at the time of use. However, this is not checked when the KEYLABEL keyword is specified.

When using EPTKEYLABEL, RACF does not make any calls to ICSF. The key label is saved in the RACF database, and it is up to the installation to ensure that the key is added to the ICSF CKDS before any enhanced PassTicket operations occur which need it.

The key label must refer to an ICSF HMAC key with a key algorithm of HMAC, a key type of MAC and the key usage fields must indicate GENERATE. The supported HMAC key size range is from 32 to 256 bytes. The recommended minimum key size is 64 bytes.

The RACF enhanced PassTicket support uses ICSF HMAC keys which require that the ICSF CKDS is defined in either the variable length record format or common record format (KDSR). For more information on ICSF CKDS formats, please refer to Introduction to z/OS ICSF in *z/OS Cryptographic Services ICSF System Programmer's Guide*.

The label name cannot exceed 64 characters. The first character must be an alphabetic character or a national character (#, @, or $). Subsequent characters can be a period character (.) or any alphanumeric or national character.

TYPE(*UPPER* / MIXED)

Specifies the character set to use for generating and evaluating an enhanced PassTicket.

The type must be one of the following values:

- **UPPER –** The enhanced PassTicket will be generated and evaluated with only uppercase characters `A - Z` and digits `0 - 9`.
- **MIXED –** The enhanced PassTicket will be generated and evaluated with only uppercase characters `A - Z`, lowercase characters `a - z`, digits `0 - 9` and the symbols dash (**–**) and underscore (_).

Using type MIXED is recommended as it provides a larger set of possible PassTicket values and is therefore more secure. Type UPPER may be required when an application does not yet support mixed case passwords.

The default value is MIXED.

TIMEOUT(*timeout-seconds*)

Specifies the number of seconds that the enhanced PassTicket is active.

The value of timeout-seconds can be between 1 and 600 seconds (10 minutes).

The default value is 60 seconds.

REPLAY(*YES* / NO)

Specifies whether an enhanced PassTicket is allowed to be replayed within the TIMEOUT value.

The default value is NO.

This setting only applies to enhanced PassTickets and does not apply to legacy PassTickets.

The replay protection setting in the APPLDATA field only applies to legacy PassTickets and does not apply to enhanced PassTickets.

STDATA

Used to control security for started tasks. STDATA should only be specified for profiles in the STARTED class.

USER

USER(*userid*)

Specifies the user ID to be associated with this entry.

RACF issues a warning message if the specified *userid* does not exist, or if the USER operand is not specified, but data is placed into the STDATA segment. If the error is not corrected, RACF uses the started procedures table to process START requests that would have used this STARTED profile.

USER(=MEMBER)

Specifies that the procedure name should be used as the user ID. If =MEMBER is specified for USER, a *group-name* value should be specified for the GROUP operand. If =MEMBER is specified for both USER and GROUP, a warning message is issued and problems might result when the profile is used. For information, see *z/OS Security Server RACF System Programmer's Guide*.

GROUP

GROUP(*group-name*)

Specifies the group name to be associated with this entry.

RACF issues a warning message if the specified *group-name* does not exist. If *userid* and *group-name* are specified, RACF verifies that the user is connected to the group. If GROUP is specified incorrectly, the started task runs as an undefined user.

GROUP(=MEMBER)

Specifies that the procedure name should be used as the group name. If =MEMBER is specified for GROUP, a *userid* value must be specified for the USER operand or RACF uses the started procedures table to assign an identity for this started task. If =MEMBER is specified for both USER and GROUP, a warning message is issued and problems might result when the profile is used. For information, see *z/OS Security Server RACF System Programmer's Guide*.

If GROUP is not specified the started task runs with the default group of the specified user ID.

PRIVILEGED(YES | NO)

Specifies whether the started task should run with the RACF PRIVILEGED attribute. The PRIVILEGED attribute allows the started task to pass most authorization checking. No installation exits are called, no SMF records are generated, and no statistics are updated. (Note that bypassing authorization checking includes bypassing the checks for security classification of users and data.) For more information, see Associating started procedures and jobs with user IDs in *z/OS Security Server RACF System Programmer's Guide*.

If PRIVILEGED(NO) is specified, the started tasks runs without the RACF PRIVILEGED attribute.

If PRIVILEGED is not specified PRIVILEGED(NO) is defaulted.

TRACE(YES | NO)

Specifies whether a message should be issued to the operator when this entry is used to assign an ID to the started task.

If TRACE(YES) is specified, RACF issues an informational message to the operator to record the use of this entry when it is used to assign an ID to a started task. This record can be useful in finding started tasks that do not have a specific entry defined and in diagnosing problems with the user IDs assigned for started tasks.

If TRACE(NO) is specified, RACF does not issue an informational message when this entry is used.

If TRACE is not specified, TRACE(NO) is defaulted.

TRUSTED(YES | NO)

Specifies whether the started task should run with the RACF TRUSTED attribute. The TRUSTED attribute is similar to the PRIVILEGED attribute except that auditing can be requested using the SETROPTS LOGOPTIONS command. For more information about the TRUSTED attribute, see Associating started procedures and jobs with user IDs in *z/OS Security Server RACF System Programmer's Guide*.

If TRUSTED(NO) is specified, the started tasks runs without the RACF TRUSTED attribute.

If TRUSTED is not specified, TRUSTED(NO) is defaulted.

SVFMR

Defines profiles associated with a particular SystemView for MVS application.

SCRIPTNAME(*script-name*)

Specifies the name of the list of default logon scripts associated with this application. This operand is optional. If this operand is omitted, no scripts are associated with the application.

The *script-name* is a 1 - 8 character alphanumeric name of a member of an MVS partitioned data set (PDS). RACF accepts both uppercase and lowercase characters for *script-name*, but lowercase characters are translated to uppercase.

The PDS member specified by the *script-name* contains a list of other PDS members that contain the scripts associated with this application's profile. The PDS and members, including the member that contains the list of other members, are created by the SystemView for MVS administrator.

PARMNAME(*parm-name*)

Specifies the name of the parameter list associated with this application. If this operand is omitted, no parameters are associated with the application.

The *parm-name* is a 1 - 8 character alphanumeric name of a member of an MVS partitioned data set (PDS). RACF accepts both uppercase and lowercase characters for *parm-name*, but lowercase characters are translated to uppercase.

The PDS member specified by *parm-name* contains a list of other PDS members that contain the parameters associated with this application's profile. The PDS and members, including the list of other members, are created by System View for the MVS administrator.

TIMEZONE({E | W} *hh*[.*mm*])

Specifies the time zone in which a terminal resides. TIMEZONE is valid only for resources in the TERMINAL class; RACF ignores it for all other resources.

Specify TIMEZONE only when the terminal is not in the same time zone as the processor on which RACF is running and you are also specifying WHEN to limit access to the terminal to specific time periods. In this situation, TIMEZONE provides the information RACF needs to calculate the time values correctly. If you identify more than one terminal in the *profile-name-1* operand, all the terminals must be in the same time zone.

On TIMEZONE, you specify whether the terminal is east (E) or west (W) of the system and by how many hours (*hh*) and, optionally, minutes (*mm*) that the terminal time zone is different from the processor time zone. Valid hour values are 0 - 11, and valid minute values are 00 - 59.

For example, if the processor is in New York and the terminal is in Los Angeles, specify TIMEZONE(W 3). If the processor is in Houston and the terminal is in New York, specify TIMEZONE(E 1).

If you change the local time on the processor (to accommodate daylight saving time, for instance), RACF adjusts its time calculations accordingly. However, if the processor time zone and the terminal time zone do not change in the same way, you must adjust the terminal time zones yourself, as described earlier for the WHEN(TIME) operand.

TME

Specifies that information for the Tivoli Security Management Application be added.

Note: The TME segment fields are intended to be updated only by the Tivoli Security Management Application, which manages updates, permissions, and cross references. A security administrator should only directly update Tivoli Security Management fields on an exception basis.

All TME suboperands, with the exception of those for ROLES, can be specified when changing a resource profile in the ROLE class. Conversely, only the ROLES suboperands can be specified when changing a resource profile in any other class.

CHILDREN(*profile-name ...*)

Specifies the complete list of roles that inherit attributes from this role. A role is a discrete general resource profile defined in the ROLE class.

GROUPS(*group-name ...*)

Specifies the complete list of groups that should be permitted to resources defined in this role profile.

PARENT(*profile-name*)

Specifies the name of a role from which this role inherits attributes. A role is a discrete general resource profile defined in the ROLE class.

RESOURCE(*resource-access-specification ...*)

Specifies the complete list of resources and associated access levels for groups defined in this role profile.

One or more *resource-access-specification* values can be specified, each separated by blanks. Each value should contain no imbedded blanks and should have the following format:

```
origin-role:class-name:profile-name:authority
  [:conditional-class:conditional-profile]
```

where *origin-role* is the name of the role profile from which the resource access is inherited. The *class-name* value is an existing resource class name and *profile-name* is a resource profile defined in that class. The *authority* is the access authority (NONE, EXECUTE, READ, UPDATE, CONTROL, or ALTER) with which groups in the role definition should be permitted to the resource.

The *conditional-class* is a class name (APPCPORT, CONSOLE, JESINPUT, PROGRAM, TERMINAL, or SYSID) for conditional access permission, and is followed by the *conditional-profile* value, a resource profile defined in the conditional class.

ROLES(*role-access-specification ...*)

Specifies a list of roles and associated access levels related to this profile.

One or more *role-access-specification* values can be specified, each separated by blanks. Each value should contain no imbedded blanks and should have the following format:

```
role-name:authority[:conditional-class:conditional-profile]
```

where *role-name* is a discrete general resource profile defined in the ROLE class. The *authority* is the access authority (NONE, EXECUTE, READ, UPDATE, CONTROL, or ALTER) with which groups in the role definition should be permitted to the resource.

The *conditional-class* is a class name (APPCPORT, CONSOLE, JESINPUT, PROGRAM, TERMINAL, or SYSID) for conditional access permission, and is followed by the *conditional-profile* value, a resource profile defined in the conditional class.

TVTOC

Specifies, for a TAPEVOL profile, that RACF is to create a TVTOC in the TAPEVOL profile when a user creates the first output data set on the volume. The RDEFINE command creates a nonautomatic TAPEVOL profile; RACF creates and maintains the TVTOC for data sets residing on tape.

Specifying TVTOC also affects the access list for the TAPEVOL profile:

1. When RACF processes the RDEFINE command with the TVTOC operand, it places the user ID of the command issuer (perhaps the tape librarian) in the access list with ALTER authority.
2. When the first output data set is created on the volume, RACF adds the user ID associated with the job or task to the access list with ALTER authority.

See *z/OS Security Server RACF Security Administrator's Guide* for further information.

The TVTOC operand is valid only for a discrete profile in the TAPEVOL class.

UACC(*access-authority*)

Specifies the universal access authority to be associated with this resource. The universal access authorities are ALTER, CONTROL, UPDATE, READ, EXECUTE (for controlled programs only), and NONE. If UACC is not specified, RACF uses the value in the ACEE or the class descriptor table. If UACC is specified without *access-authority*, RACF uses the value in the current connect group. For tape volumes and DASD volumes, RACF treats CONTROL authority as UPDATE authority. For all other resources listed in the class descriptor table and for applications, RACF treats CONTROL and UPDATE authority as READ authority.

If the user ID accessing the general resource has the RESTRICTED attribute, RACF treats the access authority as NONE.

WARNING

Specifies that even if access authority is insufficient, RACF is to issue a warning message and allow access to the resource. RACF also records the access attempt in the SMF record if logging is specified in the profile.

Restriction: RACF does *not* issue a warning message for a resource when the resource is:

- In the PROGRAM or NODES class
- In a class for which an application has built in-storage profiles using RACROUTE REQUEST=LIST.

When SETROPTS MLACTIVE(FAILURES) is in effect: A user or task can access a resource that is in WARNING mode and has no security label even when MLACTIVE(FAILURES) is in effect and the class requires security labels. The user or task receives a warning message and gains access.

Applications that use REQUEST=LIST: Some applications, such as IMS and CICS, load all the profiles for a given class into storage. After these profiles are in storage, the applications can do a *fast* authorization check using RACROUTE REQUEST=FASTAUTH. Fast authorization checking is different from normal authorization checking in several ways. One difference is that, in some cases, fast authorization checking does not issue warning messages, notification messages or support auditing. In cases where it does not, return and reason codes are returned to the application to allow support of these functions. The application can examine the return and reason codes and use RACROUTE REQUEST=AUTH to create the messages and audit records. If the application uses RACROUTE REQUEST=AUTH to support auditing or specifies LOG=ASIS on the RACROUTE REQUEST=FASTAUTH, the specified user is notified. Otherwise, notification, warning, and so on does not occur.

For details on using RACF with IMS, visit IMS in IBM Documentation (www.ibm.com/docs/en/ims).

For details on using RACF with CICS, visit CICS Transaction Server for z/OS (www.ibm.com/docs/en/cics-ts).

WHEN

Specifies, for a resource in the TERMINAL class, the days of the week or the hours in the day when a user can access the system from the terminal. The day-of-week and time restrictions apply only when a user logs on to the system; that is, RACF does not force the user off the system if the end-time occurs while the user is logged on.

If you omit the WHEN operand, a user can access the system from the terminal at any time. If you specify the WHEN operand, you can restrict the use of the terminal to certain days of the week or to a certain time period on each day. Or, you can restrict access to both certain days of the week and to a certain time period within each day.

DAYS(*day-info*)

Specifies days of the week when the terminal can be used. The *day-info* value can be any one of the following:

ANYDAY

RACF allows use of the terminal on any day. If you omit DAYS, ANYDAY is the default.

WEEKDAYS

RACF allows use of the terminal only on weekdays (Monday through Friday).

day ...

RACF allows use of the terminal only on the days specified, where day can be MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, or SUNDAY. You can specify the days in any order.

TIME(*time-info*)

Specifies the time period each day when the terminal can be used. The *time-info* value can be any one of the following:

ANYTIME

RACF allows use of the terminal at any time. If you omit TIME, ANYTIME is the default.

start-time*:*end-time

RACF allows use of the terminal only during the specified time period. The format of both *start-time* and *end-time* is *hhmm*, where *hh* is the hour in 24-hour notation (00 - 24) and *mm* is the minutes (00 - 59) within the range 0001 - 2400. Note that `2400` indicates 12:00 a.m. (midnight).

If *start-time* is greater than *end-time*, the interval spans midnight and extends into the following day.

Specifying *start-time* and *end-time* is straightforward when the processor on which RACF is running and the terminal are in the same time zone; you specify the time values in local time.

However, if the terminal is in a different time zone from the processor and you want to restrict access to certain time periods, you have two choices. You can specify the TIMEZONE operand to allow RACF to calculate the time and day values correctly. Otherwise, you can adjust the time values yourself, by translating the *start-time* and *end-time* for the terminal to the equivalent local time for the processor.

For example, assume that the processor is in New York and the terminal is in Los Angeles, and you want to allow access to the terminal from 8:00 A.M. to 5:00 P.M. in Los Angeles. In this situation, you would specify `TIME(1100:2000)`. If the processor is in Houston and the terminal is in New York, you would specify `TIME(0900:1800)`.

If you omit DAYS and specify TIME, the time restriction applies to all seven days of the week. If you specify both DAYS and TIME, RACF allows use of the terminal only during the specified time period and only on the specified days.

Examples

Example	Activity label	Description
1	*Operation*	User TBK20 wants to define resource GIMS600 in class GIMS which is a resource group class. He also wants to define TIMS200, TIMS111, TIMS300, and TIMS333 as members of the resource group (GIMS600).
	Known	User TBK20 has the CLAUTH attribute for the GIMS and TIMS classes. GIMS is a resource group class, and TIMS is its associated resource member class. TIMS200 and TIMS111 are members of another resource group. The user has ALTER authority to the other resource group. User TBK20 wants to issue the command as a RACF TSO command.
	Command	`RDEFINE GIMS GIMS600 ADDMEM(TIMS200 TIMS111 TIMS300 TIMS333)`
	Defaults	OWNER (TBK20) LEVEL(0) AUDIT(FAILURES(READ)) UACC(NONE)
2	*Operation*	User ADM1 wants to define a generic profile for all resources starting with a T belonging to the TIMS class, and to require that users must reenter their passwords whenever they enter any IMS transaction starting with a T.
	Known	User ADM1 has the SPECIAL attribute. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`RDEFINE TIMS T* APPL('REVERIFY')`
	Defaults	UACC(NONE) OWNER(ADM1) LEVEL(0) AUDIT(FAILURES(READ))

Example	Activity label	Description
3	*Operation*	User ADM1 wants to define AMASPZAP as a controlled program with program-accessed data set checking.
	Known	User ADM1 has the SPECIAL attribute. AMASPZAP resides in SYS1.LINKLIB on the SYSRES volume. RACF program control is active. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`RDEFINE PROGRAM AMASPZAP ADDMEM('SYS1.LINKLIB'/SYSRES/PADCHK)`
	Defaults	UACC(NONE) OWNER(ADM1) LEVEL(0) AUDIT(FAILURES(READ))
4	*Operation*	User ADM1 wants to define all load modules that start with `IKF` as controlled programs that do not require program-accessed data set checking.
	Known	User ADM1 has the SPECIAL attribute. All load modules whose names begin with `IKF` reside in SYS1.COBLIB on the SYSRES volume. User ADM1 wants to issue the command as a RACF operator command, and the RACF subsystem prefix is `@`.
	Command	`@RDEFINE PROGRAM IKF* ADDMEM('SYS1.COBLIB'/SYSRES/NOPADCHK)`
	Defaults	UACC(NONE) OWNER(ADM1) LEVEL(0) AUDIT(FAILURES(READ))
5	*Operation*	User JPQ12 wants to define a tape volume labeled DP0123 and allow it to hold a TVTOC. The tape volume is assigned a UACC of NONE.
	Known	User JPQ12 has the SPECIAL attribute. User JPQ12 wants to issue the command as a RACF TSO command.
	Command	`RDEFINE TAPEVOL DP0123 TVTOC UACC(NONE)`
	Defaults	OWNER (JPQ12) LEVEL(0) AUDIT(FAILURES(READ))
6	*Operation*	User ADM1 wants to prepare the TCICSTRN class to be used for RACGLIST processing.
	Known	User ADM1 has the SPECIAL attribute User ADM1 wants to issue the command as a RACF TSO command.
	Command	`RDEFINE RACGLIST TCICSTRN UACC(NONE)`
	Defaults	OWNER(ADM1) LEVEL(0) AUDIT(FAILURES(READ))

Example	Activity label	Description
7	*Operation*	The security administrator wants to define a profile for TSO in the PTKTDATA class. The security administrator wants to direct the command to run under the authority of user OJC11 at node NYTSO.
	Known	ELVIS1 is the user ID of the security administrator. OJC11 has the SPECIAL attribute on node NYTSO. The profile name is TSOR001. The *key-value* is e001193519561977 and is to be masked. The security administrator wants to issue the command as a RACF TSO command. The security administrator and OJC11 at NYTSO have an already established user ID association.

	Command	`RDEFINE PTKTDATA TSOR001`
		`SSIGNON(KEYMASKED(e001193519561977)) AT(NYTSO.OJC11)`

	Defaults	UACC(NONE)
8	*Operation*	The security administrator wants to create an entry in the dynamic started procedures table for the OMVS started procedure by defining a generic profile in the STARTED class.
	Known	The administrator wants to use the procedure name as the user ID. The group name is STCGRP. SETROPTS GENERIC(STARTED) has been issued to allow generic profiles to be created in this class. The security administrator wants to issue the command as a RACF TSO command.

	Command	`RDEFINE STARTED OMVS.* STDATA(USER(=MEMBER)`
		`GROUP(STCGRP))`

	Defaults	PRIVILEGED(NO) TRACE(NO) TRUSTED(NO) UACC(NONE)
9	*Operation*	User ADM1 wants to define the following: • A SystemView for the MVS application named APPL1.HOST1.USER1 • TSOR220 application data • A list of scripts named APPL1SC for the application • A list of parameters named APPL1P for the application
	Known	User ADM1 has CLAUTH authority for the SYSMVIEW class.

	Command	`RDEFINE SYSMVIEW APPL1.HOST1.USER1 APPLDATA('TSOR220')`
		`   SVFMR(SCRIPTNAME(APPL1SC) PARMNAME(APPL1P))`

	Defaults	UACC(NONE)

Example	Activity label	Description
10	*Operation*	Local realm `KRB2000.IBM.COM` is being defined with a minimum ticket lifetime of 5 minutes, a default ticket lifetime of 10 hours, a maximum ticket lifetime of 24 hours, and a password of 744275. All of the ticket lifetime values are specified in seconds.
	Known	The administrator has access to the KERBDFLT profile in the REALM class.

	Command	`RDEFINE REALM KERBDFLT KERB(KERBNAME(KRB2000.IBM.COM)`
		`   MINTKTLFE(300) DEFTKTLFE(36000)`
		`   MAXTKTLFE(86400) PASSWORD(744275))`

	Defaults	`CHECKADDRS(NO) ENCRYPT(DES DES3 DESD AES128 AES256 AES128SHA2 AES256SHA2)`
11	*Operation*	A trust relationship is being defined between the `kerb390.endicott.ibm.com` realm and the realm at `ker2000.endicott.ibm.com`.
	Known	The administrator has access to the `/.../KERB390.ENDICOTT.IBM.COM/KERBTGT/KER2000.ENDICOTT.IBM.COM` profile in the REALM class.
	Command	`RDEFINE REALM /.../KERB390.ENDICOTT.IBM.COM/KRBTGT/KER2000.ENDICOTT.IBM.COM KERB(PASSWORD(12345678))`
	Defaults	`CHECKADDRS(NO) ENCRYPT(DES DES3 DESD AES128 AES256 AES128SHA2 AES256SHA2)`
12	*Operation*	The administrator wants to create a profile (TSOIM13) in the PTKTDATA class with replay protection bypassed.
	Known	The administrator has the SPECIAL attribute.
	Command	`RDEFINE PTKTDATA TSOIM13 APPLDATA('NO REPLAY PROTECTION')`
	Defaults	None.
13	*Operation*	The administrator is defining the system wide defaults for Enterprise Identity Mapping (EIM) applications. One of the applications uses the default name given to RACF.
	Known	The EIM domain's distinguished name is `ibm-eimDomainName=Pok EIM Domain,o=IBM,c=US`. The domain resides in LDAP at `http://some.big.host/`. The bind distinguished name has authority to retrieve lookup information. The name given to the local RACF registry is RACFSYS2.

	Command	`RDEFINE FACILITY IRR.PROXY.DEFAULTS EIM(`
		`  DOMAINDN('ibm-eimDomainName=Pok EIM Domain,o=IBM,c=US')`
		`  OPTIONS(ENABLE)`
		`  LOCALREGISTRY(RACFSYS2))`

	Defaults	None.

Example	Activity label	Description
14	*Operation*	The administrator wants to define the SAFDFLT profile in the REALM class using the APPLDATA field to define the RACF realm name.
	Known	The administrator has the SPECIAL attribute. The realm name `racf.winmvs2c` is selected by the security administrator to give a name to the set of user ids and other user information held in the security manager database. If Kerberos is in use in the installation, the Kerberos realm name would be expected to be different than the SAFDFLT realm name.
	Command	`RDEFINE REALM SAFDFLT APPLDATA('racf.winmvs2c')`
	Defaults	None.
15	*Operation*	The security administrator with user ID ADMIN1 wants to add a new class to the class descriptor table (CDT) named TSTCLAS8.
	Known	The administrator has the SPECIAL attribute.

	Command	`RDEFINE CDT TSTCLAS8 UACC(NONE)`
		`    CDTINFO(DEFAULTUACC(NONE) FIRST(ALPHA) MAXLENGTH(42)`
		`    OTHER(ALPHA,NUMERIC,SPECIAL) POSIT(303) RACLIST(REQUIRED)`
		`    SECLABELSREQUIRED(YES))`

	Note	The dynamic CDT must be built or refreshed to make this change effective. Use the SETROPTS RACLIST(CDT) or the SETROPTS RACLIST(CDT) REFRESH command.

	Defaults	`AUDIT(FAILURES(READ)) OWNER(ADMIN1) LEVEL(0) CDTINFO(CASE(UPPER)`
		`DEFAULTRC(4) GENLIST(DISALLOWED) KEYQUALIFIERS(0)`
		`MACPROCESSING(NORMAL)OPERATIONS(NO) PROFILESALLOWED(YES) SIGNAL(NO))`

16	*Operation*	The security administrator Rui wants to specify that the identity cache should never store a mapping to a local z/OS user ID when it is provided by an application. The identity cache must always use EIM to find a mapping and it must always reject a store request if it cannot find a mapping.
	Known	At Rui's installation, identity mappings in EIM are not changed frequently so the default MAPPINGTIMEOUT value of 3600 seconds (one hour) is acceptable.

	Command	`RDEFINE LDAPBIND IRR.ICTX.DEFAULTS`
		`    ICTX(USEMAP(NO) DOMAP(YES) MAPREQUIRED(YES))`

	Defaults	MAPPINGTIMEOUT defaults to 3600 seconds.
17	*Operation*	Rui wants to protect a Db2z/OS table owned by ZHAOHUI by defining a general resource called DSN.ZHAOHUI.TABLE.ALTER in the MDSNTB class.
	Known	Rui's user ID ADMRUI has the SPECIAL attribute. The installation uses the Db2z/OS RACF access control module (ACM) and the ACM is configured for multiple-subsystem scope.
	Command	`RDEFINE MDSNTB DSN.ZHAOHUI.TABLE.ALTER UACC(NONE)`
	Defaults	`OWNER(ADMRUI) LEVEL(0) AUDIT(FAILURES(READ))`

Example	Activity label	Description
18	*Operation*	User SECADM wants to define a custom field to store employee home addresses in the CSDATA segment of her user profiles. The custom field will be named ADDRESS. It will be a character field and will contain a quoted string.
	Known	The user has the SPECIAL attribute. The new custom field is not effective until the system programmer rebuilds the dynamic parse table using the IRRDPI00 UPDATE command.

	Command	`RDEFINE CFIELD USER.CSDATA.ADDRESS UACC(NONE)`
		`    CFDEF(TYPE(CHAR)`
		`    MAXLENGTH(100)`
		`    FIRST(ANY)`
		`    OTHER(ANY)`
		`    HELP('EMPLOYEE''S HOME ADDRESS. SPECIFY UP TO 100 CHARACTERS.')`
		`    MIXED(YES)`
		`    LISTHEAD('HOME ADDRESS ='))`

	Defaults	AUDIT(FAILURES(READ)) OWNER(SECADM) LEVEL(0)
19	*Operation*	User SECADM wants to control the XYZLIB64 program and specify that it must be digitally signed before it can be loaded, that the program should fail to load if its digital signature cannot be verified for any reason, and that logging of signature verification events should occur for only failures. The XYZLIB64 program does not require program-accessed data set checking.
	Known	The user has the SPECIAL attribute. The XYZLIB64 program is a program object that resides in a partitioned data set extended (PDSE) library named SYS1.XYZ.LOADDLL.

	Command	`RDEFINE PROGRAM XYZLIB64 UACC(READ)`
		`    ADDMEM('SYS1.XYZ.LOADDLL'//NOPADCHK)`
		`    SIGVER(SIGREQUIRED(YES) FAILLOAD(ANYBAD) SIGAUDIT(ANYBAD))`

	Defaults	AUDIT(FAILURES(READ)) OWNER(SECADM) LEVEL(0)

RDELETE (Delete general resource profile)

Purpose

Use the RDELETE command to delete RACF resources belonging to classes specified in the class descriptor table.

This command removes the profile for the resource from the RACF database.

To have changes take effect after deleting a generic profile, if the class is not RACLISTed by either the SETROPTS RACLIST or RACROUTE REQUEST=LIST,GLOBAL=YES, one of the following steps is required:

- The security administrator issues the SETROPTS command:

  ```
  SETROPTS GENERIC(class-name) REFRESH
  ```

  See the SETROPTS command for authorization requirements.
- The user of the resource logs off and logs on again.

To have changes take effect after deleting a generic profile if the class is RACLISTed, the security administrator issues the following command:

```
SETROPTS RACLIST(class-name) REFRESH
```

For more information, refer to *z/OS Security Server RACF Security Administrator's Guide*.

Issuing options

The following table identifies the eligible options for issuing the RDELETE command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	Yes	Yes	Yes	Yes

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, "RACF operator commands," on page 21.

You must be logged on to the console to issue this command as a RACF operator command.

Related commands

- To delete a user profile, see "DELUSER (Delete user profile)" on page 185.
- To delete a group profile, see "DELGROUP (Delete group profile)" on page 182.
- To delete a data set profile, see "DELDSD (Delete data set profile)" on page 178.
- To obtain a list of general resource profiles, see "SEARCH (Search RACF database)" on page 541.

Authorization required

When issuing this command as a RACF operator command, you might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

To remove RACF protection from a resource in a class specified in the class descriptor table, you must have sufficient authority over the resource, so that one of the following conditions is met:

- You have the SPECIAL attribute.
- The resource profile is within the scope of a group in which you have the group-SPECIAL attribute.
- You are the owner of the resource.
- If the profile is in the FILE or DIRECTRY class, the second qualifier of the profile name is your user ID.
- For a discrete profile, you have ALTER authority.[13]

To specify the AT keyword, you must have READ authority to the DIRECT.*node* resource in the RRSFDATA class and a user ID association must be established between the specified *node.userid* pair(s).

To specify the ONLYAT keyword you must have the SPECIAL attribute, the *userid* specified on the ONLYAT keyword must have the SPECIAL attribute, and a user ID association must be established between the specified *node.userid* pair(s) if the user IDs are not identical.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the RDELETE command is:

```
[subsystem-prefix]{RDELETE | RDEL}

     class-name
```

[13] More information about ALTER authority and how to limit it can be found in Limiting ALTER access authority in discrete profiles in *z/OS Security Server RACF Security Administrator's Guide*.

(*profile-name* ...)
[AT([*node*].*userid* ...) | ONLYAT([*node*].*userid* ...)]
[NOGENERIC]

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

class-name

Specifies the name of the class to which the resource belongs. Valid class names are those specified in the class descriptor table. For a list of general resource classes defined in the class descriptor table supplied by IBM, see Appendix B, “Supplied RACF resource classes,” on page 647.

Restrictions:

- This operand is required and must be the first operand following RDELETE.
- This command is not intended to be used for profiles in the following classes:
  - DCEUUIDS
  - DIGTCERT
  - DIGTRING
  - IDIDMAP
  - NDSLINK
  - NOTELINK
  - TMEADMIN
  - UNIXMAP

(*profile-name ...*)

Specifies the name of the existing discrete or generic profile RACF is to delete from the specified class. RACF deletes the profile for any resource you name by deleting it from the RACF database. RACF uses the class descriptor table to determine if the class is defined to RACF, the syntax of resource names within the class, and whether the resource is a group.

This operand is required and must be the second operand following RDELETE.

If you specify more than one value for *profile-name*, you must enclose the list of names in parentheses.

Mixed-case profile names are accepted and preserved when *class-name* refers to a class defined in the static class descriptor table with CASE=ASIS or in the dynamic class descriptor table with CASE(ASIS).

If you specify the *class-name* as CACHECLS, *profile-name* can either be *cachename_ddd_nnnnn* or *cachename*.

Profiles in the CACHECLS hold the contents of a cache in profiles each containing 50K pieces of the cache. The profiles are named *cachename_001_00001*, *cachename_001_00002* and so forth, for as many profiles as are needed to hold the contents of the cache, where *cachename* was the `Cache_name` given as input on the `R_cacheserv` callable service. RDELETE command processing for these profiles should only be used to correct an error condition, and is expected to be used in response to an IRRL100xI message that was issued in response to invocation of the `R_cacheserv` SAF callable service. If for some reason, you want to delete the entire cache contents (perhaps because you do not want the contents used for authorization right after an IPL), you can delete all of the *cachename_ddd_nnnnn* profiles as well as the base profile by specifying just the *cachename* on the RDELETE.

If you specify *class-name* as a resource grouping class, you cannot specify a generic profile.

Note:

1. If the resource you specify is a tape volume serial number that is a member of a tape volume set, RACF deletes the definitions for all of the volumes in the set.
2. RACF processes each resource you specify independently. If an error occurs while it is processing a resource, RACF issues a message and continues processing with the next resource.
3. You can use RDELETE to remove the profiles for a class defined to RACGLIST. For example, `RDELETE RACGLIST TCICSTRN` would remove the TCICSTRN base profile and any RACF-created TCICSTRN_*nnnnn* profiles from the RACGLIST class. If you want to stop using RACGLIST for a particular class, issue the command RDELETE RACGLIST *class-name*. Do not delete specific RACF-created profiles unless RDELETE RACGLIST *class-name* was issued and failed to remove the profiles.

AT | ONLYAT

The AT and ONLYAT keywords are only valid when the command is issued as a RACF TSO command.

AT([*node*].*userid* ...)

Specifies that the command is to be directed to the node specified by *node*, where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed to the local node.

ONLYAT([*node*].*userid* ...)

Specifies that the command is to be directed only to the node specified by *node* where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed only to the local node.

NOGENERIC

Specifies that RACF is to delete the specified profile only if it is a discrete profile. If a generic profile exists with the same name, it is not deleted.

Examples

Example	Activity label	Dscription
1	*Operation*	User ADM2 wants to remove RACF protection from the terminals protected by the generic profile TERM*.
	Known	User ADM2 has the SPECIAL attribute. User ADM2 wants to issue the command as a RACF TSO command.
	Command	`RDELETE TERMINAL TERM*`
	Defaults	None.

Example	Activity label	Dscription
2	*Operation*	User JHT01 wants to remove RACF protection from the tape volume set VOL001.
	Known	User JHT01 has the SPECIAL attribute. User JHT01 wants to issue the command as a RACF operator command, and the RACF subsystem prefix is `@`.
	Command	`@RDELETE TAPEVOL VOL001`
	Defaults	None.
3	*Operation*	User ADM1 wants to remove the generic profile T* from the TIMS class.
	Known	User ADM1 has the SPECIAL attribute. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`RDELETE TIMS T*`
	Defaults	None.
4	*Operation*	User ADM1 wants to delete the TERMINAL profiles in the RACGLIST class from the RACF database and stop using RACGLIST processing with the TERMINAL class. User ADM1 wants to direct the command to run at the node MVSFL under the authority of user JCARTER and prohibit the command from being automatically directed to other nodes.
	Known	Users ADM1 and JCARTER at MVSFL have the SPECIAL attribute. Users ADM1 and JCARTER at MVSFL have an already established user ID association. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`RDELETE RACGLIST TERMINAL ONLYAT(MVSFL.JCARTER)`
	Results	The command is only run at node MVSFL and not automatically directed to any other nodes in the RRSF configuration.

REMOVE (Remove user from group)

Purpose

You can use the REMOVE command to remove a user from a group, and to assign a new owner to any group data set profiles the user owns on behalf of that group.

Issuing options

The following table identifies the eligible options for issuing the REMOVE command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	Yes	Yes	Yes	Yes

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, "RACF operator commands," on page 21.

You must be logged on to the console to issue this command as a RACF operator command.

Related commands

- To add a group profile, see "ADDGROUP (Add group profile)" on page 23.
- To change a group profile, see "ALTGROUP (Alter group profile)" on page 100.
- To connect a user to a group, see "CONNECT (Connect user to group)" on page 171.
- To delete a group profile, see "DELGROUP (Delete group profile)" on page 182.
- To list a group profile, see "LISTGRP (List group profile)" on page 204.
- To display information from a user profile, see "LISTUSER (List user profile)" on page 213.

Authorization required

When issuing this command as a RACF operator command, you might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

To use the REMOVE command, one of the following conditions must be true:

- You have the SPECIAL attribute.
- The group profile is within the scope of a group in which you have the group-SPECIAL attribute.
- You are the owner of the group.
- You have JOIN or CONNECT authority in the group.

To specify the AT keyword, you must have READ authority to the DIRECT.*node* resource in the RRSFDATA class and a user ID association must be established between the specified *node.userid* pair(s).

To specify the ONLYAT keyword you must have the SPECIAL attribute, the *userid* specified on the ONLYAT keyword must have the SPECIAL attribute, and a user ID association must be established between the specified *node.userid* pair(s) if the user IDs are not identical.

Note:

1. If you only have ownership of the user's profile, you do not have sufficient authority to remove the user from a group.
2. If a user is deleted from a RACF group as a result of a REMOVE command while the user is logged on, the user must logoff and logon again before that authority to access resources in classes that have been RACLISTed is revoked. In addition, started tasks have to STOP and START to revoke the authority. This might include started tasks such as JES2 or JES3.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the REMOVE command is:

[*subsystem-prefix*]{REMOVE | RE}
(***userid ...***)
[AT([*node*].*userid* ...) | ONLYAT([*node*].*userid* ...)]
[GROUP(*group-name*)]
[OWNER(*userid or group-name*)]

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

userid

Specifies the user you want to remove from the group. If you are removing more than one user from the group, you must enclose the list of user IDs in parentheses.

This value is required and must be the first operand following REMOVE.

AT | ONLYAT

The AT and ONLYAT keywords are only valid when the command is issued as a RACF TSO command.

AT ([*node*].*userid ...*)

Specifies that the command is to be directed to the node specified by *node*, where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed to the local node.

ONLYAT ([*node*].*userid ...*)

Specifies that the command is to be directed only to the node specified by *node* where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed only to the local node.

GROUP(*group-name*)

Specifies the group from which the user is to be removed. If you omit this operand, the default is your current connect group. The value specified for *group-name* cannot be the name of user's default group.

OWNER(*userid or group-name*)

Specifies a RACF-defined user or group that owns the group data set profiles now owned by the user to be removed.

If you omit this operand when group data set profiles exist that require a new owner, RACF does not remove the user from the group. (Group data set profiles are data set profiles whose names are qualified by the group name or begin with the value supplied by an installation exit.)

The new owner of the group data set profiles must have at least USE authority in the specified group. Do not specify a user who is being removed from the group as the new data set profile owner.

Examples

Example	Activity label	Description
1	*Operation*	User ELVIS wants to remove users KURT and JIMI from group PAYROLL.
	Known	User ELVIS has JOIN authority to group PAYROLL. User ELVIS is currently connected to group PAYROLL. Users KURT and JIMI are connected to group PAYROLL but do not own any group data set profiles, and group PAYROLL is not their default group. User ELVIS wants to issue the command as a RACF TSO command.
	Command	`REMOVE (KURT JIMI)`
	Defaults	GROUP(PAYROLL)
2	*Operation*	User WRH0 wants to remove user PDJ6 from group RESEARCH, assigning user DAF0 as the new owner of PDJ6's group data set profiles.
	Known	User WRH0 has CONNECT authority to group RESEARCH. User WRH0 is not logged on to group RESEARCH. User PDJ6 is connected to group RESEARCH and owns group data set profiles (The default connect group for user PDJ6 is not RESEARCH). User DAF0 is connected to group RESEARCH with USE authority. User WRH0 wants to issue the command as a RACF operator command, and the RACF subsystem prefix is `@`.
	Command	`@REMOVE PDJ6 GROUP(RESEARCH) OWNER(DAF0)`
	Defaults	None.

RESTART (Restart RACF subsystem functions)

Purpose

Use the RESTART command to restart a function in the RACF subsystem address space. The RESTART command can be used after you apply maintenance and to recover from failures.

The RESTART command ends the current subtask and starts a new one. Only one function can be restarted with a single RESTART command, but that function might involve multiple subtasks.

Note: All users or applications that update the RACF database should be completed before issuing the RESTART command.

Issuing options

The following table identifies the eligible options for issuing the RESTART command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
No	Yes	No	No	No

For information on issuing this command as a RACF operator command, see Chapter 4, “RACF operator commands,” on page 21.

Related commands

- To stop the RACF subsystem address space, see "STOP (Stop RACF subsystem)" on page 617.
- To restart the RACF subsystem address space after it has been stopped, use the MVS START command.

Authorization required

You might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in .

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the RESTART command is:

subsystem-prefixRESTART

```
{ COMMAND
      | CONNECTION [ NODE(nodename | * )
            [ SYSNAME(sysname | * ) ] ]
      | ENF
      | ENF86
      | MESSAGE
      | OUTPUT
      | RACLINK
      | RECEIVE
      | SEND
      | SIGNAL
}
```

For information on issuing this command as a RACF operator command, see "Rules for entering RACF operator commands" on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Subsystem prefix is a required keyword for RACF operator commands.

COMMAND | CONNECTION | ENF | ENF86 | MESSAGE | RACLINK | RECEIVE | SEND | SIGNAL

Specifies the restartable function. The RESTART command signals the specified function to stop and then restart.

Note: The ENF keyword restarts the ENF listening function for the RACF subsystem address space. In contrast, the ENF86 keyword re-establishes the ENF 86 listening exit for the RACF subsystem address space, if the exit was previously disabled through the STOP ENF86 command.

Specify only one function per RESTART command. If more than one function is specified, only the first is processed and the rest are ignored.

For a list of the modules associated with each restartable function, see Restarting a function in the RACF subsystem in *z/OS Security Server RACF System Programmer's Guide.*.

NODE(*nodename* | *)

Restarts the RRSF connection to the specified node only when the connection is in an operative state. When you specify a single node name, the handshaking and communication subtasks for specified node are stopped and restarted. When you specify an asterisk (*), the handshaking and communication subtasks for all nodes with operative connections are stopped and restarted.

The NODE operand applies only to the CONNECTION function. If NODE is specified with any other function, it is ignored.

If NODE is not specified with CONNECTION, all modules that are associated with the CONNECTION function are stopped and restarted.

SYSNAME(*sysname* | *)

Restarts the RRSF connection to the specified system in the specified multisystem node only when the connection is in an operative state. When you specify a single system name, the handshaking and communication subtasks for specified system are stopped and restarted. When you specify an asterisk (*), the handshaking and communication subtasks for all systems in the node with operative connections are stopped and restarted.

The SYSNAME operand is positional and must follow NODE.

Examples

Example	Activity label	Description
1	*Operation*	A maintenance PTF has been applied to module IRRSSC01 and user DNP2 wants to load a new copy to put the change in effect.
	Known	Module IRRSSC01 resides in load module IRRSSC00. The RACF subsystem prefix is `@`.
	Command	`@RESTART COMMAND`
	Defaults	None.
	Results	The command handler is shut down and restarted. A new copy of load module IRRSSC00 is loaded including the updated copy of IRRSSC01.
2	*Operation*	Restart the connection to the single-system node NODE1
	Known	NODE1 is a single-system node. If it were not a single-system node, RACF would issue an error message and not run the command.
	Command	`RESTART CONNECTION NODE (NODE1)`
	Defaults	None.
	Results	The command restarts the connection to NODE1
3	*Operation*	Restart the connections to all single-system nodes, and to all member systems of multisystem nodes
	Command	`RESTART CONNECTION NODE (*)`
	or	`RESTART CONNECTION NODE (*) SYSNAME(*)`
	Defaults	None.
	Results	The command restarts the connection to all single-system nodes and to all member systems of multisystem nodes.

Example	Activity label	Description
4	*Operation*	Restart the connections to the specific member system SYS1 on the multisystem node MULTNODE.
	Command	`RESTART CONNECTION NODE (MULTNODE) SYSNAME(SYS1)`
	Defaults	None.
	Results	The command restarts the connection to SYS1 on MULTNODE. If MULTNODE is a single-system node, RACF issues an error message.
5	*Operation*	Restart the connections to all member systems of the multisystem node MULTNODE.
	Command	`RESTART CONNECTION NODE (MULTNODE) SYSNAME(*)`
	Defaults	None.
	Results	The command restarts the connection to all member systems of MULTNODE. If MULTNODE is a single-system node, RACF issues an error message.

RLIST (List general resource profile)

Purpose

Use the RLIST command to display information on resources belonging to classes specified in the class descriptor table. Note that the DATASET, USER, and GROUP classes are not defined in the class descriptor table.

Note: The RLIST command might provide unpredictable results when searching on the DIGTCERT and DIGTRING classes. Due to the lowercase characters in these classes, the profile filter on the RLIST command might not function correctly.

RACF uses the class descriptor table to determine if a class is defined to RACF, the syntax of resource names within the class, and whether the class is a resource grouping class.

Profiles are listed in alphabetical order. Generic profiles are listed in the same order as they are searched for a resource match. (This also applies to the names in the global access table.)

RACF date handling: RACF interprets dates with 2-digit years as follows. (The *yy* value represents the 2-digit year.)

- If `70 < `*`yy`*` <= 99`, the date is interpreted as `19`*`yy`*.
- If `00 <= `*`yy`*` <= 70`, the date is interpreted as `20`*`yy`*.

Issuing options

The following table identifies the eligible options for issuing the RLIST command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	Yes	Yes	No	Yes

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, "RACF operator commands," on page 21.

You must be logged on to the console to issue this command as a RACF operator command.

Related commands

- To list a data set profile, see "LISTDSD (List data set profile)" on page 192.
- To list a user profile, see "LISTUSER (List user profile)" on page 213.
- To list a group profile, see "LISTGRP (List group profile)" on page 204.
- To obtain a list of general resource profiles, see "SEARCH (Search RACF database)" on page 541.

Details listed

This command lists the information in an existing profile for the resource or resource group.

Details that are listed for each profile:

- The resource class.
- The name of the resource.
- One of the following indicators, if applicable, displayed after the resource name:
  - `(G)` indicates a generic profile.
  - `(UNUSABLE)` indicates a discrete profile with a profile name containing generic characters that is defined in a general resource class for which SETROPTS GENERIC or GENCMD is enabled. RACF is unable to use this profile for authorization checking. **Tip:** Use the RDELETE command with the NOGENERIC option to delete this profile.
- The cross-reference class name (that is, the member class name for resource groups or the group name for non-group resources).
- If the resource named in the command (in the resource-name operand) is a resource group, RACF lists member resources.
- The level of the resource.
- The owner of the resource.
- The type of access attempts (as specified by the AUDIT operand on the RDEFINE or RALTER command) that are being logged on the SMF data set.
- The user, if any, to be notified when RACF uses this profile to deny access to the resource.
- The universal access authority for the resource.
- Your highest level of access authority to the resource.
- The installation-defined data (information specified in the DATA operand of the RALTER or RDEFINE commands).

  If your z/OS installation is configured to be a multilevel-secure environment, this information is not listed in your output. `* SUPPRESSED *` appears under the installation data field. Only those with SPECIAL are allowed to list the field.
- The APPLDATA value, if any.

  If your z/OS installation is configured to be a multilevel-secure environment, this information is not listed in your output. `* SUPPRESSED *` appears under the installation data field. Only those with SPECIAL are allowed to list the field.
- The domain distinguished name, options and local registry for the EIM segment.
- The type of access attempts (as specified by the GLOBALAUDIT operand on the RALTER command) that RACF logs.
- The status of the WARNING/NOWARNING indicator.
- For resources in the TAPEVOL class:
  - The volumes in a tape volume set,
  - Whether the TAPEVOL profile is automatic or nonautomatic,

  - Whether the volume can hold more than one data set, or
  - Whether the volume contains a TVTOC.

Additional details:

You can request the following details by using the appropriate RLIST operands:

- The security label, the security level and categories.

  For additional information, see the AUTHUSER operand.
- For member resources, RACF lists the names of all resource group members in which the entity is a member.

  For additional information, see the RESGROUP operand.
- The number of times the resource was accessed by all users for each of the following access authorities.
  - ALTER, CONTROL, UPDATE, READ

  For additional information, see the STATISTICS operand. This detail is only meaningful when your installation is gathering resource statistics and the class is not RACLISTed. For a generic profile, RACF replaces any statistics line with NOT APPLICABLE FOR GENERIC PROFILE.
- Historical data, such as:
  - Date the resource was defined to RACF,
  - Date the resource was last referenced (this detail is only meaningful when your installation is gathering resource statistics and the class is not RACLISTed; for a generic profile, RACF replaces any statistics line with NOT APPLICABLE FOR GENERIC PROFILE), or
  - Date the resource was last accessed at the update level.

  For additional information, see the HISTORY operand.
- The standard access list which displays:
  - All users and groups authorized to access the resource,
  - The level of authority for each user and group, or
  - The number of times each user has accessed the resource. (This detail is only meaningful when your installation is gathering resource statistics. This detail is not included in the output for generic profiles.)

  For additional information, see the AUTHUSER operand.
- The conditional access list which displays the same fields as the standard access list, as well as the following additional fields:
  - The class of the resource, or
  - The entity name of the resource.

  For additional information, see the AUTHUSER operand.
- For a tape volume that contains RACF-protected data sets, the following information about each RACF-protected data set on the volume:
  - The name used to create the data set,
  - The internal RACF name for the data set,
  - The volumes on which the data set resides,
  - The file sequence number for the data set,
  - The date when the data set was created, or
  - Whether the data set profile is discrete or generic.

  For additional information, see the TVTOC operand.
- The contents of segments other than the base segment.

(See the segment operands for details about the listed information.)

Authorization required

When issuing this command as a RACF operator command, you might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

You must have a sufficient level of authority for each resource or resource group listed as the result of your request so that one of the following conditions is met:

- You have the SPECIAL attribute.
- The resource profile is within the scope of a group in which you have the group-SPECIAL attribute.
- You have the OPERATIONS attribute.
- The resource profile is within the scope of a group in which you have the group-OPERATIONS attribute.
- You have the AUDITOR or ROAUDIT attribute.
- The resource profile is within the scope of a group in which you have the group-AUDITOR attribute.
- You are the owner of the resource.
- If the profile is in the FILE or DIRECTRY class, the second qualifier of the profile name is your user ID.
- To list the contents of segments other than the base segment, such as the DLFDATA segment, you must have the SPECIAL, AUDITOR, or ROAUDIT attribute, or your installation must permit you to do so through field-level access checking.
- You are on the access list for the resource and you have at least READ authority. (If your level of authority is NONE, the resource is not listed.) If you specify ALL, RACF lists only information pertinent to your user ID.
- Your current connect group (or, if list-of-groups checking is active, any group to which you are connected) is in the access list and has at least READ authority.
- The universal access authority of the resource is at least READ.
- You have at least read access for the profile name from the global access table(if this table contains an entry for the profile).

Inactive SECLABEL profiles and profiles that contain inactive security labels may not be listed if SETROPTS SECLBYSYSTEM is active because only users with SPECIAL, AUDITOR, or ROAUDIT authority are allowed to view inactive security labels.

You see the type of access attempts, as specified by the GLOBALAUDIT operand, only if you have the AUDITOR attribute, or ROAUDIT attribute, or if the resource profile is within the scope of a group in which you have the group-AUDITOR attribute.

To specify the AT keyword, you must have READ authority to the DIRECT.*node* resource in the RRSFDATA class and a user ID association must be established between the specified *node.userid* pair(s).

To specify the ONLYAT keyword you must have the SPECIAL attribute, the *userid* specified on the ONLYAT keyword must have the SPECIAL attribute, and a user ID association must be established between the specified *node.userid* pair(s) if the user IDs are not identical.

Listing resource access lists: When you are requesting to see the access list for a resource with the AUTHUSER operand, your level of authority is checked for each resource. Your level of authority must be such that one of the following conditions is met:

- You have the SPECIAL attribute.
- The resource profile is within the scope of a group in which you have the group-SPECIAL attribute.
- You have the OPERATIONS attribute.
- The resource profile is within the scope of a group in which you have the group-OPERATIONS attribute.
- You are the owner of the resource.

- You have the AUDITOR or ROAUDIT attribute.
- The resource profile is within the scope of a group in which you have the group-AUDITOR attribute.
- If the profile is in the FILE or DIRECTRY class, the second qualifier of the profile name is your user ID.
- For a discrete profile, you have ALTER authority.[14]

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the RLIST command is:

[*subsystem-prefix*]{RLIST | RL}
class-name
{(*profile-name* ...) | *}
[ALL]
[AT([*node*].*userid* ...) | ONLYAT([*node*].*userid* ...)]
[AUTHUSER]
[CDTINFO]
[CFDEF]
[CSDATA]
[DLFDATA]
[EIM]
[{GENERIC | NOGENERIC}]
[HISTORY]
[ICSF]
[ICTX]
[IDTPARMS]
[JES]
[KERB]

[14] More information about ALTER authority and how to limit it can be found in Limiting ALTER access authority in discrete profiles in *z/OS Security Server RACF Security Administrator's Guide*.

[MFA]
[MFPOLICY]
[NORACF]
[NOYOURACC]
[PROXY]
[RESGROUP]
[SESSION]
[SIGVER]
[SSIGNON]
[STATISTICS]
[STDATA]
[SVFMR]
[TME]
[TVTOC]

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

class-name

Specifies the name of the class to which the resource belongs. Valid class names are those specified in the class descriptor table. For a list of general resource classes defined in the class descriptor table supplied by IBM, see Appendix B, “Supplied RACF resource classes,” on page 647.

This operand is required and must be the first operand following RLIST.

This command is not intended to be used for profiles in the following classes:

- DCEUUIDS
- DIGTCERT
- DIGTNMAP
- DIGTRING
- IDIDMAP
- NDSLINK
- NOTELINK
- ROLE
- UNIXMAP

(profile-name ...) | *

(profile-name ...)

Specifies the name of an existing discrete or generic profile about which information is to be displayed. The RLIST command can be used to display which profile will be used for a specific resource.

The variable *profile-name* or an asterisk (*) is required and must be the second operand following RLIST.

If you specify more than one value for *profile-name*, the list of names must be enclosed in parentheses.

Mixed-case profile names are accepted and preserved when *class-name* refers to a class defined in the static class descriptor table with CASE=ASIS or in the dynamic class descriptor table with CASE(ASIS).

If the resource specified is a tape volume serial number that is a member of a tape volume set, information on all the volumes in the set are displayed.

RACF processes each resource you specify independently. If an error occurs while processing a resource, RACF issues a message and continues processing with the next resource.

*****

Specifies that you want to display information for all resources defined to the specified class for which you have the proper authority.

On a system with many profiles defined, the use of * may result in a large amount of output that may not be useful to a user issuing the command. It may be more appropriate for the user to browse the output of IRRDBU00 (database unload) or to write a program to process the IRRDBU00 output and produce a report showing only the subset of information that is of interest to the user. The processing of output of RLIST by programs is not supported nor recommended by IBM. If you want a listing of all the profiles for use by a program you should instead have the program process the output from IRRDBU00, RACROUTE REQUEST=EXTRACT, or ICHEINTY.

An asterisk (*) or *profile-name* is required and must be the second operand following RLIST.

RACF processes each resource independently and displays information only for those resources for which you have sufficient authority.

If you have the AUDITOR attribute, the ROAUDIT attribute, or if the resource profile is within the scope of a group in which you have the group-AUDITOR attribute, RACF displays GLOBALAUDIT information for all resources in the class.

ALL

Specifies that you want all information for the BASE segment of each resource displayed.

The access list is included only if you have sufficient authority to use the AUTHUSER operand. (See "Authorization required" on page 515.) The type of access attempts (as specified by the GLOBALAUDIT operand) that are being logged on the SMF data set is included only if you have the

AUDITOR attribute, the ROAUDIT attribute, or the resource profile is within the scope of a group in which you have the group-AUDITOR attribute.

AT | ONLYAT

The AT and ONLYAT keywords are only valid when the command is issued as a RACF TSO command.

AT([*node*].*userid* ...)

Specifies that the command is to be directed to the node specified by *node*, where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed to the local node.

ONLYAT([*node*].*userid* ...)

RLIST is not eligible for automatic command direction. If you specify the ONLYAT keyword, the effect is the same as if you specified the AT keyword.

AUTHUSER

Specifies that you want the following information included in the output:

- The user categories authorized to access the resource
- The security level required to access the resource
- The security label required to access the resource
- The standard access list. This includes the following:
  - All users and groups authorized to access the resource
  - The level of authority for each user and group
  - The number of times the user has accessed the resource (This detail is only meaningful when your installation is gathering resource statistics and is not included in the output for generic profiles.)
- The conditional access list. This list consists of the same fields as in the standard access list, as well as the following fields:
  - The class of the resource through which each user and group in the list can access the target resource of the command. For example, if a user can access the target resource through terminal TERM01, then TERMINAL would be the class listed.
  - The entity name of the resource through which each user and group in the list can access the target resource of the command. In the preceding example, TERM01 would be listed.

You must have sufficient authorization to use the AUTHUSER operand. (See "Authorization required" on page 515.)

CDTINFO

Specifies that CDTINFO segment information should be listed for profiles in the CDT class.

CFDEF

Specifies that CFDEF segment information should be listed for profiles in the CFIELD class. Use this operand to display the custom field names and attributes, such as data type, that your installation has defined.

Contact your security administrator to see how custom fields are used at your installation. For more information about custom fields, see *z/OS Security Server RACF Security Administrator's Guide*.

CSDATA

Specifies that you want to list custom field information for this general resource profile. The custom field information in the CSDATA segment for this general resource profile was added using the RDEFINE and RALTER commands.

If you specify CSDATA you must also specify a profile name or *.

Usage for each custom field is defined using the CFDEF operand of the RDEFINE command for resource profiles in the CFIELD class. Contact your security administrator to see how custom fields are used at your installation. For more information about custom fields, see *z/OS Security Server RACF Security Administrator's Guide*.

DLFDATA
Lists the contents of the DLFDATA segment for profiles in the DLFCLASS class.

EIM
Specifies that EIM segment information should be listed.

GENERIC | NOGENERIC

GENERIC
Specifies that you want RACF to display information for the generic profile that most closely matches a resource name. If you specify GENERIC, RACF ignores a discrete profile that protects the resource. If asterisk (*) is specified instead of the profile name, all generic profiles are listed.

NOGENERIC
Specifies that you want RACF to display information for the discrete profile that protects a resource. If asterisk (*) is specified instead of the profile name, all discrete profiles are listed.

If neither GENERIC nor NOGENERIC is specified, RACF lists information for the discrete resource name that matches the resource name you specify. If there is no matching discrete profile, RACF lists the generic profile that most closely matches the resource name. If asterisk (*) is specified instead of the profile name, all discrete and generic profiles are listed.

The following list shows examples of using the GENERIC and NOGENERIC operands:

- If you enter the following command, RACF lists all discrete and generic profiles in the DASDVOL class.

  ```
  RLIST DASDVOL *
  ```

- If you enter the following command, RACF lists information for all the generic profiles in the DASDVOL class.

  ```
  RLIST DASDVOL * GENERIC
  ```

- If you enter the following command, RACF lists all discrete profiles in the JESSPOOL class.

  ```
  RLIST JESSPOOL * NOGENERIC
  ```

- If you enter the following command, RACF displays the best-fit generic profile that protects the resource ABC.DEF. RACF ignores discrete profile ABC.DEF if it exists.

  ```
  RLIST APPCLU ABC.DEF GENERIC
  ```

Note: When searching for a generic profile that matches the specified resource, RACF does not examine members that are defined in a grouping class (through the ADDMEM operand of the RDEFINE command). For example, suppose two profiles had been defined by the following RDEFINE commands:

```
RDEFINE TCICSTRN A*
RDEFINE GCICSTRN xxx ADDMEM(AB*)
```

The command:

```
RLIST TCICSTRN ABC
```

displays profile A* in the TCICSTRN class, but it does not search the GCICSTRN class and therefore does not display any AB* profile of the GCICSTRN class. In addition, the command:

```
RLIST GCICSTRN ABC
```

does not find member AB* in the GCICSTRN class because it does not look at the members in a grouping class.

If you want to make use of RLIST to find the generic profile that protects a specific resource, and the resource is in a class that has both a grouping class and a member class, you should define the generic profile as a profile in the member class.

To illustrate the preceding RDEFINE example where ADDMEM(AB*) had been specified for a grouping class, the following command:

```
RDEFINE TCICSTRN AB*
```

allows the RLIST command to display AB* as the generic member in the TCICSTRN class.

HISTORY
Specifies that you want to list the following data:

- The date each profile was defined to RACF
- The date each profile was last referenced (this detail is only meaningful when your installation is gathering resource statistics; for a generic profile and profiles that are RACLISTed, RACF replaces any statistics line with NOT APPLICABLE FOR GENERIC PROFILE)
- The date of last RACROUTE REQUEST=AUTH for UPDATE authority (this detail is only meaningful when your installation is gathering resource statistics; for a generic profile and profiles that are RACLISTed, RACF replaces any statistics line with NOT APPLICABLE FOR GENERIC PROFILE)

ICSF
Specifies that ICSF segment information should be listed for profiles in the CSFKEYS, GCSFKEYS, XCSFKEY, or GXCSFKEY class.

ICTX
Specifies that ICTX segment information should be listed.

IDTPARMS
Specifies that the IDTPARMS segment information should be listed for profiles in the IDTDATA class.

JES
Specifies that you want to list the information contained in the JES segment of the profile

KERB
Specifies that you want to list the following z/OS Integrated Security Services Network Authentication Service information:

- The local *kerberos-realm-name* (KERBNAME)
- The encryption value settings (ENCRYPT values or NOENCRYPT)
- The *min-ticket-life* value for the local realm (MINTKTLFE)
- The *def-ticket-life* value for the local realm (DEFTKTLFE)
- The *max-ticket-life* value for the local realm (MAXTKTLFE)
- The current key version (KEY VERSION)

  Note: If KEY VERSION is not displayed, there is no z/OS Network Authentication Service key associated with this realm definition.
- Whether the Kerberos server validates addresses in tickets as part of ticket validation processing (CHECKADDRS)

MFA
Specifies that MFA segment information should be listed for profiles in the MFADEF class.

MFPOLICY
Specifies that MFPOLICY segment information should be listed for profiles in the MFADEF class.

NORACF
Specifies that you want to suppress the listing of BASE segment information. If you specify NORACF, you must include either CDTINFO, DLFDATA, EIM, KERB, PROXY, SESSION, SSIGNON, STDATA, SVFMR, TME, or a combination of operands.

If you do not specify NORACF, RACF displays the information in the base segment of a general resource profile.

The information displayed as a result of using the NORACF operand is dependent on other operands used in the command. For example, if you use NORACF with SESSION also specified, only the SESSION information is displayed.

NOYOURACC

For grouping and member classes, RLIST must do additional processing to assure that the *your access* information field is accurate. A SPECIAL user can use the NOYOURACC operand to bypass this processing, for performance reasons. The *your access* field contains n/a in this circumstance.

Note: This operand applies to SPECIAL users only. It has no effect for other users.

PROXY

Specifies that PROXY segment information should be listed. The following information will be provided:

- the URL of the LDAP server to be contacted
- the BIND distinguished name
- information regarding the BIND password

  The BINDPW password values will not be listed. If a BINDPW password value is defined for a general resource profile, RLIST will display YES for the PROXY segment BINDPW attribute. If no BINDPW password value has been defined, RLIST will display NO for the PROXY segment BINDPW attribute.

RESGROUP

Requests a list of all resource groups of which the resource specified by the *profile-name* operand is a member.

If a profile does *not* exist for the specified resource, RACF lists the names of all resource groups of which the resource is a member and to which the command user is authorized. To be authorized, the command user must meet one of the authorization requirements listed in "Authorization required" on page 515.

If a profile *does* exist for the specified resource and the command user has ALTER authority to the resource, RACF lists the names of all groups of which the resource is a member.

If a profile *does* exist for the specified resource but the command user has less than ALTER authority to the resource, RACF lists the names of all groups of which the resource is a member and to which the command user is authorized. To be authorized to the resource group, the command user must meet one of the authorization requirements listed in "Authorization required" on page 515. However, the command issuer must have the authority to list the resource specified on the command in order to list the member groups. If this requirement is met, then the user must be also authorized to the resource group. Otherwise, an error message is issued.

When *profile-name* is the name of a protected resource (such as a terminal or DASD volume) and *class-name* is a *member* class (such as TERMINAL or DASDVOL), the RESGROUP operand lists the profiles that protect the resource (for example, profiles in the GTERMINL or GDASDVOL class).

If you define a profile and use generic characters such as (*) to add members to the profile, RLIST RESGROUP will not return any of the matching profiles in its output because it does not support generic matches. For example, you have:

```
RDEF GIMS GIMSGRP ADDMEM(ABC*)
```

and you are looking for a specific member, so you enter:

```
RLIST TIMS ABCD RESGROUP
```

The GIMS profile GIMSGRP will not appear in the output.

Note: When considering this example, if you are unable to define the profile ABCD, it might be due to a generic definition somewhere in GIMS.

This operand applies only to member classes for which resource group profiles exist.

SESSION

Specifies that the contents of the SESSION segment are to be listed for profiles in the APPCLU class.

SIGVER

Specifies that the contents of the SIGVER segment are to be listed for profiles in the PROGRAM class.

SSIGNON

Specifies that you want to display the secured signon information.

Note: Each line of the RLIST SSIGNON segment output is prefixed to indicate that it is legacy PassTicket information or enhanced PassTicket information. RLIST will display the default values for the TIMEOUT and REPLAY keywords even when no enhanced PassTicket key is configured.

Note: The PassTicket key value cannot be displayed. However, information is displayed that describes whether the key value is masked or encrypted, and if encrypted, the ICSF key label name.

When the SSIGNON segment contains a PassTicket key, RLIST displays:

```
SSIGNON INFORMATION
-------------------
```

When a legacy PassTicket masked key exists, the following will be displayed:

```
Legacy PassTicket: KEYMASKED DATA NOT DISPLAYABLE
```

When a legacy PassTicket key token exists, the following will be displayed:

```
Legacy PassTicket: KEYTOKEN DATA NOT DISPLAYABLE
```

When a legacy PassTicket key label exists, the following (for example) will be displayed:

```
Legacy PassTicket: KEYENCRYPTED LABEL: IRR.SSIGNON.SY1.07192018.185056.915782
```

When an enhanced PassTicket key label exists, the following (for example) will be displayed:

```
Enhanced PassTicket: Key Label = EPTKEY.APPL01
```

STATISTICS

Specifies that you want to list the statistics for each resource. The list contains the number of times the resource was accessed by users with READ, UPDATE, CONTROL, and ALTER authorities. A separate total is given for each authority level.

Note: This detail is only meaningful when your installation is gathering resource statistics. For a generic profile, RACF replaces any statistics line with NOT APPLICABLE FOR GENERIC PROFILE.

STDATA

Specifies that you want to list the contents of the STDATA segment for profiles in the STARTED class.

SVFMR

Lists the contents of the SVFMR segment for profiles in the SYSMVIEW class.

TME

Specifies that information in the Tivoli Security Management Application is to be listed.

TVTOC

Specifies that you want to see information about the data sets defined in the TVTOC of a TAPEVOL profile. The output displays:

- The name used to create the data set
- The internal RACF name for the data set
- The volumes on which the data set resides

- The file sequence number for the data set
- The date when the data set was created
- Whether the data set profile is discrete or generic.

Examples

Example	Activity label	Description
1	*Operation*	User RV2 wants to list all information about the tape volume VOL001.
	Known	User RV2 is the owner of tape volume VOL001. User RV2 has the AUDITOR attribute. User RV2 wants to issue the command as a RACF TSO command.
	Command	`RLIST TAPEVOL VOL001 ALL`
	Defaults	None.
	Output	See Figure 60 on page 528.
2	*Operation*	User ADM1 wants to list information about the generic profile T* in the TIMS class.
	Known	User ADM1 has the SPECIAL and AUDITOR attributes. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`RLIST TIMS T*`
	Defaults	None.
	Output	See Figure 61 on page 529.
3	*Operation*	User IBMUSER wants to list information about the profile TERM1 in the TERMINAL class. TERM1 is a member of four GTERMINL class profiles: GTERM1, GTERM2, GTERM3, and GTERM4. TERM1 has a UACC of NONE.
	Known	User IBMUSER has the SPECIAL and AUDITOR attributes. User IBMUSER wants to issue the command as a RACF TSO command.
	Command	`RLIST TERMINAL TERM1 RESGROUP`
	Defaults	None.
	Output	See Figure 62 on page 529.
4	*Operation*	The security administrator wants to display secured signon key information for profile name TSOR001 in the PTKTDATA class to be certain that the application key is masked instead of encrypted.
	Known	ELVIS1 is the user ID of the security administrator and has the SPECIAL attribute. The security administrator wants to issue the command as a RACF TSO command.
	Command	`RLIST PTKTDATA TSOR001 SSIGNON`
	Defaults	None.
	Output	See Figure 63 on page 529.

Example	Activity label	Description
5	*Operation*	The security administrator wants to display secured signon key information for profile name TSOR004 in the PTKTDATA class and to be certain that the application key is encrypted instead of masked.
	Known	NONNEL is the user ID of the security administrator and has the SPECIAL attribute. The security administrator wants to issue the command as a RACF operator command, and the RACF subsystem prefix is `@`.
	Command	`@RLIST PTKTDATA TSOR004 SSIGNON`
	Defaults	None.
	Output	See Figure 64 on page 530.
6	*Operation*	The security administrator wants to display the contents of the STDATA segments for profiles in the STARTED class with the generic profile name (VTAM®.*).
	Known	SYSUSER is the user ID of the security administrator and has the SPECIAL attribute. The security administrator wants to issue the command as a RACF TSO command.
	Command	`RLIST STARTED VTAM.* STDATA NORACF`
	Defaults	None.
	Output	See Figure 65 on page 530.
7	*Operation*	The security administrator wants to list the contents of the KERBDFLT profile in the REALM class.
	Known	The administrator has access to the KERBDFLT profile in the REALM class.
	Command	`RLIST REALM KERBDFLT KERB NORACF`
	Defaults	None.
	Output	See Figure 66 on page 530.
8	*Operation*	The administrator wants to list the contents of a profile (TSOIM13) in the PTKTDATA class. This particular PassTicket profile indicates that replay protection is to be bypassed.
	Known	The administrator has access to the PTKTDATA class.
	Command	`RLIST PTKTDATA TSOIM13`
	Defaults	None.
	Output	See Figure 67 on page 530.
9	*Operation*	The administrator wants to list the contents of a profile (IRR.PROXY.DEFAULTS) in the FACILITY class and the contents of the EIM segment. This particular PROXY profile indicates that a BINDPW has been defined.
	Known	The administrator has access to the FACILITY class.
	Command	`RLIST FACILITY IRR.PROXY.DEFAULTS EIM PROXY NORACF`
	Defaults	None.
	Output	See Figure 68 on page 531.

Example	Activity label	Description
10	*Operation*	The security administrator wants to list class descriptor table (CDT) information of the TSTCLAS8 in the CDT class.
	Known	The administrator has the SPECIAL attribute.
	Command	`RLIST CDT TSTCLAS8 NORACF CDTINFO`
	Defaults	None.
	Output	See Figure 69 on page 531.
11	*Operation*	The security administrator Rui wants to list the contents of the IRR.ICTX.DEFAULTS profile in the LDAPBIND class and the contents of the ICTX segment.
	Known	Rui has READ access to the LDAPBIND class.
	Command	`RLIST LDAPBIND IRR.ICTX.DEFAULTS ICTX NORACF`
	Defaults	None.
	Output	See Figure 70 on page 531.
12	*Operation*	Rui wants to list the access list for the DSN.ZHAOHUI.TABLE.ALTER resource in the MDSNTB class.
	Known	Rui has the SPECIAL attribute.
	Command	`RLIST MDSNTB DSN.ZHAOHUI.TABLE.ALTER AUTHUSER`
	Defaults	None.
	Output	See Figure 71 on page 532.
13	*Operation*	The security administrator uses the custom field named EMPSER for employee serial numbers. She wants to list the attributes of this custom field for user profiles.
	Known	The security administrator has the SPECIAL attribute.
	Command	`RLIST CFIELD USER.CSDATA.EMPSER CFDEF NORACF`
	Defaults	None.
	Output	See Figure 72 on page 532.
14	*Operation*	The security administrator wants to list the settings related to digital signature verification for the program called XYZLIB64.
	Known	The security administrator has the SPECIAL attribute.
	Command	`RLIST PROGRAM XYZLIB64 SIGVER NORACF`
	Defaults	None.
	Output	See Figure 73 on page 533.

Example	Activity label	Description
15	*Operation*	The security administrator wants to list ICSF segment information for all profiles in the XCSFKEY class.
	Known	The security administrator has the SPECIAL attribute.
	Command	`RLIST XCSFKEY * ICSF NORACF`
	Defaults	None.
	Output	See Figure 74 on page 533.
16	*Operation*	The security administrator wants to list MFA segment information for the factor definition profile for FACT01 in the MFADEF class. Since the format of factor-specific information is determined by IBM MFA, RACF indicates that data exists without providing details about the data.
	Known	The security administrator has the SPECIAL attribute.
	Command	`RLIST MFADEF FACTOR.FACT01 MFA`
	Defaults	None.
	Output	See Figure 75 on page 533.
17	*Operation*	The security administrator wants to list MFPOLICY segment information for the policy definition profile for RSAANDPW in the MFADEF class.
	Known	The security administrator has the SPECIAL attribute.
	Command	`RLIST MFADEF POLICY.RSAANDPW MFPOLICY`
	Defaults	None.
	Output	See Figure 76 on page 533.
18	*Operation*	The security administrator wants to display secured signon key information for profile name APPL01 in the PTKTDATA class which contains both a legacy PassTicket key label and an enhanced PassTicket key label.
	Known	The security administrator has the SPECIAL attribute.
	Command	RLIST PTKTDATA APPL01 SSIGNON
	Defaults	None.
	Output	See Figure 78 on page 534

```
RLIST TAPEVOL VOL001 ALL
CLASS   NAME
-----   ----
TAPEVOL  VOL001
LEVEL OWNER   UNIVERSAL ACCESS YOUR ACCESS  WARNING
----- -----   ---------------- -----------  -------
00    RV2     READ             ALTER        NO
INSTALLATION DATA
-----------------
NONE
APPLICATION DATA
----------------
NONE
SECLEVEL
----------------
NO SECLEVEL
CATEGORIES
----------------
NO CATEGORIES
SECLABEL
----------------
NO SECLABEL
AUDITING
--------
SUCCESS(READ),FAILURES(UPDATE)
GLOBALAUDIT
-----------
ALL(CONTROL)
AUTOMATIC  SINGLE DATA SET
---------  ---------------
 NO        NO
NOTIFY
------
NO USER TO BE NOTIFIED
CREATION DATE LAST REFERENCE DATE LAST CHANGE DATE
(DAY) (YEAR)    (DAY) (YEAR)         (DAY) (YEAR)
------------- ------------------- ----------------
 146   82        146   82             146   82
ALTER COUNT  CONTROL COUNT  UPDATE COUNT  READ COUNT
-----------  -------------  ------------  ----------
000000       000000         000005        000000
USER   ACCESS  ACCESS COUNT
----   ------  ------------
RV2    ALTER   000000
ESH25  READ    000000
ID   ACCESS  ACCESS COUNT CLASS  ENTITY NAME
--   ------  ------------ -----  -----------
NO ENTRIES IN CONDITIONAL ACCESS LIST
NO TVTOC INFORMATION AVAILABLE
```

Figure 60. Example 1: Output for the RLIST command

```
RLIST TIMS T*
CLASS   NAME
-----   ----
TIMS    T* (G)
GROUP  CLASS  NAME
-----  -----  ----
GIMS
RESOURCE GROUPS
-------- ------
NONE
LEVEL OWNER    UNIVERSAL ACCESS  YOUR ACCESS  WARNING
----- -------  ----------------  -----------  -------
00    ADM1     NONE              ALTER        NO
INSTALLATION DATA
-----------------
NONE
APPLICATION DATA
----------------
REVERIFY
AUDITING
--------
NONE
GLOBALAUDIT
-----------
SUCCESS(UPDATE),FAILURES(READ)
NOTIFY
------
NO USER TO BE NOTIFIED
```

Figure 61. Example 2: Output for the RLIST command

```
RLIST TERM1
CLASS     NAME
-----     ----
TERMINAL  TERM1
GROUP CLASS NAME
----- ----- ----
GTERMINL
RESOURCE GROUPS
-------- ------
GTERM1 GTERM2 GTERM3 GTERM4
LEVEL OWNER     UNIVERSAL ACCESS YOUR ACCESS WARNING
----- --------  ---------------- ----------- -------
00    IBMUSER   NONE             ALTER       NO
INSTALLATION DATA
-----------------
NONE
APPLICATION DATA
----------------
NONE
AUDITING
--------
FAILURES(READ)
TIMEZONE LOGON ALLOWED  (DAYS)     (TIME)
-------- ---------------------------------------------
CPU TIME ANYDAY                    ANYTIME
NOTIFY
------
NO USER TO BE NOTIFIED
```

Figure 62. Example 3: Output for the RLIST command with RESGROUP option

```
SSIGNON INFORMATION

---------------------

Legacy PassTicket: KEYMASKED DATA NOT DISPLAYABLE
Enhanced PassTicket: Timeout = 00000060
Enhanced PassTicket: Replay Allowed = NO
```

Figure 63. Example 4: Output for RLIST command with masked application key

```
    SSIGNON INFORMATION

    ---------------------

    Legacy PassTicket: KEYMASKED DATA NOT DISPLAYABLE
    Enhanced PassTicket: Timeout = 00000060
    Enhanced PassTicket: Replay Allowed = NO
```

Figure 64. Example 5: Output for RLIST command with encrypted application key

```
    STDATA INFORMATION
    ------ -----------
    USER= SYSUSER
    GROUP= SYSGROUP
    TRUSTED= YES
    PRIVILEGED= NO
    TRACE= NO
```

Figure 65. Example 6: Output for RLIST command for the STDATA segment

```
  CLASS   NAME
  -----   ----
  REALM   KERBDFLT

  KERB INFORMATION
  ----------------
  KERBNAME= KRB2000.IBM.COM
  MINTKTLFE= 0000000300
  MAXTKTLFE= 0000086400
  DEFTKTLFE= 0000036000
  KEY VERSION= 001
  KEY ENCRYPTION TYPE= DES DES3 DESD AES128 AES256 AES128SHA2 AES256SHA2
  CHECK ADDRESSES= NO
  ------------------
  CLASS   NAME
  -----   ----
  REALM   /.../KERB390.ENDICOTT.IBM.COM/KRBTGT/KER2000.ENDICOTT.IBM.COM

  ...
```

Figure 66. Example 7: Output for RLIST command for the KERB segment

```
 CLASS     NAME
 --------  ----
 PTKTDATA  TSOIM13

 LEVEL  OWNER     UNIVERSAL ACCESS  YOUR ACCESS  WARNING
 -----  -------   ----------------  -----------  -------
 00     IBMUSER   NONE              NONE         NO

 INSTALLATION DATA
 -----------------
 NONE

 APPLICATION DATA
 --------------------
 NO REPLAY PROTECTION

 AUDITING
 --------------
 FAILURES(READ)

 NOTIFY
 ----------------------
 NO USER TO BE NOTIFIED
```

Figure 67. Example 8: Output for RLIST command in the PTKTDATA class

```
RLIST FACILITY IRR.PROXY.DEFAULTS EIM NORACF
CLASS    NAME
-----    ----
FACILITY  IRR.PROXY.DEFAULTS

EIM INFORMATION
---------------
EIM OPTIONS= ENABLE
LOCALREGISTRY= SYS1SAF
KERBREGISTRY= MYCOMPANYREALM
X509REGISTRY= MYCOMPANYCERTS
```

Figure 68. Example 9: Output for RLIST command for the EIM segment

```
RLIST CDT TSTCLAS8 NORACF CDTINFO
CLASS    NAME
-----    ----
CDT      TSTCLAS8

CDTINFO INFORMATION
------- -----------
CASE = UPPER
DEFAULTRC = 004
DEFAULTUACC = NONE
FIRST = ALPHA
GENERIC= DISALLOWED
GENLIST = DISALLOWED
GROUP =
KEYQUALIFIERS = 0000000000
MACPROCESSING = NORMAL
MAXLENGTH = 042
MAXLENX = NONE
MEMBER =
OPERATIONS = YES
OTHER = ALPHA NUMERIC SPECIAL
POSIT = 0000000303
PROFILESALLOWED = YES
RACLIST = REQUIRED
SECLABELSREQUIRED = YES
SIGNAL = NO
```

Figure 69. Example 10: Output for RLIST command for the CDTINFO segment

```
RLIST LDAPBIND IRR.ICTX.DEFAULTS ICTX NORACF
CLASS       NAME
-----       ----
LDAPBIND    IRR.ICTX.DEFAULTS

ICTX INFORMATION
----------------
USEMAP = NO
DOMAP = YES
MAPREQUIRED = YES
MAPPINGTIMEOUT = 01800
```

Figure 70. Example 11: Output for RLIST of the ICTX segment

```
RLIST MDSNTB DSN.ZHAOHUI.TABLE.ALTER AUTHUSER
CLASS      NAME
-----      ----
MDSNTB     DSN.ZHAOHUI.TABLE.ALTER

LEVEL  OWNER      UNIVERSAL ACCESS  YOUR ACCESS  WARNING
-----  --------   ----------------  -----------  -------
00     ADMRUI     NONE              ALTER        NO

INSTALLATION DATA
-----------------
NONE

APPLICATION DATA
----------------
NONE

SECLEVEL
--------
NO SECLEVEL

CATEGORIES
----------
NO CATEGORIES

SECLABEL
--------
NO SECLABEL

AUDITING
--------
FAILURES(READ)

NOTIFY
------
NO USER TO BE NOTIFIED

USER      ACCESS   ACCESS COUNT
----      ------   ------------
ADMRUI    ALTER    000000

ID        ACCESS   ACCESS COUNT   CLASS      ENTITY NAME
--------  -------  ------------   --------   --------------------------------
JEAN      READ     000000         CRITERIA   SQLROLE=TELLER
```

Figure 71. Example 12: Output for RLIST of the AUTHUSER segment

```
RLIST CFIELD USER.CSDATA.EMPSER CFDEF NORACF
CLASS      NAME
-----      ----
CFIELD     USER.CSDATA.EMPSER

CFDEF INFORMATION
-----------------
TYPE = NUM
MAXLENGTH = 00000008
MAXVALUE = 0099999999
MINVALUE = 0000100000
FIRST = NUMERIC
OTHER = NUMERIC
MIXED = NO
HELP = EMPLOYEE SERIAL NUMBER, 6-8 DIGITS
LISTHEAD = EMPLOYEE SERIAL =
```

Figure 72. Example 13: Output for RLIST of the CFDEF segment

```
RLIST PROGRAM XYZLIB64 SIGVER NORACF
CLASS      NAME
-----      ----
PROGRAM    XYZLIB64

SIGVER INFORMATION
------------------
SIGREQUIRED = YES
FAILLOAD = ANYBAD
SIGAUDIT = ANYBAD
```

Figure 73. Example 14: Output for RLIST of the SIGVER segment

```
RLIST XCSFKEY * ICSF NORACF
CLASS      NAME
-----      ----
XCSFKEY    ATEST

ICSF INFORMATION
------------------
SYMEXPORTABLE = BYLIST
SYMEXPORTCERTS = DENICE/CertForDenice KEN/Cert for Ken
ASYMUSAGE = HANDSHAKE SECUREEXPORT
SYMCPACFWRAP = NO

CLASS      NAME
-----      ----
XCSFKEY    BTEST

ICSF INFORMATION
------------------
SYMEXPORTABLE = BYLIST
SYMEXPORTCERTS = *
SYMEXPORTKEYS = PKDS.LABEL1 PKDS.LABEL2
ASYMUSAGE = HANDSHAKE SECUREEXPORT
SYMCPACFWRAP = YES
SYMCPACFRET = YES
```

Figure 74. Example 15: Output for RLIST of the ICSF segment

```
RLIST MFADEF FACTOR.FACT01 MFA
CLASS      NAME
-----      ----
MFADEF    FACTOR.FACT01

MFA INFORMATION
------------------
MFADATA is defined.
```

Figure 75. Example 16: Output for MFA segment

```
RLIST MFADEF POLICY.RSAANDPW MFPOLICY
...

MFPOLICY INFORMATION
----------------------------
FACTORS = AZFSIDP1
TOKEN TIMEOUT = 00000120
REUSE = YES
```

Figure 76. Example 17: Output for MFPOLICY segment

```
RLIST IDTDATA JWT.APPL01.USER01.SAF IDTPARMS
...
IDTPARMS INFORMATION
--------------------
SIGNATURE TOKEN NAME = NETHK.TKN1
SIGNATURE SEQUENCE NUMBER = 00000003
SIGNATURE CATEGORY = T
SIGNATURE ALGORITHM = HS256
IDT TIMEOUT = 00000005
ANYAPPL = NO
PROTECTED ALLOWED = NO
```

Figure 77. Example of RLIST output for the IDTPARMS segment

```
RLIST PTKTDATA APPL01 SSIGNON
...
SSIGNON INFORMATION
--------------------
Legacy   PassTicket: KEYENCRYPTED LABEL: IRR.SSIGNON.SY1.07192018.185056.915782
Enhanced PassTicket: Key Label = EPTKEY.APPL01
Enhanced PassTicket: Type = UPPER
Enhanced PassTicket: Timeout = 00000120
Enhanced PassTicket: Replay Allowed = YES
```

Figure 78. Example of RLIST output for the SSIGNON segment

RVARY (Change status of RACF database)

Purpose

Use the RVARY command to:

- Deactivate and reactivate the RACF function.
- Switch from using a specific primary data set to using its corresponding backup data set, perhaps because of a failure related to the primary data set.
- Deactivate or reactivate primary or backup RACF data sets. (Deactivating a specific primary data set causes all RACF requests for access to that data set to fail. Deactivating a specific backup data set causes RACF to stop duplicating information on that data set.)
- Deactivate protection for any resources belonging to classes defined in the class descriptor table while RACF is inactive.
- Select the mode of operation when RACF is enabled for sysplex communication.

While RACF is deactivated, utilities can be run to diagnose and repair logical errors in the RACF database. RACF installation exits can provide special handling for requests to access RACF-protected resources (for example, by prompting the operator to allow or deny access). If the RACF data set is itself RACF-protected, RACF failsoft processing, which can include installation exit routine processing, controls access to the RACF database. When you deactivate RACF using the RVARY command, only users defined in TSO SYS1.UADS can still log on to TSO, and RACF does not validate those user IDs. When RACF is inactive, failsoft processing takes effect.

Note: Failsoft processing occurs only when all primary RACF data sets are inactive. If you have multiple RACF data sets and only one is inactive, you are likely to experience ABENDs. See *z/OS Security Server RACF System Programmer's Guide* for more information on failsoft processing and using RVARY.

RACF logs each use of the RVARY command provided that the system has been IPLed with RACF active and the use of RVARY changes the status of RACF. For example, if you issue RVARY to deactivate a RACF database that is already inactive, you do not change the status of RACF. Therefore, RACF does not log this particular use of RVARY. When RACF is enabled for sysplex communication, logging of the RVARY commands occurs only on the system from which the command originated.

When you deactivate a RACF data set (using RVARY INACTIVE) or switch to a backup RACF data set (using RVARY SWITCH), RACF automatically deallocates that data set. To reactivate a data set, use the RVARY ACTIVE command. The RVARY SWITCH does not activate an inactive data set. RACF automatically reallocates that data set. This feature allows you to restore the data set from a copy on tape or recatalog the data set on another volume without having to re-IPL your system.

If you deactivate the primary RACF data set, and uncatalog it, and replace it with an alternate data set, the alternate data set must be cataloged and have the same name as the original data set before you can activate it. When you deactivate (and deallocate) a RACF data set, you can move the data set from one direct access storage device to another.

Before recataloging a data set, you must first deactivate the data set by issuing either the RVARY INACTIVE or the RVARY SWITCH command.

Using RVARY when RACF is enabled for sysplex communication: In addition to the RVARY DATASHARE and RVARY NODATASHARE commands, which are valid *only* when RACF is enabled for sysplex communication, the following RVARY commands are propagated when RACF is enabled for sysplex communication:

- RVARY ACTIVE
- RVARY INACTIVE
- RVARY SWITCH

When issued from any member of the RACF data sharing group, these commands are propagated in a controlled, synchronized manner to each of the other members in the group.

Notes:

1. For RVARY INACTIVE(NOCLASSACT) and RVARY INACTIVE(NOTAPE) commands, only the RVARY INACTIVE portion of the command is propagated.
2. The MVS operator commands `ROUTE *ALL` and `ROUTE` *`system-group-name`* are allowed only with RVARY LIST.
3. RACF does not propagate commands if the system is operating in failsoft mode unless failsoft mode was entered because an RVARY INACTIVE command was issued.
4. RVARY INACTIVE DATASET, SWITCH, DATASHARE, and NODATASHARE require that RVARY quiesce RACF database I/O activity before proceeding. There can be no database I/O activity in progress while the status of the database is changed or the database could get corrupted. Consequently, RVARY must wait for previously scheduled database I/O to complete before proceeding. If there are problems with the DASD device the data set is on and the I/O is hung, those problems have to be cleared up before the command can complete. See the RVARY command documentation in *z/OS Security Server RACF System Programmer's Guide* for more information.

Issuing options

The following table identifies the eligible options for issuing the RVARY command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	Yes	No	No	Yes

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

Authorization required

No special authority is needed to issue the RVARY command. However, the operator (at the operator console or security console) must approve a change in RACF status or the RACF data sets - or a change in the operational mode if RACF is enabled for sysplex communication - before RACF allows the command to complete.

If the RVARY command changes RACF or database status (ACTIVE/INACTIVE), RACF issues an informational message and the operator is required to enter the password defined by RVARYPW STATUS(*status-pw*) to authorize the change. If the RVARY command switches the RACF data sets (SWITCH) or changes the RACF operating mode (DATASHARE/NODATASHARE), RACF issues an informational message and the operator is required to enter the password defined by RVARYPW SWITCH(*switch-pw*). When RVARY is issued as a RACF operator command from a console with master authority, the default password YES is also accepted for RVARY ACTIVE, RVARY NODATASHARE or RVARY SWITCH commands.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the RVARY command is:

```
[subsystem-prefix]RVARY

    [ ACTIVE
        | INACTIVE
            | INACTIVE NOCLASSACT(class-namelist | *)
            | INACTIVE(NOTAPE)
        | DATASHARE
            | NODATASHARE
        | SWITCH ],

    [ DATASET(data-set-name... | *) ]

    [ LIST | NOLIST ]
```

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, "RACF operator commands," on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

ACTIVE

Specifies that the RACF function for, and access to, the primary RACF database is to be reactivated.

If you want to reactivate a particular primary data set or if you want to activate or reactivate a backup data set, then you must specify the DATASET operand with the appropriate data set name.

When you reactivate any RACF data set it is automatically reallocated.

When RACF is enabled for sysplex communication and RVARY ACTIVE is issued from one member of a sysplex data sharing group, RACF attempts to connect every peer system that is in data sharing mode or in read-only mode to the coupling facility structures associated with each active database. If any connection attempt fails, the affected member enters read-only mode, although the data set will remain allocated and active. The system originating the command might be in either data sharing mode or in read-only mode.

INACTIVE [NOCLASSACT(*class-namelist* | *) (NOTAPE)]

INACTIVE

Specifies that the RACF function for, and access to, the RACF database is to be deactivated.

To deactivate a particular primary data set or a backup data set, specify the DATASET operand with the appropriate data set name. If the DATASET operand is not specified, the default is all primary RACF data sets.

If your installation did not specify a backup database in the data set name table, and you need to deactivate the primary database, you must use the RVARY INACTIVE command. If you have only a single data set, your system enters failsoft processing. If you have multiple data sets and only some are active, you are likely to experience ABENDs.

When you deactivate any RACF data set, it is automatically deallocated.

If RACF is enabled for sysplex communication, RACF disconnect from any coupling-facility-related structures that are in use by members of a RACF sysplex data sharing group running in data sharing mode or in read-only mode.

If the data set specified in the RVARY INACTIVE command is associated with a coupling facility structure failure, or with a connection failure and there is no other failed structure or connection, the system can be put into data sharing mode as a result of RVARY INACTIVE.

INACTIVE NOCLASSACT(*class-namelist* | *)

Specifies those classes for which RACF protection is not in effect while RACF is inactive. The variable *class-namelist* can contain any class defined in the class descriptor table, while * indicates that the operand applies to all classes defined in class descriptor table. This option takes effect immediately and is valid for the current IPL or until RVARY ACTIVE is issued. If you just want to deactivate the class(es) without deactivating the RACF database, you should use the command SETROPTS NOCLASSACT (*class-namelist* | *) because INACTIVE NOCLASSACT also deactivates the database. NOCLASSACT is not propagated when issued from a member of a sysplex data sharing group.

INACTIVE(NOTAPE)

Specifies that tape volume protection for volumes with IBM standard labels, ANSI labels, and nonstandard labels is no longer in effect while RACF is inactive. This option takes effect immediately and is valid for the current IPL or until RVARY ACTIVE is issued. If you just want to deactivate the tape volume without deactivating the RACF database, you should use the command SETROPTS NOCLASSACT(*tapevol*) because INACTIVE(NOTAPE) also deactivates the database. NOTAPE is not propagated when issued from a member of a sysplex data sharing group.

DATASHARE | NODATASHARE

DATASHARE

Specifies to begin data sharing mode. This operand applies only when RACF is enabled for sysplex communication.

If the mode was non-data sharing, RACF discontinues using the hardware RESERVE/RELEASE protocol and uses GRS to serialize access to the RACF database. Systems not already in data sharing mode attempts to connect to all RACF structures. For information on failure scenarios, see *z/OS Security Server RACF System Programmer's Guide*.

If RACF is enabled for sysplex communication, RACF propagates RVARY DATASHARE commands to the other systems in the data sharing group. Members in non-data sharing mode attempt to connect to all structures. If successful, the mode becomes data sharing. Otherwise, it becomes read-only mode.

Note: The current state of the RACF system (that is, ACTIVE or FAILSOFT) from which the command is issued has no effect on either the function or the propagation of the RVARY DATASHARE commands or vice versa, unless the system is in failsoft due to an error during IPL.

NODATASHARE

suspends data sharing mode and enables an installation to update the RACF database even if the system is experiencing coupling facility failure or unavailability. This operand applies only when RACF is enabled for sysplex communication.

When sharing data among many systems, RACF relies on the coupling facility and an alternative serialization technique to provide higher performance. In this environment, RVARY NODATASHARE might result in degraded performance, because RACF discontinues using the coupling facility cache structures and serialization associated with RACF sysplex data sharing and employs the hardware RESERVE/RELEASE protocol. It should be used only to allow critical updates to the database.

If RACF is enabled for sysplex communication, RACF propagates RVARY NODATASHARE commands to the other systems in the data sharing group. The effect of the RVARY DATASHARE command on group members depends on the member's previous database access mode. If the member's previous database access mode was data sharing mode or read-only mode, the member disconnects from all structures and enters non-data sharing mode. If the members previous database access mode was non-data sharing mode, no action is taken.

Note: The current state of the RACF system (that is, ACTIVE or FAILSOFT) from which the command is issued has no effect on either the function or the propagation of the RVARY NODATASHARE commands or vice versa, unless the system is in failsoft due to an error during IPL.

SWITCH

Specifies that all processing is to switch from the primary RACF data sets (identified by the DATASET operand) to the corresponding backup data sets. When the switch occurs, the primary data sets are deactivated and deallocated. If you specify DATASET(*) or omit DATASET, the command applies to all primary data sets. If you specify the name of a backup data set on the DATASET operand, RACF issues an error message and ignores the name. In order for the switch to take place, the corresponding backup data sets must be active.

When you issue RVARY SWITCH, RACF associates a set of buffers with the new primary database (the original backup database) and disassociates the buffers from the original primary database (the new backup database). The coupling facility structures associated with the primary and backup RACF databases are not switched, so `IRRXCF00_P`*nnn* structures always correspond to primary database and `IRRXCF00_B`*nnn* structures always correspond to backup database.

To return to the original primary database, you must first activate the backup data sets (the former primary data set) using an RVARY ACTIVE command. An RVARY SWITCH then returns the primary data sets to their original position.

If RACF is enabled for sysplex communication, RACF allocates buffers for backup data sets. The size of the buffer for the backup database is 20 percent of the primary database buffer size. When you issue RVARY SWITCH, RACF associates the larger buffer with the new primary database (the original backup database).

Note: If the data set specified in the SWITCH command is associated with a coupling facility structure failure or with a connection failure, and there is no other failed structure or connection, the system might be put into data sharing mode as a result of the RVARY SWITCH.

DATASET(*data-set-name ...* | *)

Specifies a list of one or more RACF data sets to be switched, reactivated, or deactivated, depending on the SWITCH, ACTIVE, or INACTIVE operands. If you specify DATASET(*) or omit DATASET, the command applies to all primary data sets.

DATASET can be specified with ACTIVE, INACTIVE, or SWITCH; it is not applicable with DATASHARE, NODATASHARE or LIST.

Note: As an exception to normal TSO parsing rules, RACF continues to recognize previously acceptable abbreviations (such as `D, DA, DAT, DATA, DATAS`) as aliases for `DATASET`. The shortest acceptable alias for `DATASHARE` is `DATASH`.

Do not enclose data set names in single quotation marks.

LIST | NOLIST
If you omit LIST and NOLIST, the default value is LIST.

LIST
Specifies that status information is to be listed for all RACF data sets. If you specify ACTIVE, INACTIVE, SWITCH, DATASHARE, or NODATASHARE, the status displayed is the status after the requested changes have been made if the changes were approved by the operator. If RACF is enabled for sysplex communication, the LIST output includes a line indicating the current operating mode. RVARY LIST does not require operator approval.

The volume information contains an `*NA` if the device on which the RACF data set resides has been dynamically reconfigured from the system. It contains `*DEALLOC` if the data set has been inactivated and deallocated.

If at least one RACF database volume is not shared, the SHR column is added to the volume information, and the unshared volume is marked `N`. The `N` indicates that the RACF data set resides on a device that is not shared, or it resided on a nonshared device prior to inactivation and deallocation.

NOLIST
Specifies that status information for RACF data sets is not to be listed.

Examples

Example	Activity label	Description
1	*Operation*	User wants to see if the backup data sets are activated.
	Command	`RVARY LIST`
	Output	See Figure 79 on page 540.
	Defaults	None.
2	*Operation*	Operator wants to temporarily deactivate and deallocate RACF to make repairs to a particular primary RACF data set.
	Known	The RACF subsystem prefix is #.
	Command	`#RVARY INACTIVE,DATASET(RACF.PRIM1)`
	Output	See Figure 80 on page 540.
	Defaults	LIST
3	*Operation*	Operator wants to activate the backup data set (RACF.BACK1).
	Known	The backup data set RACF.BACK1 is inactive, and the RACF subsystem prefix is #.
	Command	`#RVARY ACTIVE,DATASET(RACF.BACK1)`
	Output	See Figure 81 on page 541.
	Defaults	LIST

Example	Activity label	Description
4	*Operation*	Operator wants to switch from using the primary data set to using the backup data set.
	Known	The appropriate backup data set is active, and the RACF subsystem prefix is #.
	Command	`#RVARY SWITCH,DATASET(RACF.PRIM1)`
	Output	See Figure 82 on page 541.
	Defaults	LIST
5	*Operation*	User wants to change the operating mode to non-data sharing mode for all members of the IRRXCF00 group, in order to allow an update of the RACF data set.
	Known	RACF is enabled for sysplex communication but RACF cache structures had not been defined in the coupling facility policy at the time the systems in the group were IPLed. All members of the group are currently in read-only mode.
	Command	`RVARY NODATASHARE`
	Output	See Figure 83 on page 541.
	Defaults	LIST
6	*Operation*	User wants to change the operating mode from non-data sharing mode to data sharing mode in order to make use of coupling facility performance enhancements.
	Known	RACF is enabled for sysplex communication. The user IPLed the system in non-data sharing mode to make use of RVARY and SETROPTS propagation, and is now ready to make use of the coupling facility.
	Command	`RVARY DATASHARE`
	Output	See Figure 84 on page 541.
	Defaults	LIST

```
ICH15013I RACF DATABASE STATUS:
ACTIVE  USE   NUM  VOLUME    DATASET            SHR
------  ---   ---  ------    -------            ---
YES     PRIM   1   D94RF1    RACF.PRIM.R17.P1
YES     BACK   1   D94RF2    RACF.BACK.R17.B1   N
YES     PRIM   2   D94RF1    RACF.PRIM.R17.P2
YES     BACK   2   D94RF2    RACF.BACK.R17.B2   N
```

Figure 79. Example 1: Output for the RVARY LIST command

```
ICH15013I RACF DATABASE STATUS:
ACTIVE  USE   NUM  VOLUME    DATASET
------  ---   ---  ------    -------
 NO     PRIM   1   *DEALLOC  RACF.PRIM1
 NO     BACK   1   D94RF1    RACF.BACK1
 YES    PRIM   2   D94RF1    RACF.PRIM2
 NO     BACK   2   D94RF1    RACF.BACK2
 YES    PRIM   3   D94RF1    RACF.PRIM3
 NO     BACK   3   D94RF1    RACF.BACK3
```

Figure 80. Example 2: Output following deactivation and deallocation of RACF.PRIM1

```
ICH15013I RACF DATABASE STATUS:
ACTIVE  USE   NUM  VOLUME    DATASET
------  ---   ---  ------    -------
 NO     PRIM   1   *DEALLOC  RACF.PRIM1
 YES    BACK   1   D94RF1    RACF.BACK1
 YES    PRIM   2   D94RF1    RACF.PRIM2
 NO     BACK   2   D94RF1    RACF.BACK2
 YES    PRIM   3   D94RF1    RACF.PRIM3
 NO     BACK   3   D94RF1    RACF.BACK3
```

Figure 81. Example 3: Output following the activation of RACF.BACK1

```
ICH15013I RACF DATABASE STATUS:
ACTIVE  USE   NUM  VOLUME    DATASET
------  ---   ---  ------    -------
 NO     BACK   1   *DEALLOC  RACF.PRIM1
 YES    PRIM   2   D94RF1    RACF.PRIM2
 NO     BACK   2   D94RF1    RACF.BACK2
 YES    PRIM   3   D94RF1    RACF.PRIM3
 NO     BACK   3   D94RF1    RACF.BACK3
```

Figure 82. Example 4: Output following the RVARY SWITCH,DATASET(RACF.PRIM1) command

```
ICH15019I Initiating propagation of RVARY command to members
  of RACF data sharing group IRRXCF00
ICH15013I RACF DATABASE STATUS:
ACTIVE  USE   NUM  VOLUME    DATASET
------  ---   ---  ------    -------
 YES    PRIM   1   D94RF1    RACF.BACK1
 NO     BACK   1   *DEALLOC  RACF.PRIM1
 YES    PRIM   2   D94RF1    RACF.PRIM2
 NO     BACK   2   D94RF1    RACF.BACK2
 YES    PRIM   3   D94RF1    RACF.PRIM3
 NO     BACK   3   D94RF1    RACF.BACK3
MEMBER SYS1  IS SYSPLEX COMMUNICATIONS ENABLED &
        IN NON-DATA SHARING MODE.
ICH15020 RVARY command has finished processing.
```

Figure 83. Example 5: Output following the RVARY NODATASHARE command

```
 ICH15019I Initiating propagation of RVARY command to members
  of RACF data sharing group IRRXCF00
 ICH15013I RACF DATABASE STATUS:
 ACTIVE  USE   NUM  VOLUME    DATASET
 ------  ---   ---  ------    -------
 YES     PRIM   1   D94RF1    RACF.BACK1
 NO      BACK   1   *DEALLOC  RACF.PRIM1
 YES     PRIM   2   D94RF1    RACF.PRIM2
 NO      BACK   2   D94RF1    RACF.BACK2
 YES     PRIM   3   D94RF1    RACF.PRIM3
 NO      BACK   3   D94RF1    RACF.BACK3
 MEMBER SYS1  IS SYSPLEX COMMUNICATIONS ENABLED &
        IN DATA SHARING MODE.
 ICH15020 RVARY command has finished processing.
```

Figure 84. Example 6: Output following the RVARY DATASHARE command

SEARCH (Search RACF database)

Purpose

Use the SEARCH command to obtain a list of RACF profiles, users, and groups. You can request one or more of the following:

- Profile names that contain a specific character string.
- Profiles for resources that have not been referenced for more than a specific number of days.
- Profiles that RACF recognizes as model profiles.
- Data set and general resource profiles that contain a level equal to or greater than the level you specify.

- User and resource profiles that contain a security label that matches the security label you specify.
- User and resource profiles that contain a security level that matches the security level that you specify.
- User and resource profiles that contain an access category that matches the access category that you specify.
- User profiles that contain an OMVS UID equal to the UID you specify.
- Group profiles that contain an OMVS GID equal to the GID you specify.
- Profiles for tape volumes that contain only data sets with an expiration date that matches the criteria you specify.
- Profiles for data sets that reside on specific volumes (or VSAM data sets that are cataloged in catalogs on specific volumes).
- Profiles for tape data sets, non-VSAM DASD data sets, or VSAM data sets.

You can display the selected profile names at your terminal.

You can also format the selected profile names with specific character strings into a series of commands or messages and retain them in a CLIST data set.

One of the following indicators might be displayed after the resource name in a profile listing :

- `(G)` indicates a generic profile.
- `(UNUSABLE)` indicates a discrete profile with a profile name containing generic characters that is defined in a general resource class for which SETROPTS GENERIC or GENCMD is enabled. RACF is unable to use this profile for authorization checking. **Tip:** Use the RDELETE command with the NOGENERIC option to delete this profile.

Restriction: When searching profiles in the IDIDMAP class, you cannot use the FILTER or MASK option to limit the results of the search. This is because IDIDMAP profile names are stored in UTF-8 format and are translated to EBCDIC for use with the SEARCH command.

RACF date handling: RACF interprets dates with 2-digit years as follows. (The *yy* value represents the 2-digit year.)

- If `70 < yy <= 99`, the date is interpreted as `19yy`.
- If `00 <= yy <= 70`, the date is interpreted as `20yy`.

Issuing options

The following table identifies the eligible options for issuing the SEARCH command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	Yes	Yes. (See rule.)	No	Yes

Rule: The SEARCH command is not eligible for command direction when the CLIST keyword is specified.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

You must be logged on to the console to issue this command as a RACF operator command.

Related commands

- To obtain information on general resource profiles, see “RLIST (List general resource profile)” on page 512.
- To display a data set profile, see “LISTDSD (List data set profile)” on page 192.

- To display a user profile, see "LISTUSER (List user profile)" on page 213.
- To display a group profile, see "LISTGRP (List group profile)" on page 204.

Authorization required

When issuing this command as a RACF operator command, you might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

You must have a sufficient level of authority for each profile selected as the result of your request, such that one of the following conditions is met:

- You have the SPECIAL attribute,
- You have the AUDITOR or ROAUDIT attribute,
- The profile is within the scope of a group in which you have either the group-SPECIAL or group-AUDITOR attribute, or

If none of the preceding is true, one of the following must be true:

- If the profile is for a data set, the high-level qualifier of the data set name (or the qualifier supplied by a command installation exit) is your user ID.
- If the profile is in the FILE or DIRECTRY class, the second qualifier of the profile name is your user ID.
- You are on the access list for the profile and you have at least READ authority.
- Your current connect group (or, if list-of-groups checking is active, any group to which you are connected) is on the access list and has at least READ authority.
- You have the OPERATIONS attribute, or the profile is within the scope of a group in which you have the group-OPERATIONS attribute, and the class is DATASET or a general resource class that specifies OPER=YES in the static class descriptor table or OPERATIONS(YES) in the dynamic class descriptor table.
- The universal access authority is at least READ (or GLOBAL when listing discrete profiles).

Note: If the SECLABEL class is active, your current security label must dominate the security label of the general resource profile or data set profile (unless the high-level qualifier of the data set profile matches your user ID).

In order to use the USER operand, one of the following must be true:

- You have the SPECIAL, AUDITOR or ROAUDIT attribute.
- You are the owner of the specified user profile.
- You enter your own user ID on the USER operand.
- You have the group-SPECIAL or group-AUDITOR attribute in a group that owns the user profile.

In addition to one of the other four conditions, RACF also checks your security level and categories against those in the specified user profile.

To specify the AT keyword, you must have READ authority to the DIRECT.*node* resource in the RRSFDATA class and a user ID association must be established between the specified *node.userid* pair(s).

To specify the ONLYAT keyword you must have the SPECIAL attribute, the *userid* specified on the ONLYAT keyword must have the SPECIAL attribute, and a user ID association must be established between the specified *node.userid* pair(s) if the user IDs are not identical.

Note that it is the authority of the user ID specified on the USER operand that is used to determine if SEARCH displays the profile name.

No authorization is required to the user or group profiles that are listed when the UID or GID keyword is specified.

Inactive SECLABEL profiles and profiles that contain inactive security labels may not be listed if SETROPTS SECLBYSYSTEM is active because only users with SPECIAL, AUDITOR or ROAUDIT authority are allowed to view inactive security labels.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the SEARCH command is:

[_subsystem-prefix_]{SEARCH | SR}
[AGE(_number-of-days_)]
[{ALL | GENERIC | NOGENERIC | MODEL | TAPE | VSAM | NONVSAM}]
[AT([_node_]._userid ..._) | ONLYAT([_node_]._userid ..._)]
[{CATEGORY[(_category-name_)] | EXPIRES(_number-of-days_) | LEVEL(_level-number_) | SECLABEL[(_seclabel-name_)] | SECLEVEL[(_seclevel-name_)] | WARNING}]
[CLASS({DATASET | _class-name_})]
[CLIST [('_string-1_ ' [' _string-2_'])]]
[FILTER(_filter-string_)]
[GID (_group-identifier_)]
[{LIST | NOLIST}]
[{MASK({_char-1_ | *} [_char-2_]) | NOMASK}]
[UID (_user-identifier_)]
[USER (_userid_)]
[VOLUME]
[VOLUME(_volume-serial_)]

For information on issuing this command as a RACF TSO command, refer to Chapter 3, "RACF TSO commands," on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, "RACF operator commands," on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

AGE(*number-of-days*)

Specifies the aging factor to be used as part of the search criteria.

Note: This operand works only for discrete profiles and requires that STATISTICS is enabled system-wide.

Only resources that have not been referenced within the specified number of days are selected, unless you specify CLASS(GROUP). In this case, the SEARCH command uses the date on which the group was defined to determine the age.

You can specify up to five digits for *number-of-days*.

ALL | GENERIC | NOGENERIC | MODEL | TAPE | VSAM | NONVSAM

ALL

Specifies that RACF is to select all data set profiles (tape, VSAM, and non-VSAM DASD) including both generic and discrete profiles. RACF ignores this operand for classes other than DATASET. ALL is the default if you omit VSAM, NONVSAM, TAPE, GENERIC, NOGENERIC, MODEL, and ALL.

GENERIC

Specifies that only generic profiles are to be selected. If neither GENERIC nor NOGENERIC is specified, both profile types are selected. RACF ignores this operand unless generic profile command processing is enabled.

RACF ignores this operand unless generic profile command processing is enabled.

NOGENERIC

Specifies that no generic profiles (that is, only discrete profiles) are to be selected. If neither GENERIC nor NOGENERIC is specified, both profile types are selected.

RACF ignores this operand unless generic profile command processing is enabled.

MODEL

Specifies that only data set profiles having the MODEL attribute are to be selected. RACF ignores this operand for classes other than DATASET.

TAPE

Specifies that only tape data sets are to be selected. RACF ignores this operand for classes other than DATASET.

VSAM

Specifies that only VSAM data sets are to be selected. RACF ignores this operand for classes other than DATASET.

NONVSAM

Specifies that only non-VSAM data sets are to be selected. RACF ignores this operand for classes other than DATASET.

AT | ONLYAT

The AT and ONLYAT keywords are only valid when the command is issued as a RACF TSO command.

AT ([*node*].*userid* ...)

Specifies that the command is to be directed to the node specified by *node*, where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed to the local node.

Note: The SEARCH command is not eligible for command direction when the CLIST keyword is specified. Do not specify the AT and CLIST keywords together on a SEARCH command.

ONLYAT([*node*].*userid* ...)
SEARCH is not eligible for automatic command direction. If you specify the ONLYAT keyword, the effect is the same as if you specified the AT keyword.

CATEGORY | EXPIRES | LEVEL | SECLEVEL | SECLABEL | WARNING

CATEGORY[(*category-name*)]
Specifies that RACF is to select only profiles with an access category matching the category name that you specify, where *category-name* is an installation-defined name that is a member of the CATEGORY profile in the SECDATA class. If you specify CATEGORY and omit *category-name*, RACF selects only profiles that contain undefined access category names (names that were once known to RACF but that are no longer valid).

RACF ignores this operand when CLASS(GROUP) is specified.

EXPIRES(*number-of-days*)
Specifies that RACF is to select only tape volumes on which all of the data sets either have expired or will expire within the number of days that you specify. The variable *number-of-days* is a number of 1 - 5 digits in length in the range of 0 - 65533. For data sets that never expire, use 99999. RACF ignores this operand for classes other than TAPEVOL.

LEVEL(*level-number*)
Specifies that RACF is to select only profiles with an installation-defined level that equals the level number you specify. You can specify a value for *level* of 0 - 99.

RACF ignores this operand for classes other than DATASET or classes defined in the RACF class descriptor table.

SECLABEL[(*seclabel-name*)]
Specifies that RACF is to select only profiles with a security label name that matches the value you specify for *seclabel*.

SECLEVEL[(*seclevel-name*)]
Specifies that RACF is to select only profiles with a security level name that matches *seclevel-name*, where *seclevel-name* is an installation-defined name that is a member of the SECLEVEL profile in the SECDATA class. If you specify SECLEVEL and omit *seclevel-name,* RACF selects only profiles that contain undefined security level names (names that were once known to RACF but that are no longer valid).

RACF ignores this operand when you specify CLASS(GROUP).

WARNING
Specifies that only resources with the WARNING indicator are to be selected.

RACF ignores this operand when you specify CLASS as USER or GROUP.

CLASS(DATASET | *class-name*)
Specifies the name of the class of profiles to be searched. The valid resource classes are DATASET, USER, GROUP, and those specified in the class descriptor table. For a list of general resource classes defined in the class descriptor table supplied by IBM, see Appendix B, "Supplied RACF resource classes," on page 647.

If you omit this operand, the default value is DATASET.

To search all RACF-defined user profiles, you must have either the SPECIAL, AUDITOR, or ROAUDIT, attribute.

SEARCH CLASS(USER) can be issued to obtain information about the `irrcerta` and `irrsitec` user IDs, which are the user IDs used by RACF to anchor digital certificates.

When searching with the CLASS(GROUP) option, groups are listed based upon the connect authority of the user, *not* READ or higher access to the profile. If CLASS(TAPEVOL) is specified, RACF processes all volumes that meet the search criteria independently, even if the volumes belong to a tape volume set.

CLIST[('*string-1* '[' *string-2*'])]

Specifies that the selected profile names are to be retained in a CLIST data set. One record is put into the data set for each selected profile name.

Profile names containing ampersands (&) appear in the CLIST data set with each occurrence of an ampersand (&) doubled (&&). When the CLIST is executed, double ampersands (&&) prevent the CLIST from performing symbolic substitution when encountering a variable. The CLIST removes only the first ampersand, leaving the second ampersand intact.

'*string-1* '[' *string-2*']

Specifies strings of alphanumeric characters that are put into the CLIST records along with the selected profile names. Each string must be enclosed in single quotation marks. In this way, you can build a set of commands that are similar except for the profile name.

Mixed-case strings are always accepted and preserved for the CLIST operand. If *string-1* is specified, the resulting output CLIST will contain a CONTROL ASIS statement.

The format of the text portion of the CLIST record is as follows:

```
string-1'data-set name'string-2 or
string-1volume-serial-numberstring-2 or
string-1terminal-namestring-2
```

Guideline: No blank is inserted after *string-1* or before *string-2*. To ensure that the commands execute correctly, use a blank character as the last character in *string-1* and the first character in *string-2*. For example, specify:

```
CLIST('DELDSD '' SET')
```

rather than:

```
CLIST('DELDSD''SET')
```

An 8-position sequence number is placed on the front of the text.

If both strings are missing, the CLIST record contains only the profile name. If you want a string of data to appear only after the resource name, specify *string-1* as a double-quotation mark (").

The DASD data set name for the CLIST data set is generated in the format:

```
'prefix.EXEC.RACF.CLIST'
```

where *prefix* is the default data set name prefix in your TSO profile. If you do not have a prefix specified in your TSO profile, (PROFILE NOPREFIX), the user ID from the SEARCH command issuer's ACEE is used as the qualifying prefix.

If this data set is partitioned rather than sequential, the CLIST records are placed in member TEMPNAME of the data set. In either case, you can execute the CLIST after SEARCH has finished by issuing the TSO/E command:

```
EXEC 'prefix.EXEC.RACF.CLIST'
```

If a CLIST data set is found through the catalog and is a sequential data set, the records it contains are replaced with the new records. If the CLIST data set is a partitioned data set, however, member TEMPNAME is created to hold the new records, or is replaced if the member already exists.

If the CLIST data set does not already exist, it is created and cataloged. If the CLIST data set created is a partitioned data set, member TEMPNAME is created.

The CLIST data set must have variable length records and a maximum logical record size of 255. This includes a 4-byte length field at the front of the record. The records are numbered in sequence by 10.

Note: The SEARCH command is not eligible for command direction when the CLIST keyword is specified. Do not specify the AT and CLIST keywords together on a SEARCH command.

FILTER(*filter-string*)

(Also see the **MASK** operand.)

Specifies the string of alphanumeric characters used to search the RACF database. The filter string defines the range of profile names you want to select from the RACF database. For a tape or DASD data set name, the filter string length must not exceed 44 characters. For a general resource class, the filter string length must not exceed the length of the profile name specified in the class descriptor table.

Mixed-case strings are accepted and preserved when CLASS refers to a class defined in the static class descriptor table with CASE=ASIS or in the dynamic class descriptor table with CASE(ASIS).

When you issue the SEARCH command with the FILTER operand, RACF lists profile names from the RACF database matching the search criteria specified in the filter string. Note that RACF lists only those profile names that you are authorized to see.

The following generic characters have special meaning when used as part of the filter string:

%

You can use the percent sign to represent any *one* character in the profile name, including a generic character. For example, if you specify DASD%% as a filter string, it can represent profile names such as DASD01, DASD2A, and DASD%5. If you specify %%%%% as a filter string, it can represent profile names DASD1, DASD2, DASD%, TAPE%, MY%%%, TAPE*, and %%%%*.

*****

You can use a single asterisk to represent *zero or more characters* in a qualifier, including generic characters. For example, AB*.CD can represent data set profile names such as AB.CD, ABEF.CD, and ABX.CD. ABC.D* can represent data set profile names such as ABC.DEFG, ABC.D%%%, and ABC.D%*. If you specify a single asterisk as the only character in a qualifier, it represents the entire qualifier. For example, ABC.* represents data set profile names such as ABC.D, ABC.DEF, ABC.%%%, and ABC.%DE.

******

For *general resource* and *data set profile names*, you can use a double asterisk to represent zero or more qualifiers in the profile name. For example, AB.**.CD represents data set profile names such as AB.CD, AB.DE.EF.CD, and AB.XYZ.CD. You cannot specify other characters with ** within a qualifier. (For example, you can specify FILTER(USER1.**), but not FILTER(USER1.A**). You can also specify ** as the only characters in the filter-string to represent any entire profile name.

Tip: Use FILTER for an alternative to `MASK | NOMASK` as a method for searching the RACF database. FILTER offers more flexibility than MASK. For example, when you use FILTER, you can generalize the character string you specify to match multiple qualifiers or multiple characters within a profile name. You can also specify a character string to match a single character regardless of its value or search for a character string anywhere in a profile name.

Restrictions:

- The SEARCH command might provide unpredictable results when searching on the DIGTCERT or DIGTRING classes. Because these classes contains names with mixed-case characters, the profile filter on the SEARCH command might not function correctly.
- You cannot use a generic character (*, **, or %) in the high-level qualifier when you define a generic profile for a data set. However, you can use a generic character in the high-level qualifier of a data set name when specifying a filter-string with the FILTER operand.
- The FILTER and `MASK | NOMASK` operands are mutually exclusive; you cannot specify FILTER with either MASK or NOMASK on the same SEARCH command.
- When searching profiles in the IDIDMAP class, you cannot use FILTER to limit the results of the search. This is because IDIDMAP profile names are stored in UTF-8 format and are translated to EBCDIC for use with the SEARCH command.

GID (*group-identifier*)

Specifies that RACF is to display all group profiles which contain the specified *group-identifier* for the GID in the OMVS segment. GID is ignored unless CLASS(GROUP) is specified. When GID is specified, all other keywords (except CLASS) are ignored.

LIST | NOLIST

LIST

Specifies that the selected data set names, volume serial numbers, or terminal names are to be displayed at your terminal. LIST is the default value when you omit both LIST and NOLIST.

NOLIST

Specifies that the selected data set names, volume serial numbers, or terminal names are not to be displayed at your terminal. You can use this operand only when you specify the CLIST operand. If you use NOLIST without CLIST, the command fails.

MASK | NOMASK

MASK(*char-1* | * [*char-2*])

(Also see the **FILTER** operand.)

Specifies the strings of alphanumeric characters used to search the RACF database. This data defines the range of profile names selected. The two character strings together must not exceed 44 characters for a tape or DASD data set name, or, for general resource classes, the length specified in the class descriptor table.

char-1

Specifies the starting characters of names of profiles to be searched. The string can be any length up to the maximum allowable length of the resource name. All profiles that start with *char-1* in their resource names are selected.

If an asterisk (*) is specified for *char-1*, it specifies that profiles of the search criteria are to be selected:

- For DATASET class, your user ID is used as the mask for the profiles to be selected.
- For other classes, all profiles of the specified class are selected.

char-2

Specifies a second string of characters to be included in the search for profiles. All profiles whose names start with *char-1* and contain *char-2* anywhere beyond *char-1* are selected. This limits the list to a subset of the resource names identified with *char-1*.

If an asterisk (*) is specified instead of *char-1*, all profiles that contain *char-2* anywhere in their resource names are selected.

If you omit both the MASK and NOMASK operands, this is the same as specifying MASK(*): for the DATASET class, your user ID is used as the mask for profiles to be selected; for other classes, all profiles of the class are selected. (Note also that for classes other than DATASET, omitting both operands is the same as NOMASK.)

Mixed-case strings are accepted and preserved when CLASS refers to a class defined in the static class descriptor table with CASE=ASIS or in the dynamic class descriptor table with CASE(ASIS).

Restriction: When searching profiles in the IDIDMAP class, you cannot use MASK to limit the results of the search. This is because IDIDMAP profile names are stored in UTF-8 format and are translated to EBCDIC for use with the SEARCH command.

NOMASK

Specifies that RACF is to select all profiles (to which you are authorized) in the specified class.

Note: The MASK | NOMASK and FILTER operands are mutually exclusive. You cannot specify MASK or NOMASK with FILTER on the same SEARCH command.

UID(*user-identifier*)

Specifies that RACF is to display all user profiles which contain the specified *user-identifier* for the UID in the OMVS segment. UID is ignored unless CLASS(USER) is specified. When UID is specified, all other keywords (except CLASS) are ignored.

USER(*userid*)

Specifies that RACF is to list the profiles that the specified user has access to (READ authority or higher, or owner) for the class you specify on the CLASS operand. RACF lists only those profiles that the specified owner is allowed to see.

If you issue:

```
SEARCH USER(JONES) CLASS(ACCTNUM)
```

RACF lists all TSO account numbers that user ID JONES is allowed to use.

If you issue:

```
SEARCH USER(JONES) NOMASK
```

RACF lists profiles in the DATASET class that JONES has access to.

If you issue:

```
SEARCH USER(JONES) CLASS(GROUP)
```

RACF lists all groups that user ID JONES owns or, in which JONES has JOIN or CONNECT authority or the group-SPECIAL attribute.

Note:

1. If you omit the CLASS operand, the default class is DATASET. For more information, see the description of the CLASS operand.
2. You should not specify a user ID that has been revoked. If you need to display information about a user whose user ID is revoked, perform the following steps:
   a. Change the password for the user ID.
   b. Resume the user ID.
   c. Issue the SEARCH command to display the desired information.
   d. Revoke the user ID.
3. You can only specify one user ID at a time on the USER operand. If you need to display information about all users, first create a CLIST by issuing the following command:

   ```
   SEARCH CLASS(USER) CLIST('SEARCH USER(' ') CLASS(class-name)')
   ```

   After you create a CLIST, issue:

   ```
   EXEC 'prefix.EXEC.RACF.CLIST'
   ```

   to display the desired information. (Note that *prefix* is the default data set name prefix in your TSO profile.) For more information, see the description of the CLIST operand.

VOLUME

Specifies that you want RACF to display volume information for each tape or DASD data set that meets the search criteria specified by the MASK or FILTER operand.

RACF ignores this operand if you specify GENERIC.

For non-VSAM data sets, the volume serial number displayed is the location of the data set. For VSAM data sets, the volume serial number displayed is the location of the catalog entry for the data set. For tape data sets, the volume serial number displayed is the location of the TVTOC entry for the data set.

This operand is valid only for CLASS(DATASET). RACF ignores it for all other class values.

VOLUME(*volume-serial* ...)

Specifies the volumes to be searched; the volume serial numbers become part of the search criteria. Non-VSAM DASD data sets are selected if they reside on the specified volumes. VSAM data sets are selected if the catalog entries for the data sets reside on the specified volumes. Tape data sets are selected if the TVTOC entries for the data set reside on the specified volumes.

RACF ignores this operand if you specify GENERIC.

If the selected data set names are displayed at your terminal, the volume information is included with each data set name.

This operand is valid only for CLASS(DATASET). RACF ignores it for all other class values.

Examples

Example	Activity label	Description
1	*Operation*	User CD0 wants to list all of her RACF data set profiles.
	Known	User CD0 is RACF-defined. User CD0 wants to issue the command as a RACF TSO command.
	Command	SEARCH
	Defaults	MASK(CD0) CLASS(DATASET) LIST ALL
	Results	A list of all profiles in the DATASET class beginning with `CD0`.
2	*Operation*	User IA0 wants to remove the RACF profiles for all DATA-type data sets for the group RESEARCH that have not been referenced for 90 days. The user wants a CLIST data set to be created with DELDSD commands for each profile satisfying the search criteria. A list is not desired.
	Known	User IA0 is connected to group RESEARCH (and is the owner of all profiles in group RESEARCH) with the group-SPECIAL attribute. User IA0 wants to issue the command as a RACF TSO command.

	Command	`SEARCH FILTER(RESEARCH.DATA) AGE(90) CLIST('DELDSD ') NOLIST`
		or
		`SEARCH MASK(RESEARCH.DATA) AGE(90) CLIST('DELDSD ') NOLIST`

	Defaults	CLASS(DATASET) ALL
	Results	A CLIST data set with the name IA0.EXEC.RACF.CLIST is built, and the records in it are in the format: `DELDSD '`*`data-set-name`*`'`
3	*Operation*	User ADMIN wants to obtain a list of all data set profiles, both discrete and generic, that have the word DATA as the second-level qualifier.
	Known	User ADMIN has the SPECIAL attribute. User ADMIN wants to issue the command as a RACF operator command, and the RACF subsystem prefix is `@`.
	Command	`@SEARCH FILTER(*.DATA.**)`
	Defaults	CLASS(DATASET) LIST ALL
	Results	A list of all profiles in the DATASET class with the word DATA as the second-level qualifier. For example, the list might include data sets with names such as RESEARCH.DATA, TEST.DATA, USER.DATA.WEEK1, or GROUP.DATA.TEST.ONE.

Example	Activity label	Description
4	*Operation*	User ADM1 wants to obtain a list of all data set profiles, both discrete and generic, having a qualifier (any level) that begins with the word TEST and contains only one additional character (such as TEST1, TEST2, or TESTA).
	Known	User ADM1 has the SPECIAL attribute. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`SEARCH FILTER(**.TEST%.**)`
	Defaults	CLASS(DATASET) LIST ALL
	Results	A list of all profiles in the DATASET class having a qualifier of any level that begins with the word TEST and contains only one additional character. For example, the list might include data sets with names such as RESEARCH.TEST1, TEST2.DATA, MY.TEST4.DATA, MY.TEST%.*, USER.DATA.TEST5, USER.DATA.TEST%.**, or GROUP.DATA.TESTC.FUN.
5	*Operation*	User ADMIN wants to find and revoke all user IDs of users who have not accessed the system in the last 90 days. For this to work, the INITSTATS option (specified on the SETROPTS command) must be in effect.
	Known	User ADMIN has the SPECIAL attribute. User ADMIN wants to issue the command as a RACF TSO command.
	Command	`SEARCH CLASS(USER) AGE(90) CLIST('ALTUSER '' REVOKE')`
	Defaults	Process all user ID entries.
	Results	A CLIST data set with the name ADMIN.EXEC.RACF.CLIST listing the user ID for each user that has not accessed the system within 90 days, with records in the following format: `ALTUSER` *`userid`* `REVOKE`
6	*Operation*	User ADM1 wants to get a list of all generic profiles for group SALES.
	Known	User ADM1 has the SPECIAL attribute. User ADM1 wants to issue the command as a RACF TSO command.
	Command	`SEARCH MASK(SALES.*)`
	Defaults	CLASS(DATASET) LIST ALL
	Results	A list of all profiles in the DATASET class beginning with SALES.*. (Because the string specified contains an asterisk, this list consists only of generic profiles.)

Example	Activity label	Description
7	*Operation*	User ADM1 wants to get a list of all data set profiles that include a security level of CONFIDENTIAL. User ADM1 wants to direct the command to run at the local node under the authority of user HICKS.
	Known	User HICKS has the SPECIAL attribute. The CONFIDENTIAL security level has been defined to RACF. User ADM1 wants to issue the command as a RACF TSO command. Users ADM1 and HICKS have an already established user ID association.
	Command	`SEARCH CLASS(DATASET) SECLEVEL(CONFIDENTIAL) AT(.HICKS)`
	Defaults	LIST ALL Command direction defaults to the local node.
	Results	A list of all profiles in the DATASET class with a security level of CONFIDENTIAL.

SET

Purpose

Use the SET command to:

- List information that is related to RRSF on the local node.
- Display the status of the event notification facility (ENF) listener exit.
- Specify the name of a member of the RACF parameter library to be processed by RACF.
- Set tracing on or off for specified RACF subsystem facilities
- Specify and enable options for automatic direction.
- Improve performance for generic profiles by specifying options for generic anchors.

After an IPL, all SET command settings are reset to their default values. After the RACF subsystem starts, reissue the SET command to specify your desired settings.

Between IPLs, if you stop and restart the RACF subsystem address space, the settings that are associated with only the TRACE and GENERICANCHOR operands remain in effect. All other settings are reset to their default values.

You might find it useful to complete the "RRSF node configuration worksheet" in the *z/OS Security Server RACF System Programmer's Guide* to help you determine the information that you need to issue certain options of the SET command.

Issuing options

The following table identifies the eligible options for issuing the SET command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
No	Yes	No	No	Yes

For information on issuing this command as a RACF operator command, see Chapter 4, “RACF operator commands,” on page 21.

Related commands

To define an RRSF node, see “TARGET (Manage RRSF nodes)” on page 619.

Authorization required

You might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide.*.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the SET command is:

subsystem-prefixSET
[AUTOAPPL[([NOTIFY(*notify-level*(*list-of-notify-users*)) | NONOTIFY] [OUTPUT(*output-level*(*list-of-output-users*)) | NOOUTPUT])] | NOAUTOAPPL]
[AUTODIRECT[([NOTIFY(*notify-level*(*list-of-notify-users*)) | NONOTIFY] [OUTPUT(*output-level*(*list-of-output-users*)) | NOOUTPUT])] | NOAUTODIRECT]
[AUTOPWD[([NOTIFY(*notify-level*(*list-of-notify-users*)) | NONOTIFY] [OUTPUT(*output-level*(*list-of-output-users*)) | NOOUTPUT])] | NOAUTOPWD]
[FULLRRSFCOMM]

[GENERICANCHOR(
{ SYSTEM | JOBNAME(*jobname* ...) }
{ COUNT(*number*) | RESET }
)]

[INCLUDE(*member-suffix* ...)]
[JESNODE(*nodename*)]
[LIST]
[PWSYNC[([NOTIFY(*notify-level*(*list-of-notify-users*)) | NONOTIFY] [OUTPUT(*output-level*(*list-of-output-users*)) | NOOUTPUT]) | NOPWSYNC]

```
[ TRACE( {
      [ APPC | NOAPPC ]
      [ ASID(asid ... | *) | ALLASIDS | NOASID ]
      [ CALLABLE(ALL | NONE | TYPE(type ...)) | NOCALLABLE ]
      [ CLASS(class-name ... | ⋆)
            | ALLCLASSES
            | IFCLASS(class-name ... | ⋆)
            | NEVERCLASS(class-name ... | ⋆)
            | NOCLASS ]
      [ DATABASE( {
            [ ALL | NONE ]
            [ ALTER | NOALTER ]
            [ ALTERI | NOALTERI ]
            [ READ | NOREAD ] } )
         | NODATABASE ]
      [ GENERICANCHOR | NOGENERICANCHOR ]
      [ IMAGE | NOIMAGE ]
      [ JOBNAME(jobname ... | *) | ALLJOBNAMES | NOJOBNAME ]
      [ PDCALLABLE(ALL | NONE | TYPE(type ...)) | NOPDCALLABLE ]
      [ RRSF | NORRSF ]
      [ RACROUTE(ALL | NONE | TYPE(type ...)) | NORACROUTE ]
      [ SYSTEMSSL | NOSYSTEMSSL ]
      [ USERID(userid ... | ⋆)
            | ALLUSERIDS
            | IFUSERID(userid ... | ⋆)
            | NEVERUSERID(userid ... | ⋆)
            | NOUSERID ]
      } ) ]
```

For information on issuing this command as a RACF operator command, see "Rules for entering RACF operator commands" on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

You must specify the subsystem prefix when issuing the SET command.

AUTOAPPL | NOAUTOAPPL

AUTOAPPL

Specifies that automatic direction of application updates is to be activated. Profiles in the RRSFDATA class control which application updates get automatically directed to which remote nodes. See *z/OS Security Server RACF Security Administrator's Guide.* for more information on using the RRSFDATA class to control automatic direction of application updates and for planning information that is necessary before using it.

The operands on the AUTOAPPL keyword specify who gets the result and output from automatically directed application updates.

NOAUTOAPPL

Specifies that automatic direction of application updates is to be deactivated. This option prevents application update requests from being directed to remote nodes.

The initial value is NOAUTOAPPL.

When SET NOAUTOAPPL is issued, the settings of OUTPUT and NOTIFY are saved. Subsequently, if a SET AUTOAPPL command is issued with no other operands, those settings are restored.

AUTODIRECT | NOAUTODIRECT

AUTODIRECT

Specifies that automatic command direction is to be activated. Profiles in the RRSFDATA class control which commands and password synchronization requests get automatically directed to which remote nodes. See *z/OS Security Server RACF Security Administrator's Guide.* for more information on using the RRSFDATA class to control automatic direction and for planning information that is necessary before using automatic command direction.

The operands on the AUTODIRECT keyword specify who gets the results and output from automatically directed commands.

When SET AUTODIRECT is issued, the settings of OUTPUT and NOTIFY are saved. Subsequently, if a SET AUTODIRECT command is issued with no other operands, those settings are restored.

If you want to issue the SET AUTODIRECT command to activate both the NOTIFY and OUTPUT settings, both NOTIFY and OUTPUT must be specified on the same command for both to be in effect. If specified on two separate commands, the settings on the first invocation are lost when the second is issued. For example, if you issue SET AUTODIRECT OUTPUT and then enter SET AUTODIRECT NOTIFY, the OUTPUT setting is lost when the second command is processed. Note that AUTODIRECT NOTIFY and OUTPUT settings are independent of the AUTOAPPL, AUTOPWD, and PWSYNC settings. See *z/OS Security Server RACF Security Administrator's Guide.* for the Effects of using OUTPUT and NOTIFY and the following examples for more information.

When the OUTPUT, NOOUTPUT, NOTIFY, or NONOTIFY keyword is specified, the previous values of *all* of these keywords is overwritten. For example, if the previous setting was:

```
OUTPUT(FAIL(NODEA.ANDREW)) NOTIFY(FAIL(NODEA.ANDREW))
```

and you wanted to also have the command issuer receive FAIL output and command results, you must use:

```
OUTPUT(FAIL(NODEA.ANDREW &RACUID)) NOTIFY(FAIL(NODEA.ANDREW &RACUID))
```

If you specified:

```
OUTPUT(FAIL(&RACUID))
```

then NODEA.ANDREW would be removed from OUTPUT and NODEA.ANDREW would lose the NOTIFY(FAIL) setting and the value would return to NONOTIFY. However, note that these settings for AUTOAPPL, AUTODIRECT, AUTOPWD, and PWSYNC are independent of each other. Continuing the previous example, consider the subsequent settings for SET AUTOPWD:

```
OUTPUT(FAIL(NODEA.ANDREW) NOTIFY(FAIL(NODEA.ANDREW))
```

This resets the table for AUTOPWD, but leaves the previously specified AUTODIRECT table with its &RACUID intact. AUTODIRECT, AUTOPWD, and PWSYNC are all independent in this way, with regard to the OUTPUT and NOTIFY settings and also about the request's processing.

NOTIFY(*notify-level*(*list-of-notify-users*))

Specifies that the user is to be notified (through TSO SEND command) of the results of this RRSF request. The information sent indicates whether the command was successful or unsuccessful, but does not include other details about the request's processing.

Note: The TSO SEND command updates the broadcast data set. This can either be a single data set used for all users, such as SYS1.BRODCAST, or a user-specific data set. The use of a global data set like SYS1.BRODCAST can result in heavy contention and deadlocks within the RACF subsystem address space, and even across systems in a sysplex. See the IKJTSOxx documentation in *z/OS MVS Initialization and Tuning Reference* for information on defining individual user logs.

ALWAYS

Specifies that results or output from all requests of this RRSF function are to be returned to specified users. This option should be used if the users are interested in the results of *every* request. Output includes informational, warning, and error messages.

WARN

Specifies that, in the case of AUTODIRECT, results or output from automatically directed commands are to be returned to the specified users only when the return code from the command is 4 or greater. In the case of AUTOAPPL, AUTOPWD, and PWSYNC, WARN is equivalent to FAIL.

FAIL

Specifies that, in the case of AUTODIRECT, results or output from automatically directed commands are to be returned to the specified users only when the return code from the command is 8 or greater. For AUTOAPPL, AUTOPWD, and PWSYNC, results or output from the request are to be returned to the specified users whenever the return code from the request is nonzero.

The *list-of-notify-users* value specifies up to four users who are to receive output and/or notification of results. A user can be specified in one of the following ways:

node.userid

The node and user ID separated by a period.

An 8-character user ID should not be specified unless the specified node is at z/OS V2R3 or above and has enabled 8 character User ID support in TSO. Doing so might produce unexpected results during output delivery, including lost output and error messages on the console.

.userid

The name of the user ID on the local node preceded by a period.

An 8 character user ID should not be specified unless the local node is at z/OS V2R3 or above and has enabled 8 character User ID support in TSO. Doing so might produce unexpected results during output delivery, including lost output and error messages on the console.

&RACUID

Original issuer with regard to node and user.

When `&RACUID` is specified, where the results and output are sent depend on the situation. Consider the following scenarios:

- For password synchronization, automatic password direction, and automatic direction of application updates, results and output go to the specific system. For automatic command direction, the results and output go to the MAIN system. For a multisystem node, the MAIN system might not necessarily be the specific system of that issuing node.
- A user on node A directs a command to node B, which, results in automatic command direction to node C. `&RACUID` specified on node C for AUTODIRECT NOTIFY or OUTPUT sends data to node A.
- A user on node A directs a command to node B, which results in a password change. This password change is propagated by password synchronization to node C. `&RACUID` specified on node C for PWSYNC NOTIFY or OUTPUT sends data to node B.
- A user on node A changes a password, such that automatic password direction updates the corresponding user ID on node B. This user ID propagates the password change to a peer association on that same node B. `&RACUID` specified on node B for PWSYNC NOTIFY or OUTPUT would send data to the original user ID on node B (not A).

Note: If &RACUID is specified along with the user ID from which you are issuing the command, password change (covered by password synchronization or automatic password direction), or application update, that user ID receives the output or notification twice.

If you plan to use &RACUID for application updates, be aware of the following:

- **Guideline:** Do not use &RACUID for AUTOAPPL output or notification. This might allow application updates to be done for undefined users, revoked user IDs, or the user ID of the RACF address space, and produce unexpected results during output delivery, including lost output and error messages on the console.
- Ensure all possible user ID destinations through &RACUID have the authority to create data sets. For example, an installation would not want to use &RACUID for AUTOPWD or PWSYNC if the original issuer of a password change could be a CICS user, who is unlikely to have authority to create the RRSFLIST output data set.
- If the ACEE keyword is used on the RACROUTE request, the output goes to the user ID associated with the ACEE keyword, not to the user ID of the task or address space that issued the request.

The SET command does not perform existence checking for either the user ID or node.

The combination of users specified in the list of notify users variables can be up to a maximum of four *different* users. In other words, the cumulative total of unique users cannot exceed 4 in both the OUTPUT and NOTIFY keywords. The same four users can be specified in each list; however, if four users are specified on one of the keywords, a fifth user cannot be specified on the other keyword. For example, if four users are specified on the OUTPUT keyword, a fifth user cannot be specified on the NOTIFY keyword.

NONOTIFY

Specifies that no TSO SEND commands are issued with the results of the RRSF request.

The initial value is NONOTIFY.

The allowed values for *notify-level* are:

OUTPUT(*output-level*(*list-of-output-users*))

Specifies that the output from the RRSF request should be put in the RRSFLIST data set for the user named on this keyword. If the output cannot be put in the RRSFLIST data set for any reason, the output is transmitted to the user.

Because LIST-type commands are ineligible for automatic command direction, the output usually contains messages that are issued during command processing, such as informational, warning, or error messages.

The valid values for *output-level* are the same as those described for *notify-level* with the NOTIFY keyword.

The valid values for *list-of-output-users* are the same as those described for *list-of-notify-users* with the NOTIFY keyword.

NOOUTPUT

Specifies that no output, warning, or error messages are kept or sent to anyone.

The initial value is NOOUTPUT.

NOAUTODIRECT

Specifies that automatic command direction is to be deactivated.

This option prevents commands from being automatically directed to remote nodes.

The initial value is NOAUTODIRECT.

When SET NOAUTODIRECT is issued, the settings of OUTPUT and NOTIFY are saved. Subsequently, if a SET AUTODIRECT command is issued with no other operands, those settings are restored.

AUTOPWD | NOAUTOPWD

AUTOPWD

Specifies that automatic password direction is to be activated. Profiles in the RRSFDATA class `AUTODIRECT.`*`nodename`*`.USER.PWSYNC` control which automatic password directed requests get directed to which remote nodes. See *z/OS Security Server RACF Security Administrator's Guide* for more information on using the RRSFDATA class to control automatic password direction and for planning information that is necessary before using automatic password direction.

The operands on the AUTOPWD keyword specify who gets the result and output from automatically directed passwords. Refer to the descriptions of OUTPUT and NOTIFY under the AUTODIRECT keyword.

NOAUTOPWD

Specifies that automatic password direction is to be deactivated.

This option prevents passwords from being automatically directed to remote nodes.

The initial value is NOAUTOPWD.

When SET NOAUTOPWD is issued, the settings of OUTPUT and NOTIFY are saved. Subsequently, if a SET AUTOPWD command is issued with no other operands, those settings are restored.

FULLRRSFCOMM

Specifies that full communication paths are available between all systems in an RRSF multisystem node and all systems in other RRSF multisystem nodes. Use this in preparation to perform a dynamic MAIN switch with the TARGET PLEXNEWMAIN and TARGET NEWMAIN command. When FULLRRSFCOMM is in effect, the DORMANT and OPERATIVE keywords of the TARGET command will behave the same way for any remote system, including the case where both the local and remote systems are non-MAIN members of a multisystem node. In brief, DORMANT and OPERATIVE will allocate workspace files for the remote target if they do not already exist, and OPERATIVE will, in addition, establish a network connection. You must enable SET FULLRRSFCOMM and make connections between non-MAIN systems OPERATIVE before you can successfully use the PLEXNEWMAIN or NEWMAIN keyword of the TARGET command to perform a dynamic MAIN switch. If you never intend to switch MAIN systems dynamically, then you should not enable FULLRRSFCOMM, as it will simply allocate more resources (VSAM workspace files and network connections) for no reason.

SET FULLRRSFCOMM is not required on any system in a multisystem node if it is the only multisystem node in the network. It is never required for a single system node.

See *z/OS Security Server RACF System Programmer's Guide* for details on the dynamic MAIN switch capability. See the TARGET command for details of the DORMANT, OPERATIVE, PLEXNEWMAIN and NEWMAIN keywords.

GENERICANCHOR

Specifies the number of generic anchors that RACF maintains for each address space and for each MVS TCB that has its own ACEE.

A *generic anchor* is a list of generic profile names associated with either one of the following:

- The high-level qualifier (HLQ) of a data set
- A general resource class that is not processed in storage by the SETROPTS RACLIST or GENLIST command.

If you do not specify GENERICANCHOR, RACF maintains four generic anchors for each address space and four for each MVS TCB that has its own ACEE.

SYSTEM | JOBNAME

You must specify SYSTEM or JOBNAME. Only one SYSTEM setting is in effect at a time. Multiple JOBNAME settings can be in effect at the same time.

SYSTEM

When you specify SYSTEM with a COUNT value, the COUNT value indicates the number of generic anchors RACF maintains for any job for which no applicable JOBNAME setting is in effect.

When you specify SYSTEM with RESET, the SYSTEM setting is reset to the default value of 4.

JOBNAME(*jobname ...*)

When you specify JOBNAME with a COUNT value, the COUNT value indicates the number of generic anchors RACF maintains for the specified job name.

The specified COUNT value applies separately to the ACEE for the address space and to each MVS TCB that has its own ACEE. For example, if the specified job has an address space ACEE and two MVS TCBs that each have an ACEE, and you specify a COUNT value of 5, RACF keeps up to 15 generic anchors for the job.

When you specify JOBNAME with RESET, the specified job name and its associated COUNT setting are removed, and the number of generic anchors maintained for the specified job name is determined by the SYSTEM setting.

Specify one or more job names. Include an asterisk (*) as the last character of a *jobname* value to specify a set of similarly named jobs. For example, to specify the number of generic anchors for a job named MAPES, MAPES2, or MAPES3, you might specify JOBNAME(MAPES*).

When you include an asterisk as the last character of a *jobname*, such as MAPES*, the COUNT setting applies to any job name beginning with MAPES, unless a more specific job name setting is in effect. For example, if you issue two SET GENERICANCHOR commands, one specifying JOBNAME(MAPES*) and another specifying JOBNAME(MAPES2), the COUNT setting specified for MAPES* applies to a job named MAPES3 but not to a job named MAPES2.

COUNT | RESET

You must specify a COUNT value or RESET.

COUNT(*nn*)

Specifies the number of generic anchors (4 - 99).

RESET

When specified with SYSTEM, the number of generic anchors is reset to the default value of 4 for any job for which no applicable JOBNAME setting is in effect.

When specified with JOBNAME, the specified job name and its associated COUNT setting are removed, and the number of generic anchors maintained for the specified job name is determined by the SYSTEM setting.

INCLUDE(*member-suffix ...*)

Provides the ability to specify that the contents of one or more members of the RACF parameter library are to be processed. The INCLUDE keyword provides a convenient mechanism to process a previously defined set of RACF commands, such as SET and TARGET.

One or more suffixes can be specified with the INCLUDE keyword. Each specified suffix must be:

- 1 - 2 characters in length
- In the alphanumeric character set (`A - Z`, `0 - 9`, `#` (X'7B'), $ (X'5B') or `@` (X'7C'))

such that when the suffix is appended to IRROPT it results in the name of a member of the RACF parameter library.

SET INCLUDE commands can be nested in members of the RACF parameter library. For example, if member IRROPT01 contains a SET INCLUDE IRROPT02 command, then member IRROPT02 can contain a SET INCLUDE IRROPT03 command.

Be careful to adhere to a hierarchical order when nesting SET INCLUDE commands. For example, if IRROPT01 contains a SET INCLUDE IRROPT02 command, then IRROPT01 cannot contain a SET INCLUDE IRROPT01 command. Also, if IRROPT02 contains a SET INCLUDE command for any other parameter library members, those members cannot contain a SET INCLUDE IRROPT01 command. This restriction exists to prevent a never-ending loop of inclusion.

If a suffix appended to IRROPT does not result in the name of a member of the RACF parameter library, a message is issued and that suffix is ignored.

If the INCLUDE keyword is specified with any other SET keywords, the included members are processed first. The values specified for the other keywords override any values specified for the keywords in the included members. For example, the values specified for TRACE override any trace values specified in the included members.

No authorization checking or auditing is done for the commands in included members.

JESNODE(*nodename*)

Specifies the name of the node needed by RRSF in the cases where returned output from the directed commands must be transmitted to the user. RRSF queries the primary JES system during initialization in an attempt to obtain this name automatically. This keyword should be used in the cases where RRSF cannot automatically obtain this name.

No validity checking is done on the value specified with the JESNODE keyword.

LIST

Lists the attributes of an RRSF node and trace options.

The LIST keyword provides the ability to obtain information about the RRSF node's configuration, status related to the RACF subsystem, status of the event notification facility (ENF) listener exit, and status of TRACE and other options enabled by the SET command.

The LIST keyword can be specified alone or in combination with other SET command keywords. When used in combination with other SET command keywords, the information displayed reflects the results after processing the other keywords.

The information for the template version that the system is running with is displayed in the output. For details, see RACF database initialization utility program (IRRMIN00) in *z/OS Security Server RACF System Programmer's Guide*.

Note: LIST is the default if the SET command is issued with no keywords.

PWSYNC | NOPWSYNC

PWSYNC

Specifies that password synchronization is to be activated. See *z/OS Security Server RACF Security Administrator's Guide* for more information on using the RRSFDATA class to control password synchronization and for planning information that is necessary before using password synchronization. For information about how to establish password synchronization between user IDs, see the RACLINK command.

The operands on the PWSYNC keyword specify who gets the result and output from password changes covered by password synchronization. Refer to the descriptions of OUTPUT and NOTIFY under the AUTODIRECT keyword.

NOPWSYNC

Specifies that synchronized password processing is to be deactivated.

The initial value is NOPWSYNC.

When SET NOPWSYNC is issued, the settings of OUTPUT and NOTIFY are saved. Subsequently, if a SET PWSYNC command is issued with no other operands, those settings are restored.

TRACE

Specifies whether tracing is to take place for the following events, using the generalized trace facility (GTF).

If the TRACE keyword is specified, at least one subkeyword must be specified to indicate whether or not tracing is to be turned on or off for each of these events. There are no defaults for these event types. For example, if APPC is the only operand specified, then the current setting for tracing IMAGE events is not changed. If IMAGE tracing was in effect, it remains in effect. Likewise, if NOIMAGE had been in effect, it would remain in effect.

The initial values are NOAPPC, NOASID, NOCALLABLE, NOCLASS, NODATABASE, NOGENERICANCHOR, NOIMAGE, NOJOBNAME, NORACROUTE, NOSYSTEMSSL, and NOUSERID.

The SET LIST command should always be used to verify the trace parameters have been set as expected.

The trace records are intended for use in consultation with the IBM support center when diagnosing potential RACF subsystem problems. For more information, see *z/OS Security Server RACF Diagnosis Guide*.

Important: Trace records might contain passwords and therefore trace output data sets should be appropriately protected.

APPC | NOAPPC

APPC

Enables tracing for APPC events. The trace information contains the APPC transaction return code and reason code.

NOAPPC

Disables tracing for APPC events.

ASID(*asid ...*) | NOASID | ALLASIDS

For CALLABLE, DATABASE, GENERICANCHOR, and RACROUTE event traces, the following options enable and disable tracing based on one or more address spaces.

ASID(*asid ...*)

Enables tracing for the specified address space. When ASID(*asid ...*) is specified, by consecutive invocations of the SET command, the *asid* list is deleted and rebuilt with the current specification each time the command is issued.

ALLASIDS

Enables tracing for all address spaces.

NOASID

Disables tracing based on address space.

CALLABLE | NOCALLABLE

CALLABLE

Use to trace z/OS UNIX calls.

Tracing for events related to z/OS UNIX calls occurs only for jobs selected by at least one of the following trace options:

- ASID or ALLASIDS
- JOBNAME or ALLJOBNAMES

ALL | NONE | TYPE

Use to control the degree of tracing.

ALL

Use to enable tracing of all z/OS UNIX calls.

NONE

Use to reset tracing.

TYPE(*type ...*)

Use to enable tracing of one or more specific z/OS UNIX calls. The TYPE operand is cumulative; issuing NOCALLABLE or CALLABLE(NONE) will reset the trace.

The request types that are supported are listed in Table 50 on page 563.

Table 50. Callable services and associated function numbers

Callable service	Function number	Callable service	Function number
IRRSIU00	1	IRRSFK00	28
IRRSDU00	2	IRRSMI00	29
IRRSMF00	3	IRRSKI00	30
Reserved.	4	IRRSCI00	31
IRRSMM00	5	IRRSC200	32
IRRSKA00	6	IRRSGE00	33
IRRSKP00	7	IRRSDI00	34
IRRSUM00	8	IRRSDK00	35
IRRSGM00	9	IRRSUD00	36
IRRSGG00	10	IRRSDA00	37
IRRSSU00	11	IRRSIA00	38
IRRSEU00	12	IRRSEQ00[1]	39
IRRSSG00	13	IRRSIM00	40
IRRSEG00	14	IRRSDL00	41
IRRSCO00	15	IRRSMK00	42
IRRSCF00	16	IRRSPK00	43
IRRSCA00	17	IRRSPX00	44
IRRSEX00	18	IRRSCH00	45
IRRSAU00	19	IRRSPY00	46
IRRSKO00	20	IRRSCL00	47
IRRSQS00	21	IRRSSB00	48
IRRSQF00	22	IRRSWP00	49
IRRSCS00	23	IRRSGS00	50
IRRSKF00	24	IRRSAX00	51
IRRSMR00	25	IRRSGI00	52
IRRSPT00	26	IRRSPS00	53
IRRSUG00	27	IRRSPW00	54

[1] Callable service IRRSEQ00 (R_Admin) has its own trace facility. For more information, see *z/OS Security Server RACF Diagnosis Guide*.

NOCALLABLE

Use NOCALLABLE to reset the trace; equivalent to CALLABLE(NONE).

CLASS | ALLCLASSES | IFCLASS | NEVERCLASS | NOCLASS

For DATABASE and RACROUTE event traces, use the following options to enable and disable tracing based on the names of one or more general resource classes.

CLASS(*class-name ...* | *)

Enables tracing for events associated with the specified class. The *class-name* value is an asterisk (*) or a list of one or more classes.

Specifying CLASS(*) enables tracing for events associated with any class. This option is equivalent to the ALLCLASSES option.

You can include an asterisk (*) as the last character of the *class-name* value to specify a set of similarly named classes. For example, to enable tracing for events associated with a class named `CLS$D1`, `CLS$DS`, or `CLS$DPT`, you might specify `CLASS(CLS$D*)`.

When CLASS(*class-name ...*) is specified by consecutive invocations of the SET command, the *class-name* list is deleted and rebuilt with the current specification each time the command is issued.

ALLCLASSES

Enables tracing for events associated with *any* class. This option is equivalent to specifying CLASS(*).

IFCLASS(*class-name ...* | *)

Enables tracing *only* when the event is associated with the specified class.

Specifying IFCLASS(*) enables tracing only when the event is associated with a class, regardless of class name.

You can include an asterisk (*) as the last character of the *class-name* value to specify a set of similarly named classes. For example, to enable tracing only when the event is associated with a class named `CLS$D1`, `CLS$DS`, or `CLS$DPT`, you might specify `IFCLASS(CLS$D*)`.

When IFCLASS(*class-name ...*) is specified by consecutive invocations of the SET command, the *class-name* list is deleted and rebuilt with the current specification each time the command is issued.

NEVERCLASS(*class-name ...* | *)

Disables tracing *only* when the event is associated with the specified class.

Specifying NEVERCLASS(*) disables tracing only when the event is associated with a class, regardless of class name.

You can include an asterisk (*) as the last character of the *class-name* value to specify a set of similarly named classes. For example, to disable tracing only when the event is associated with a class named `CLS$D1`, `CLS$DS`, or `CLS$DPT`, you might specify `NEVERCLASS(CLS$D*)`.

When NEVERCLASS(*class-name ...*) is specified by consecutive invocations of the SET command, the *class-name* list is deleted and rebuilt with the current specification each time the command is issued.

NOCLASS

Disables tracing based on class name.

DATABASE | NODATABASE

DATABASE

Use to trace RACF database manager requests.

Tracing for events related to RACF database manager requests occurs only for jobs selected by at least one of the following trace options:

- ASID or ALLASIDS
- CLASS, ALLCLASSES, or IFCLASS
- JOBNAME or ALLJOBNAMES

ALL | NONE

Use ALL to enable tracing of all requests.

Use NONE to disable tracing.

ALTER | NOALTER

Use ALTER to enable tracing all RACF database manager calls that change the database. Calls included are RENAMEs, ALTERs, ADDs and DELETEs. No further granularity is provided for calls that change the database.

Use NOALTER to disable tracing of all RENAMEs, ALTERs, ADDs and DELETEs.

ALTERI | NOALTERI

Use ALTERI to enable tracing all RACF database manager calls that change fields in the database that use ALTERI as the request.

Use NOALTERI prevent the tracing of these requests.

READ | NOREAD

Use READ to enable tracing all RACF database manager RACF calls that locate profiles in the database.

Use NOREAD prevent the tracing of these requests.

NODATABASE

Use NODATABASE to disable tracing database manager requests; equivalent to DATABASE(NONE).

GENERICANCHOR | NOGENERICANCHOR

GENERICANCHOR

Enables tracing for events related to generic anchors. For each profile list that RACF creates for a generic anchor, RACF records a trace record that includes the high-level qualifier (HLQ) or class name, the number of profile names in the list, the number of generic anchors present for the job, and, if applicable, the HLQ or class name of the profile list that RACF is replacing.

Tracing for events related to generic anchors occurs only for jobs selected by at least one of the following trace options:

- ASID or ALLASIDS
- JOBNAME or ALLJOBNAMES
- USERID, ALLUSERIDS, or IFUSERID

NOGENERICANCHOR

Disables tracing for events related to generic anchors.

IMAGE | NOIMAGE

IMAGE

Enables tracing of IMAGE events. The trace information contains the command image being processed.

NOIMAGE

Disables tracing for IMAGE events.

JOBNAME | ALLJOBNAMES | NOJOBNAME

For CALLABLE, DATABASE, GENERICANCHOR, and RACROUTE event traces, the following options allow you to enable and disable tracing based on one or more job names.

JOBNAME(*jobname ...*) | *)

Enables tracing for events associated with the specified job name. The *jobname* value is an asterisk (*) or a list of one or more job names.

Specifying JOBNAME(*) enables tracing for events associated with any job name. This option is equivalent to the ALLJOBNAMES option.

You can include an asterisk (*) as the last character of the *jobname* value to specify a set of similarly named jobs. For example, to enable tracing for events associated with a job named MAPES, MAPES2, or MAPES3, you might specify JOBNAME(MAPES*).

When JOBNAME(*jobname ...*) is specified, by consecutive invocations of the SET command, the *jobname* list is deleted and rebuilt with the current specification each time the command is issued.

ALLJOBNAMES

Enables tracing for events that are associated with *any* job name. This option is equivalent to specifying JOBNAME(*).

NOJOBNAME

Disables tracing by job name.

PDCALLABLE | NOPDCALLABLE

PDCALLABLE

Use to trace IBM Policy Director Authorization Services SAF calls.

ALL | NONE | TYPE

Use to control the degree of tracing.

ALL

Use to enable tracing of all IBM Policy Director Authorization Services SAF calls.

NONE

Use to reset tracing.

TYPE(*type ...*)

Use to enable tracing of one or more specific IBM Policy Director Authorization Services SAF calls. The request types that are supported are listed in the following table:

Callable service	Service / type number
IRRSZA00	1
IRRSZC00	2

The TYPE operand is cumulative; issuing NOPDCALLABLE or PDCALLABLE(NONE) will reset the trace.

NOPDCALLABLE

Use NOPDCALLABLE to reset the trace; equivalent to PDCALLABLE(NONE).

RACROUTE | NORACROUTE

RACROUTE

Use to trace RACROUTE calls.

Tracing for events related to RACROUTE calls occurs only for jobs selected by at least one of the following trace options:

- ASID or ALLASIDS
- CLASS, ALLCLASSES, or IFCLASS
- JOBNAME or ALLJOBNAMES
- USERID, ALLUSERIDS, or IFUSERID

ALL | NONE | TYPE

Use to control the degree of tracing.

ALL

Use to enable tracing of all RACROUTE calls.

NONE

Use to reset tracing.

TYPE(*type ...*)

Use to enable tracing of one or more specific RACROUTE calls. The request types that are supported are listed in the following table:

RACROUTE REQUEST type	Service / type number
AUTH	1
FASTAUTH	2
LIST	3
DEFINE	4
VERIFY	5
EXTRACT	6
DIRAUTH	7
TOKENMAP	8
VERIFYX	9
TOKENXTR	10
TOKENBLD	11
EXTRACT, BR=YES	12
AUDIT	13
STAT	14
SIGNON	15
TOKENMAP, XMEM	16
TOKENXTR, XMEM	17

The TYPE operand is cumulative; issuing NORACROUTE or RACROUTE(NONE) will reset the trace.

NORACROUTE

Use NORACROUTE to reset the trace; equivalent to RACROUTE(NONE).

RRSF | NORRSF

RRSF

Enables tracing for RRSF events. The trace information contains the relevant API return code and reason code, where applicable.

Note: SET TRACE(RRSF) also enables ENF code 86 (ENF86) tracing.

NORRSF

Disables tracing for RRSF events.

SYSTEMSSL | NOSYSTEMSSL

SYSTEMSSL

Use to trace RACF's use of z/OS System Secure Sockets Layer (SSL) services. The actual trace records are created by the System SSL component itself; RACF only requests that the trace records be created. SSL services are used by RACF to create PKCS #7 envelopes for user passwords and password phrases. For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

When SET TRACE(SYSTEMSSL) is in effect, all trace functions except EBCDIC and ASCII data dumps are requested. The trace records are written to a UNIX file with the path name `/tmp/gskssl.racf.`*`pid`*`.trc`, where *pid* is the UNIX process ID assigned to the RACF thread that attempted the enveloping operation (initial creation during password or password phrase change, or retrieval with the `R_admin` callable service). It is difficult to determine the *pid* for a given enveloping operation because it exists transiently. To debug a reproducible problem, look at the trace files that already exist in `/tmp` starting with `gskssl.racf`, or delete all the trace files, initiate the enveloping operation, find the new file that was created, and look within that file for the trace data. For more information on creating trace records, see *z/OS Cryptographic Services System SSL Programming*.

NOSYSTEMSSL
Deactivates tracing for RACF's use of System SSL services.

USERID | ALLUSERIDS | IFUSERID | NEVERUSERID | NOUSERID
For GENERICANCHOR and RACROUTE event traces, use the following options to enable and disable tracing based on one or more user IDs.

The USERID trace options apply to RACROUTE requests of only the following types:

- RACROUTE REQUEST=AUTH (type 1)
- RACROUTE REQUEST=FASTAUTH (type 2)
- RACROUTE REQUEST=VERIFY (type 5)
- RACROUTE REQUEST=VERIFYX (type 9)

USERID(*userid* ... | *)
Enables tracing for events associated with the specified user ID. The *userid* value is an asterisk (*) or a list of one or more user IDs.

Specifying USERID(*) enables tracing for events associated with any user ID. This option is equivalent to the ALLUSERIDS option.

You can include an asterisk (*) as the last character of the *userid* value to specify a set of similarly named user IDs. For example, to enable tracing for events associated with user ID `ADMIN1`, `ADMIN2`, or `ADMIN3`, you might specify `USERID(ADMIN*)`.

When USERID(*userid ...*) is specified by consecutive invocations of the SET command, the *userid* list is deleted and rebuilt with the current specification each time the command is issued.

ALLUSERIDS
Enables tracing for events associated with *any* user ID. This option is equivalent to specifying USERID(*).

IFUSERID(*userid* ... | *)
Enables tracing *only* when the event is associated with the specified user ID.

Specifying IFUSERID(*) enables tracing only when the event is associated with a user ID, regardless of user ID.

You can include an asterisk (*) as the last character of the *userid* value to specify a set of similarly named user IDs. For example, to enable tracing only when the event is associated with user ID `ADMIN1`, `ADMIN2`, or `ADMIN3`, you might specify `IFUSERID(ADMIN*)`.

When IFUSERID(*userid ...*) is specified by consecutive invocations of the SET command, the *userid* list is deleted and rebuilt with the current specification each time the command is issued.

NEVERUSERID(*userid* ... | *)
Disables tracing *only* when the event is associated with the specified user ID.

Specifying NEVERUSERID(*) disables tracing only when the event is associated with a user ID, regardless of user ID.

You can include an asterisk (*) as the last character of the *userid* value to specify a set of similarly named user IDs. For example, to disable tracing only when the event is associated with user ID `ADMIN1`, `ADMIN2`, or `ADMIN3`, you might specify `NEVERUSERID(ADMIN*)`.

When NEVERUSERID(*userid ...*) is specified by consecutive invocations of the SET command, the *userid* list is deleted and rebuilt with the current specification each time the command is issued.

NOUSERID
Disables tracing based on user ID.

Examples

Example	Activity label	Description
1	*Operation*	User ADMIN wants to enable automatic command direction and establish that LAURIE at POKMVS and the command issuer receives output and notification when an automatically directed command receives a return code of 8 or greater.
	Known	The RACF subsystem prefix is @.

	Command	`@SET AUTODIRECT (OUTPUT (FAIL (POKMVS.LAURIE &RACUID))`
		`         NOTIFY (FAIL (POKMVS.LAURIE &RACUID)))`

	Defaults	None.
2	*Operation*	User ADMIN wants to enable automatic command direction and establish that: • ACDERROR at POKMVS will receive warning and error output, but no TSO SEND messages. • ANDREW at POKMVS will receive warning output, error output, and TSO SEND messages for error conditions. • LAURIE at POKMVS will not receive any output, but will receive TSO SEND messages for error conditions. • The command issuer gets no notification of automatically directed commands.
	Known	The RACF subsystem prefix is @. LAURIE at POKMVS has the ability to browse the RRSFLIST data set of ACDERROR at POKMVS to determine what needs to be fixed.

	Command	`@SET AUTODIRECT (OUTPUT (WARN (POKMVS.ACDERROR POKMVS.ANDREW))`
		`         NOTIFY (FAIL (POKMVS.LAURIE POKMVS.ANDREW)))`

	Defaults	None.
3	*Operation*	User ADMIN wants to enable automatic direction, automatic password direction, automatic direction of application updates, but not password synchronization. User ADMIN wants to be notified and receive output for all failures. The command issuer needs to always receive notification and output for automatically directed commands (but not for automatic password direction or automatic direction of application updates).
	Known	The RACF subsystem prefix is @.

	Commands	`@SET AUTODIRECT(OUTPUT(FAIL(POKMVS.ADMIN &RACUID))`
		`NOTIFY(FAIL(POKMVS.ADMIN &RACUID)))`
		`@SET AUTOPWD(OUTPUT(FAIL(POKMVS.ADMIN))`
		`NOTIFY(FAIL(POKMVS.ADMIN)))`
		`@SET AUTOAPPL(OUTPUT(FAIL(POKMVS.ADMIN))`
		`NOTIFY(FAIL(POKMVS.ADMIN)))`

	Defaults	None.

Example	**Activity label**	**Description**
4	*Operation*	User ADMIN wants to enable tracing for all VERIFY requests issued in a particular address space.
	Known	The RACF subsystem prefix is `@`.
	Command	`@SET TRACE(RACROUTE(TYPE(2,5,9)) ASID(17))`
	Defaults	None.
	Output	See Figure 85 on page 571
5	*Operation*	User ADMIN wants to obtain information concerning the RRSF node's configuration and status related to the RACF subsystem. User ADMIN also wants to turn on tracing for IMAGE events.
	Known	Because the LIST keyword is used in combination with the TRACE keyword, the information displayed reflects the results after processing the TRACE keyword. The RACF subsystem prefix is `@`.
	Command	`@SET LIST TRACE(IMAGE)`
	Defaults	None.
	Output	See Figure 85 on page 571.
6	*Operation*	User ADMIN wants to enable tracing for the `aznAccess` SAF callable service for job name IBMUSER.
	Known	The RACF subsystem prefix `@`.
	Command	`@SET TRACE(PDCALLABLE(TYPE(1)) JOBNAME(IBMUSER))`
	Defaults	None.
	Output	`IRRH004I (@) RACF SUBSYSTEM SET COMMAND HAS COMPLETED SUCCESSFULLY.`
7	*Operation*	User ADMIN wants to verify that tracing has been enabled for the `aznAccess` z/OS Policy Director SAF callable service.
	Known	The RACF subsystem prefix is `@`.
	Command	`@SET LIST`
	Defaults	None.
	Output	SET LIST output indicates that tracing has been enabled for PDCALLABLE service request type 1 (`aznAccess` SAF callable service). See Figure 85 on page 571.

Example	Activity label	Description
8	*Operation*	The system programmer wants to set the number of generic anchors to 10 for job names that begin with the characters MAPES, such as MAPES2 and MAPES3, to 8 for the job named MAPES9, and to 6 for all other jobs.
	Known	The RACF subsystem prefix @.

	Commands	The system programmer might enter the following operator commands:
		`@SET GENERICANCHOR (JOBNAME(MAPES*) COUNT(10))`
		`@SET GENERICANCHOR (JOBNAME(MAPES9) COUNT(8))`
		`@SET GENERICANCHOR (SYSTEM COUNT(6))`

	Defaults	None.
	Output	`IRRH004I (@) RACF SUBSYSTEM SET COMMAND HAS COMPLETED SUCCESSFULLY.`

```
IRRH005I (@) RAC1 SUBSYSTEM INFORMATION:
            TRACE OPTIONS                   - NOIMAGE
                                            - NOAPPC
                                            - NOSYSTEMSSL
                                            - NORRSF
                                            - NORACROUTE
                                            - NOCALLABLE
                                            - NOPDCALLABLE
                                            - NODATABASE
                                            - NOGENERICANCHOR
                                            - NOASID
                                            - NOJOBNAME
                                            - NOCLASS
                                            - NOUSERID
            SUBSYSTEM USERID                - RRSFUSER
            JESNODE (FOR TRANSMITS)         - THISJES
            AUTOMATIC DIRECTION IS ALLOWED
                  OUTPUT IS IN EFFECT FOR:
                          MVS01.SECADM      - FAIL
                          MVS01.SYSPRG      - FAIL
                          MVS02.SECADM      - FAIL
                  NOTIFY IS IN EFFECT FOR:
                          MVS01.SECADM      - FAIL
                          MVS01.SYSPRG      - FAIL
                          MVS02.SECADM      - FAIL
            FULL RRSF COMMUNICATION IS *NOT* ENABLED
            ENF 86 LISTENER IS ENABLED
            RACF STATUS INFORMATION:
                  TEMPLATE VERSION          - HRF7708  00000020.00000030
                  DYNAMIC PARSE VERSION     - HRF7708
```

Figure 85. Output for SET LIST command

SETROPTS (Set RACF options)

Purpose

Use the SETROPTS command to set system-wide RACF options related to resource protection dynamically. Specifically, you can use SETROPTS to do the following:

- Gather and display RACF statistics
- Protect terminals
- Log RACF events
- Permit list-of-groups access checking
- Display options currently in effect
- Enable or disable the generic profile checking facility on a class-by-class basis

- Activate checking for previous passwords and password phrases
- Limit unsuccessful attempts to access the system using incorrect passwords and password phrases
- Control change intervals for passwords and password phrases
- Control mixed-case passwords
- Warn of expiring passwords and password phrases
- Establish password syntax rules
- Activate auditing for access attempts by class
- Activate auditing for security labels
- Require that all work entering the system, including users logging on and batch jobs, have a security label assigned
- Enable or disable the global access checking facility
- Refresh in-storage profile lists and global access checking tables
- Set the password the operator must supply in order for RACF to complete an RVARY command that changes RACF status or changes the RACF databases
- Enable or disable the sharing, in common storage, of discrete and generic profiles for general resource classes
- Activate or deactivate auditing of access attempts to RACF-protected resources based on installation-defined security levels
- Control the automatic data set protection (ADSP) attribute for users
- Activate profile modeling for GDG, group, and user data sets
- Activate protection for data sets with single-level names
- Control logging of real data set names
- Control the job entry subsystem options
- Activate tape data set protection
- Control whether RACF is to allow users to create or access data sets that do not have RACF protection
- Activate and control the scope of erase-on-scratch processing
- Activate program control, which includes both access control to load modules and program access to data
- Prevent users from accessing uncataloged permanent data sets
- Establish a system-wide VTAM session interval
- Set an installation-wide default for the RACF security retention period for tape data sets
- Activate enhanced generic naming for data sets and entries in the global access checking table
- Set installation defaults for primary and secondary national languages
- Activate auditing for APPC transactions
- Use the dynamic class descriptor table.

If you specify the AUDIT operand, RACF logs all uses of the RACROUTE REQUEST=DEFINE SVC and all changes made to profiles by RACF commands.

Following are the classes that can be specified in the AUDIT operand and the commands and SVCs that are logged for each class.

USER	GROUP	DATASET	CDT entries
ADDUSER	ADDGROUP	ADDSD	PERMIT
ALTUSER	ALTGROUP	ALTDSD	REQUEST=DEFINE SVC
CONNECT	CONNECT	DELDSD	RALTER

USER	GROUP	DATASET	CDT entries
DELUSER	DELGROUP	PERMIT	RDEFINE
PASSWORD	REMOVE	REQUEST= DEFINE SVC	RDELETE
REMOVE	-	-	-

Most RACF functions do not require special versions or releases of the operating system or operating system components. However, some do require that your system be at a certain level.

Using SETROPTS when RACF is enabled for sysplex communication: When RACF is enabled for sysplex communication, RACF propagates the following SETROPTS commands:

- GENERIC REFRESH
- GLOBAL
- GLOBAL REFRESH
- RACLIST
- NORACLIST
- RACLIST REFRESH
- WHEN(PROGRAM)
- WHEN(PROGRAM) REFRESH

When issued from a member of the RACF data sharing group, these commands, if successful on the member that issues them, are propagated in a controlled, synchronized manner to the other members in the group. A system in read-only mode can participate if it receives a SETROPTS command propagated from another system, but a user on a system in read-only mode cannot issue any SETROPTS commands except for the SETROPTS LIST command. For propagated SETROPTS REFRESH commands, members of the data sharing group are notified to either create, update, or delete some in-storage information. These commands are coordinated to ensure that all systems begin to use the changed information simultaneously, and to always see a consistent view of this information.

RACF serializes propagated SETROPTS commands to prevent conflicting commands of the same type (for example, SETROPTS RACLIST and SETROPTS NORACLIST) from processing simultaneously.

Refer to the specific parameter descriptions for additional information about using these parameters.

Note:

1. The options you specify on SETROPTS are common on systems that share the RACF database. All the systems involved must have the required levels of software. If you activate SECLABEL and the multilevel security options on one system, they are activated on all systems.
2. If RACF is not enabled for sysplex communication, the SETROPTS commands that would be propagated to all members of a data sharing group must instead be issued on each system sharing the database. Although the command is not propagated, RACF does record the fact that a SETROPTS RACLIST was issued. The next time that any system sharing the database is IPLed, the SETROPTS RACLIST is done on that sharing system.
3. When the SETROPTS command is from ISPF, the TSO command buffer (including password data) is written to the ISPLOG data set. As a result, you should not issue the SETROPTS command from ISPF or you must control the ISPLOG data set carefully.
4. If the SETROPTS command is issued as a RACF operator command, the command and the password data is written to the system log. Therefore, use of SETROPTS as a RACF operator command should either be controlled or you should issue the command as a TSO command.

RACF date handling: RACF interprets dates with 2-digit years as follows. (The *yy* value represents the 2-digit year.)

- If `70 <  `*`yy`*` <= 99`, the date is interpreted as `19`*`yy`*.
- If `00 <= `*`yy`*` <= 70`, the date is interpreted as `20`*`yy`*.

Issuing options

The following table identifies the eligible options for issuing the SETROPTS command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
Yes	Yes	Yes	Yes (See rule.)	Yes

Rule: The SETROPTS LIST command without other keywords is not eligible for automatic command direction.

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

You must be logged on to the console to issue this command as a RACF operator command.

Authorization required

When issuing this command as a RACF operator command, you might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

Most SETROPTS command functions require you to have the SPECIAL or AUDITOR attributes.

If you have the SPECIAL attribute you can use all of the operands except those listed, as follows, that require the AUDITOR attribute:

- APPLAUDIT | NOAPPLAUDIT
- AUDIT | NOAUDIT
- CMDVIOL | NOCMDVIOL
- LOGOPTIONS
- OPERAUDIT | NOOPERAUDIT
- SAUDIT | NOSAUDIT
- SECLABELAUDIT | NOSECLABELAUDIT
- SECLEVELAUDIT | NOSECLEVELAUDIT

If you have either the SPECIAL, AUDITOR or ROAUDIT attributes, you can use the LIST operand.

To specify the AT keyword, you must have READ authority to the DIRECT.*node* resource in the RRSFDATA class and a user ID association must be established between the specified *node.userid* pair(s).

To specify the ONLYAT keyword you must have the SPECIAL attribute, the *userid* specified on the ONLYAT keyword must have the SPECIAL attribute, and a user ID association must be established between the specified *node.userid* pair(s) if the user IDs are not identical.

In some situations, you can use SETROPTS even if you do not have the SPECIAL, AUDITOR, or ROAUDIT attributes. These situations are:

- You can specify the LIST operand if you have the group-SPECIAL or group-AUDITOR attribute in the current connect group or if GRPLIST is active in any group that you are connected to.
- You can specify REFRESH together with GENERIC if you have the group-SPECIAL, AUDITOR, group-AUDITOR, OPERATIONS, group-OPERATIONS attribute, or CLAUTH authority for the classes specified.
- You can specify REFRESH together with GLOBAL if you have the OPERATIONS attribute or CLAUTH authority for the classes specified.
- You can specify REFRESH together with RACLIST if you have CLAUTH authority to the specified class.

- You can specify REFRESH together with WHEN(PROGRAM) if you have the OPERATIONS attribute or CLAUTH authority for the program class.

Note: The syntax diagram does not indicate the defaults that are in effect when RACF is using a newly initialized database. You can find these defaults in the description of each operand. As you establish the system-wide defaults your installation needs, you might find it useful to mark the syntax diagram to reflect your choices.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the SETROPTS command is:

[*subsystem-prefix*]{SETROPTS | SETR}
[ADDCREATOR | NOADDCREATOR]
[ADSP | NOADSP]
[APPLAUDIT | NOAPPLAUDIT]
[AT([*node*].*userid* ...) | ONLYAT([*node*].*userid* ...)]
[{AUDIT | NOAUDIT} ({*class-name* ... | *})]
[CATDSNS (FAILURES | WARNING) | NOCATDSNS]
[{CLASSACT | NOCLASSACT} ({*class-name* ... | *})]
[CMDVIOL | NOCMDVIOL]
[COMPATMODE | NOCOMPATMODE]
[EGN | NOEGN]
[ERASE[({ ALL | SECLEVEL(*seclevel-name*) | NOSECLEVEL })] | NOERASE]
[{GENCMD | NOGENCMD} ({*class-name* ... | *})]
[{GENERIC | NOGENERIC} ({*class-name* ... | *})]
[GENERICOWNER | ENHANCEDGENERICOWNER | NOGENERICOWNER]
[{GENLIST | NOGENLIST} (*class-name* ...)]
[{GLOBAL | NOGLOBAL} ({*class-name* ... | *})]

```
[ GRPLIST | NOGRPLIST ]

[ INACTIVE(unused-userid-interval) | NOINACTIVE ]

[ INITSTATS | NOINITSTATS ]

[ JES(
      [ BATCHALLRACF | NOBATCHALLRACF ]
      [ EARLYVERIFY | NOEARLYVERIFY ]
      [ XBMALLRACF | NOXBMALLRACF ]
      [ NJEUSERID(userid) ]
      [ UNDEFINEDUSER(userid) ]
      ) ]

[ KERBLVL(0|1) ]

[ LANGUAGE(
      [ PRIMARY(language) ]
      [ SECONDARY(language) ]
      ) ]

[ LIST ]

[ LOGOPTIONS(
      { ALWAYS(class-name, ...), ...
        | NEVER(class-name, ...), ...
        | SUCCESSES(class-name, ...), ...
        | FAILURES(class-name, ...), ...
        | DEFAULT({class-name, ... | *})
        } ) ]

[ MLACTIVE [( FAILURES | WARNING )] | NOMLACTIVE ]

[ MLFSOBJ ( ACTIVE  | INACTIVE ) ]

[ MLIPCOBJ ( ACTIVE  | INACTIVE ) ]

[ MLNAMES | NOMLNAMES ]

[ MLQUIET | NOMLQUIET ]

[ MLS [( FAILURES | WARNING)] | NOMLS ]

[ MLSTABLE | NOMLSTABLE ]
[ MODEL(
      [ GDG | NOGDG ]
      [ GROUP | NOGROUP ]
      [ USER | NOUSER ]
      )
   | NOMODEL ]

[ OPERAUDIT | NOOPERAUDIT ]

[ PASSWORD(
      [ ALGORITHM(KDFAES) | NOALGORITHM ]
      [ HISTORY(number-previous-values) | NOHISTORY ]
      [ INTERVAL(maximum-change-interval) ]
      [ MINCHANGE(minimum-change-interval) ]
      [ MIXEDCASE | NOMIXEDCASE ]

      [ PHRASEINT(password-phrase-change-interval)  ]
      [ REVOKE(number-incorrect-attempts) | NOREVOKE ]
      [ {RULEn(LENGTH(m1:m2) content-keyword (position))
            | NORULEn
            | NORULES} ]
      [ SPECIALCHARS | NOSPECIALCHARS ]
      [ WARNING(days-before-expiration) | NOWARNING ]
      ) ]

[ PREFIX(prefix) | NOPREFIX ]

[ PROTECTALL [( FAILURES | WARNING )] | NOPROTECTALL ]

[ {RACLIST | NORACLIST} (class-name ...) ]

[ REALDSN | NOREALDSN ]

[ REFRESH ]

[ RETPD(nnnnn) ]

[ RVARYPW( [SWITCH(switch-pw)] [STATUS(status-pw) ]) ]

[ SAUDIT | NOSAUDIT ]

[ SECLABELAUDIT | NOSECLABELAUDIT ]

[ SECLABELCONTROL | NOSECLABELCONTROL ]

[ SECLBYSYSTEM | NOSECLBYSYSTEM ]

[ SECLEVELAUDIT (security-level) | NOSECLEVELAUDIT ]
```

[SESSIONINTERVAL(*n*) | NOSESSIONINTERVAL]
[{STATISTICS | NOSTATISTICS} ({*class-name* ... | *})]
[TAPEDSN | NOTAPEDSN]
[TERMINAL(NONE | READ)]
[{WHEN | NOWHEN} (PROGRAM)]

For information on issuing this command as a RACF TSO command, refer to Chapter 3, “RACF TSO commands,” on page 17.

For information on issuing this command as a RACF operator command, refer to Chapter 4, “RACF operator commands,” on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the execution environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

ADDCREATOR | NOADDCREATOR

ADDCREATOR

Specifies that if a user defines any new DATASET or general resource profile using ADDSD, RDEFINE or RACROUTE REQUEST=DEFINE, the profile creator's user ID is placed on the profile access list with ALTER authority.

NOADDCREATOR

Specifies that if a user defines any new DATASET or general resource profile using ADDSD, RDEFINE or RACROUTE REQUEST=DEFINE, or creates discrete profiles other than DATASET and TAPEVOL using RACROUTE REQUEST=DEFINE, RACF does not place the profile creator's user ID on the profile's access list. If the profile creator uses profile modeling, RACF copies the access list exactly. If the creator's user ID appears in the model's access list, RACF copies the authority to the new profile. For example, if the creator's user ID appears in the model's access list with READ, RACF copies that access authority to the new profile without changing it to ALTER.

An important exception for NOADDCREATOR occurs when the user creates a discrete DATASET or TAPEVOL profile using RACROUTE REQUEST=DEFINE. In this case, RACF ignores the NOADDCREATOR options and places the profile creator's user ID on the new profile's access list with ALTER authority. If the profile creator uses profile modeling to define a discrete DATASET or TAPEVOL and the creator's user ID appears in the model's access list, RACF creates the authority in the new profile with ALTER authority. This exception to NOADDCREATOR allows system components to allocate data sets and immediately access them without having an administrator manipulate the profile's access list in the interim.

Note: The initial setting of the ADDCREATOR/NOADDCREATOR keyword depends on whether your database is new or old. When IRRMIN00 is run with PARM=NEW, the initial setting is NOADDCREATOR. When IRRMIN00 is run with anything other than PARM=NEW, RACF retains the current value of ADDCREATOR/NOADDCREATOR. For compatibility and migration reasons, this value is set to ADDCREATOR if no prior specification of ADDCREATOR or NOADDCREATOR had occurred.

ADSP | NOADSP

ADSP
Specifies that data sets created by users who have the automatic data set protection (ADSP) attribute is RACF-protected automatically.

ADSP is in effect when RACF is using a newly initialized database.

Because ADSP forces the creation of a discrete profile for each data set created by users who have the ADSP attribute, you should normally specify NOADSP if you specify GENERIC.

NOADSP
Cancels automatic RACF protection for users who have the ADSP attribute.

Because ADSP forces the creation of a discrete profile for each data set created by users who have the ADSP attribute, you should normally specify NOADSP if you specify GENERIC.

APPLAUDIT | NOAPPLAUDIT

APPLAUDIT
Specifies that auditing of APPC transactions on your system be enabled. APPC transactions are audited when they receive authorization (start) or have authorization removed (end). You must request auditing for the appropriate APPL profile. Otherwise, turning APPLAUDIT on does not cause auditing of APPC transactions. See *z/OS Security Server RACF Auditor's Guide* for more information on requesting auditing.

You must have the AUDITOR attribute to specify this option.

NOAPPLAUDIT
Specifies that auditing of APPC transactions on your system (starting and ending) be disabled. You must have the AUDITOR attribute to specify this option.

AT | ONLYAT
The AT and ONLYAT keywords are only valid when the command is issued as a RACF TSO command.

AT([*node*].*userid ...*)
Specifies that the command is to be directed to the node specified by *node*, where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed to the local node.

ONLYAT([*node*].*userid ...*)
Specifies that the command is to be directed only to the node specified by *node* where it runs under the authority of the user specified by *userid* in the RACF subsystem address space.

If *node* is not specified, the command is directed only to the local node.

Note: SETROPTS LIST with no other keywords specified is not eligible for automatic command direction. Do not specify the ONLYAT and LIST keywords together without any other keywords on a SETROPTS command.

AUDIT | NOAUDIT

AUDIT(*class-name ...* | *)
Specifies the names of the classes for which you want RACF to perform auditing. For the classes you specify, RACF logs all uses of the RACROUTE REQUEST=DEFINE SVC and all changes made to profiles by RACF commands. When the class specified is USER, RACF logs all password and password phrase changes made by RACROUTE REQUEST=VERIFY. (RACF adds the classes you specify to those already specified for auditing.)

The valid class names are USER, GROUP, DATASET, and those defined in the class descriptor table. For a list of general resource classes defined in the class descriptor table supplied by IBM, see Appendix B, “Supplied RACF resource classes,” on page 647.

If you specify an asterisk (*), logging occurs for all classes.

You must have the AUDITOR attribute to enter the AUDIT operand.

Note: If you activate auditing for a class using SETROPTS AUDIT, RACF activates auditing for all classes in the class descriptor table that have the same POSIT value as the class you specify. For example, the classes TIMS, GIMS, and AIMS all have a POSIT value of 4 in their respective class descriptor table entries. If you activate auditing for any one of these classes, you activate auditing for all of them.

For more information on sharing a POSIT value, see the POSIT keyword of the RDEFINE command.

NOAUDIT(*class-name ...* | *)

Specifies the names of the classes for which you no longer want RACF to perform auditing. For the classes you specify, RACF no longer logs all uses of the REQUEST=DEFINE SVC and all changes made to profiles by RACF commands. The valid class names are USER, GROUP, DATASET, and those classes defined in the class descriptor table. For a list of general resource classes defined in the class descriptor table supplied by IBM, see Appendix B, "Supplied RACF resource classes," on page 647.

If you specify NOAUDIT(*), logging does not occur for any class

You must have the AUDITOR attribute to enter the NOAUDIT operand.

Note: If you deactivate auditing for a class using SETROPTS NOAUDIT, RACF deactivates auditing for all classes in the class descriptor table that have the same POSIT value as the class you specify. For example, the classes TIMS, GIMS, and AIMS all have a POSIT value of 4 in their respective class descriptor table entries. If you deactivate auditing for any one of these classes, you deactivate auditing for all of them.

For more information on sharing a POSIT value, see the POSIT keyword of the RDEFINE command.

CATDSNS | NOCATDSNS

CATDSNS (<u>FAILURES</u> | WARNING)

Specifies that uncataloged data sets, new (and not cataloged), or system temporary data sets are not to be accessed by users.

The following exceptions apply:

1. The job that creates the data set can access it even if the data set is uncataloged. If the data set is still uncataloged when the job ends, it is inaccessible thereafter.
2. Data sets with discrete profiles can be accessed - even if uncataloged - if allowed by the profile.
3. For uncataloged data sets without discrete profiles, RACF constructs a resource name of ICHUNCAT.*dsname* (only the first 30 characters of the dsname is used). It checks the user's authority to this resource in the FACILITY class. If the resource is protected by a FACILITY class profile, and the user has access to it, the access is allowed.
4. If the user has the SPECIAL attribute, the access is allowed even if the data set is uncataloged, but a warning message and SMF record is created.
5. If you use DFSMSrmm to manage your tape data sets and the TAPEAUTHF1 option is active (in the DEVSUPxx member of SYS1.PARMLIB), an uncataloged tape data set might be read by a user who has access to the first file on the tape volume when the first file is cataloged. See *z/OS DFSMSrmm Implementation and Customization Guide*. (If you use a different tape management system, refer to your product documentation.
6. Write requests to tape data sets are not denied because of SETROPTS CATDSNS.

CATDSNS might have a negative impact on RACF and system performance because RACF must verify that data sets are cataloged before it allows them to be opened.

Note: For additional information about accessing uncataloged data sets, refer to SETROPTS command in *z/OS Security Server RACF Security Administrator's Guide*.

FAILURES

Specifies that RACF is to reject any request to access a data set that is not cataloged.

FAILURES is the default.

If CATDSNS(FAILURES) is in effect and a privileged started task or a user with the SPECIAL attribute requests access of an uncataloged data set, RACF accepts the request and issues a warning message.

WARNING

Specifies that the access is allowed even if the data set is uncataloged. However, a warning message and SMF record is created.

NOCATDSNS

Specifies that data sets that are not cataloged can be accessed by users.

NOCATDSNS is in effect when RACF is using a newly initialized database.

CLASSACT | NOCLASSACT

CLASSACT(*class-name ...* | *)

Specifies those classes defined by entries in the class descriptor table for which RACF protection is to be in effect.

If you specify an asterisk (*), you activate RACF protection for all classes defined in the class descriptor table except for those classes with a default return code of 8. For a list of general resource classes defined in the class descriptor table supplied by IBM, see Appendix B, “Supplied RACF resource classes,” on page 647.

Note:

1. If you activate a class using SETROPTS CLASSACT, RACF activates all classes in the class descriptor table that have the same POSIT value as the class you specify. For example, the classes TIMS, GIMS, and AIMS all have a POSIT value of 4 in their respective class descriptor table entries. If you activate any one of these classes, you activate all of them.

   For more information on sharing a POSIT value, see the POSIT keyword of the RDEFINE command.
2. Before activating a class that has a default return code of 8 in the class descriptor table (either explicitly or by means of a shared POSIT value), be sure you have defined the necessary profiles to allow your users to access resources in that class. For example, if you activate JESINPUT without defining profiles to allow access, no one is able to submit batch jobs.
3. You need not activate the DIGTCERT, DIGTCRIT, and DIGTRING classes to use resources in those classes. However, performance is improved when you RACLIST the DIGTCERT and DIGTCRIT classes if you use resources in these classes. To RACLIST a class, you must activate it.

NOCLASSACT(*class-name ...* | *)

Specifies those classes defined by entries in the class descriptor table for which RACF protection is not to be in effect. If you specify an asterisk (*), you deactivate RACF protection for all classes defined in the class descriptor table. For a list of general resource classes defined in the class descriptor table supplied by IBM, see Appendix B, “Supplied RACF resource classes,” on page 647.

NOCLASSACT is in effect when RACF is using a newly initialized database.

Rules:

- If you deactivate a class using SETROPTS NOCLASSACT, RACF deactivates all classes in the class descriptor table that have the same POSIT value as the class you specify. For example, the classes TIMS, GIMS, and AIMS all have a POSIT value of 4 in their respective class descriptor table entries. If you deactivate any one of these classes, you deactivate all of them.

  For more information on sharing a POSIT value, see the POSIT keyword of the RDEFINE command.

- If MLACTIVE, MLS, MLIPCOBJ, MLFSOBJ or SECLBYSYSTEM is active, you may not deactivate the SECLABEL class. Issuing SETROPTS NOCLASSACT(SECLABEL) will fail.

CMDVIOL | NOCMDVIOL

Specifies whether RACF is to log violations detected by RACF commands. You must have the AUDITOR attribute to specify these options.

CMDVIOL

Specifies that RACF is to log violations detected by RACF commands (except LISTDSD, LISTGRP, LISTUSER, RLIST, and SEARCH) during RACF command processing. A violation might occur because a user is not authorized to modify a particular profile or is not authorized to enter a particular operand on a command.

CMDVIOL is in effect when RACF is using a newly initialized database.

NOCMDVIOL

Specifies that RACF is not to log violations detected by RACF commands during RACF command processing (except RVARY and SETROPTS, which are always logged).

COMPATMODE | NOCOMPATMODE

COMPATMODE

Allows users and jobs not using security labels to be on a system enforcing security labels. The ACEEs of the user IDs or jobs must have been created by a RACROUTE REQUEST=VERIFY that did not specify the RELEASE=`1.9` keyword (or later).

NOCOMPATMODE

Users and jobs must be running with correct security labels to access data.

NOCOMPATMODE is in effect when RACF is using a newly initialized database.

EGN | NOEGN

Specifies whether of not to activate or deactivate enhanced generic naming (EGN).

EGN

Activates EGN. When you activate this option, RACF allows you to specify the generic character ** (in addition to the generic characters * and %) when you define data set profile names and entries in the global access checking table.

Note:

1. EGN changes the meaning of the generic character *.
2. When you first activate enhanced generic naming, the RACF-protection provided by existing data set profiles and global access checking table remains the same.

For information on EGN and its effect on profile names, see the description of generic profiles in Appendix A, “Naming considerations for resource profiles,” on page 637.

NOEGN

Specifies deactivation of EGN. When you deactivate this option, RACF does not allow you to specify the generic character ** when you define data set names and entries in the global access checking table.

NOEGN is in effect when RACF is using a newly initialized database.

Important:

If you protect data sets with generic profiles while EGN is active and then deactivate this option, your resources can no longer be protected. Table 55 on page 640 and Table 56 on page 640 show examples of generic profiles created with enhanced generic naming active.

Some of these profiles do not provide RACF protection when the option is deactivated. If a data set is unprotected when EGN is deactivated, you can protect the data set with a discrete profile - as described in Appendix A, “Naming considerations for resource profiles,” on page 637 - either before or after the option is deactivated, or with a generic profile after the option is deactivated.

ERASE | NOERASE

ERASE(*erase-indicator*)

Specifies that data management is to physically erase the contents of deleted data sets and scratched or released DASD extents. Erasing the data set means overwriting its contents with binary zeroes so that it cannot be read.

Restriction: The ERASE option applies to DASD data sets only, not *tape* data sets, unless you set the TAPEAUTHDSN option in the DEVSUPxx member of SYS1.PARMLIB. See Erasing scratched or released data (ERASE option) in *z/OS Security Server RACF Security Administrator's Guide* for more information. For details about customizing SYS1.PARMLIB, see *z/OS MVS Initialization and Tuning Reference*. For details about controlling authorization for tape volume overwriting, see *z/OS DFSMSrmm Implementation and Customization Guide*. (If you use a different tape management system, refer to your product documentation.)

If you specify ERASE without any suboperand, whether a scratched data set is erased depends on the status of the erase indicator in the data set profile. The SETROPTS ERASE suboperand allow you to override the erase indicator in the data set profile, to control the scope of erase-on-scratch on an installation level rather than leaving it to individual users.

The SETROPTS ERASE *erase-indicator* can be:

ALL

Specifies that data management is to erase all scratched data sets, including temporary data sets, regardless of the erase indicator, if any, in the data set profile.

SECLEVEL(*seclevel-name*)

Specifies that data management is to erase all scratched data sets that have a security level equal to or greater than the security level that you specify, where *seclevel-name* must be a member of the SECLEVEL profile in the SECDATA class.

Note: A scratched data set with a security level *lower* than the level you specify is not erased unless the erase indicator (if any) in the data set profile is on.

NOSECLEVEL

Specifies that RACF is not to consider the security level in the data set profile when it decides whether data management is to erase a scratched data set.

Note: A scratched data set, regardless of security level, is not erased unless the erase indicator (if any) in the data set profile is on.

NOSECLEVEL is the default if you do not specify *erase-indicator* when you specify ERASE.

NOERASE

Specifies that erase-on-scratch processing is not in effect. NOERASE means that no data sets are erased when deleted (scratched), even if the erase indicator in the data set profile is on.

NOERASE is in effect when RACF is using a newly initialized database.

GENCMD | NOGENCMD

GENCMD(*class-name ...* | *)

Activates generic profile command processing for the specified classes. Valid class names are DATASET and all class names except grouping classes and classes defined with the GENERIC(DISALLOWED) attribute.

The following supplied classes in the static class descriptor table (CDT) are defined with the GENERIC(DISALLOWED) attribute:

CDT	IDIDMAP	REALM	SECLABEL
CFIELD	KERBLINK	SECLMBR	

To identify installation-defined classes in the dynamic CDT with the GENERIC(DISALLOWED) attribute, issue the `RLIST CDT * CDTINFO` command to list the attributes of all classes in the dynamic CDT.

If you specify an asterisk (*), you activate generic profile command processing for the DATASET class plus all general resource classes except grouping classes and classes defined with the GENERIC(DISALLOWED) attribute.

When GENCMD is in effect for a class, all the command processors can work on generic profiles, but the RACF SVC routines cannot perform generic profile checking. This operand allows the installation to temporarily disable generic profile checking (during maintenance, for example) and still use the RACF commands to maintain generic profiles.

Generic profile command processing is automatically activated for all classes for which generic profile checking is activated. Therefore, when you issue SETROPTS GENERIC for a class, you need not issue SETROPTS GENCMD for the same class.

Note: If you activate generic profile command processing for a class using SETROPTS GENCMD, RACF activates generic profile command processing for all classes in the class descriptor table that have the same POSIT value as the class you specify, except grouping classes. For example, the resource classes TIMS and AIMS and the grouping class GIMS all have a POSIT value of 4 in their respective class descriptor table entries. If you activate generic profile command processing for TIMS, you also activate it for AIMS. However, you cannot activate this option for GIMS because GIMS is a grouping class. If you have GENCMD turned on for the DIGTCERT class when the certificate is created or added, and its Issuer's Distinguished Name contains any generic characters (*, & and %), a generic certificate profile will be created. This generic feature will cause unexpected behavior when the certificate is being used by other programs. You need to remove it add it back after turning off GENCMD in the DIGTCERT class.

For more information on sharing a POSIT value, see the POSIT keyword of the RDEFINE command.

NOGENCMD(*class-name ...* | *)

Deactivates generic profile command processing for the specified classes. Valid class names are DATASET and all class names except grouping classes and classes defined with the GENERIC(DISALLOWED) attribute.

If you specify an asterisk (*), you deactivate generic profile command processing for the DATASET class plus all general resource classes except grouping classes and classes defined with the GENERIC(DISALLOWED) attribute.

NOGENCMD(*) is in effect when RACF is using a newly initialized database.

If generic profile checking is active (GENERIC is in effect), RACF ignores this operand because GENERIC both includes and overrides generic profile command processing.

Note: If you deactivate generic profile command processing for a class using SETROPTS NOGENCMD, RACF deactivates generic profile command processing for all classes in the class descriptor table that have the same POSIT value as the class you specify, except grouping classes. For example, the resource classes TIMS and AIMS and the grouping class GIMS all have a POSIT value of 4 in their respective class descriptor table entries. If you deactivate generic profile command processing for TIMS, you also deactivate it for AIMS. However, GIMS is unaffected because it is a grouping class.

For more information on sharing a POSIT value, see the POSIT keyword of the RDEFINE command.

GENERIC | NOGENERIC

GENERIC(*class-name ...* | *)

Activates generic profile checking for the classes specified.

Note: Avoid activating generic profile checking for the DIGTCERT or DIGTRING class.

Valid class names are DATASET and all class names except grouping classes and classes defined with the GENERIC(DISALLOWED) attribute.

The following supplied classes in the static class descriptor table (CDT) are defined with the GENERIC(DISALLOWED) attribute:

CDT	IDIDMAP	REALM	SECLABEL
CFIELD	KERBLINK	SECLMBR	

To identify installation-defined classes in the dynamic CDT with the GENERIC(DISALLOWED) attribute, issue the `RLIST CDT * CDTINFO` command to list the attributes of all classes in the dynamic CDT.

Guidelines:

- When possible, use generic profiles to protect multiple resources and reduce administrative effort. Consider issuing SETROPTS GENERIC(*classname*) for the classes you use, so that generic profiles are usable in those classes.
- If you already have general resource profiles defined in your database, avoid issuing the `SETROPTS GENERIC(*)` command. This command activates generic profile checking for all classes except resource grouping classes and classes defined with the GENERIC(DISALLOWED) attribute. Some classes do not support generic profile checking. These and other classes might already have profile names that contain generic characters (*, &, and %).
- If you have GENERIC turned on for the DIGTCERT class when the certificate is created or added and its Issuer's Distinguished Name contains any generic characters (*, & and %), a generic certificate profile will be created. This generic feature will cause unexpected behavior when the certificate is being used by other programs. You need to remove it add it back after turning off GENERIC in the DIGTCERT class.
- If a general resource class already has discrete profiles with names that contain generic characters (*, &, and %), enabling generic profile checking for the class *prevents* RACF from using those discrete profiles for authorization checking.

  If you enable SETROPTS GENERIC for a class that has a discrete profile name containing generic characters, the profile will be marked UNUSABLE in RLIST and SEARCH output listings.

  Tip: Use the RDELETE command with the NOGENERIC option to delete this profile.
- In general, once you activate generic profile checking for a class and define generic profiles, avoid deactivating it with the NOGENERIC operand. RACF will not use your previously defined generic profiles for authorization checking while NOGENERIC is in effect.

Generic profile command processing is automatically activated for all classes for which generic profile checking is activated. Therefore, when you issue SETROPTS GENERIC for a class, you need not issue SETROPTS GENCMD for the same class.

If you specify GENERIC with REFRESH, only those currently active and authorized classes are refreshed.

Note:

1. If RACF is enabled for sysplex communication, RACF propagates SETROPTS GENERIC(*class-name*) REFRESH commands to other members of the data sharing group.
2. If RACF is not enabled for sysplex communication, a SETROPTS GENERIC(*class-name*) REFRESH command is effective only on the system where it is issued.
3. If you specify GENERIC, you should also specify NOADSP.
4. If you activate generic profile checking for a class using SETROPTS GENERIC, RACF activates generic profile checking for all classes in the class descriptor table that have the same POSIT value as the class you specify, except grouping classes. For example, the resource classes TIMS and AIMS and the grouping class GIMS all have a POSIT value of 4 in their respective class descriptor table entries. If you activate generic profile checking for TIMS, you also activate it for AIMS. However, you cannot activate this option for GIMS because GIMS is a grouping class.

   For more information on sharing a POSIT value, see the POSIT keyword of the RDEFINE command.

NOGENERIC(*class-name ...* | *)

Deactivates the generic profile checking facility for the classes specified.

Guideline: In general, once you activate generic profile checking for a class and define generic profiles, avoid deactivating it with the NOGENERIC operand. RACF will not use your defined generic profiles for authorization checking while NOGENERIC is in effect.

Valid class names are DATASET and all class names except grouping classes and classes defined with the GENERIC(DISALLOWED) attribute.

If you specify an asterisk (*), you deactivate generic profile checking for the DATASET class plus all general resource classes except grouping classes and classes defined with the GENERIC(DISALLOWED) attribute.

NOGENERIC (*) is in effect when RACF is using a newly initialized database.

NOGENERIC does not automatically deactivate generic profile command processing. Therefore, when you issue SETROPTS NOGENERIC for a class, issue SETROPTS NOGENCMD if you want to deactivate generic profile command processing for the same class.

If you specify GENCMD with NOGENERIC, users can issue RACF commands to maintain generic profiles, but RACF does not use generic profile checking during authorization checking.

If you specify NOGENCMD with NOGENERIC, all generic profile command processing is deactivated.

Note: If you deactivate generic profile checking for a class using SETROPTS NOGENERIC, RACF deactivates generic profile checking for all classes in the class descriptor table that have the same POSIT value as the class you specify, except grouping classes. For example, the resource classes TIMS and AIMS and the grouping class GIMS all have a POSIT value of 4 in their respective class descriptor table entries. If you deactivate generic profile checking for TIMS, you also deactivate it for AIMS. However, GIMS is unaffected because it is a grouping class.

For more information on sharing a POSIT value, see the POSIT keyword of the RDEFINE command.

GENERICOWNER | ENHANCEDGENERICOWNER | NOGENERICOWNER

GENERICOWNER

Restricts creation of profiles in all general resource classes except the PROGRAM class.

To create a profile that is more specific than any existing profile protecting the same resource a user must:

- Have the SPECIAL attribute
- Be the owner of the existing profile
- Have the group-SPECIAL attribute if a group owns the profile
- Have the group-SPECIAL attribute if the owner of the profile is in the scope of the group.

Note:

1. GENERICOWNER provides protection only when there is an existing (less-specific) profile protecting the resource.
2. A less-specific profile must end in *, ** or trailing % characters. A more specific profile is a profile that matches the less-specific profile name, character for character, up to the ending *, or **, or trailing % characters in the less-specific name. If the less-specific profile ends in %, the characters in the more specific profile that correspond to the contiguous trailing % characters must *not* be either * or . characters. For more information, see "Permitting profiles for GENERICOWNER classes" on page 645.

   For example: To allow USERX to RDEFINE A.B in the JESSPOOL class, you need profile A.* in the JESSPOOL class, which is owned by USERX. You also need profile **, owned by the system administrator, to prevent other CLAUTH users from being able to RDEFINE A.B.

3. GENERICOWNER does not prevent the creation of a more specific profile if the more specific profile is created in the grouping class and is specified on the ADDMEM operand. For example, profile A* exists in the TERMINAL class and is owned by a group for which user ELAINE does not have group-SPECIAL, If the GENERICOWNER option is in effect, user ELAINE cannot define a more specific profile in the member class (such as, RDEF TERMINAL AA*), but user ELAINE can define a profile if it is specified on the ADDMEM operand for the grouping class profile - such as RDEF GTERMINL *profile-name* ADDMEM(AA*).

ENHANCEDGENERICOWNER

Same functionality as GENERICOWNER, but also prevents the creation of a more specific profile if the more specific profile is created in the grouping class and is specified on the ADDMEM operand. That is, Note 3 from GENERICOWNER (above) does not apply to ENHANCEDGENERICOWNER.

The ENHANCEDGENERICOWNER option works with all classes except DATASET, RVARSMBR/RACFVARS, SECLMBR/SECLABEL, PMBR/PROGRAM, GMBR/GLOBAL, SCDMBR/SECDATA, VMBR/VMEVENT, VXMBR/VMXEVENT and NODMBR/NODES.

NOGENERICOWNER

Cancels the restriction on the creation of profiles for general resources.

NOGENERICOWNER is in effect when RACF is using a newly initialized database.

GENLIST | NOGENLIST

GENLIST(*class-name ...*)

Also see RACLIST operand.

Activates the sharing of in-storage generic profiles for the classes specified. When GENLIST is active for a class, the generic profiles for that class are loaded into common storage (ECSA) instead of being resident in the private storage (ELSQA) of each user who references the class. Before activating GENLIST for a class, you should check with your system programmer to determine if your system is configured with enough ECSA to contain the profiles.

The *z/OS Security Server RACF System Programmer's Guide* contains information about the amount of virtual storage required for generic profiles, and other considerations about when to use RACLIST or GENLIST. Generally, RACLIST provides the best performance with the lowest usage of common storage.

The following classes supplied by IBM can be used with GENLIST:

APPL	ILMADMIN	RRSFDATA	VMLAN
CPSMOBJ	INFOMAN	SDSF	VMMDISK
DASDVOL	JESJOBS	TERMINAL	VMNODE
DCEUUIDS	KEYSMSTR	TMEADMIN	VMRDR
DSNR	LOGSTRM	VMBATCH	VMSEGMT
FACILITY	PRINTSRV	VMCMD	XFACILIT
FIELD	RACFEVNT	VMDEV	

When you activate GENLIST processing for a class, a generic profile in that class is copied from the RACF database into common storage the first time an authorized user requests access to a resource protected by the profile. The profile is retained in common storage and is available for all authorized users, thus saving real storage because the need to retain multiple copies of the same profile (one copy for each requesting user) in common storage is eliminated. Also, because RACF does not have to retrieve the profile each time a user requests access to a resource protected by it, this function saves processing overhead.

If you want to refresh shared in-storage generic profiles for a specific resource class, issue the SETROPTS command with the GENERIC(*class-name*) and REFRESH operands.

Note: RACF does not allow you to specify SETROPTS GENLIST and SETROPTS RACLIST for the same general resource class.

For information on sharing a POSIT value, see the POSIT keyword of the RDEFINE command.

NOGENLIST(*class-name ...*)

Also see NORACLIST operand.

Deactivates the sharing of in-storage generic profiles for the classes specified. Deactivate this function for general resource classes defined in the class descriptor table that are eligible for GENLIST processing. These classes are listed under the description for GENLIST.

When you specify NOGENLIST, RACF deletes in-storage generic profiles for the specified classes from common storage.

NOGENLIST is in effect for all classes defined in the class descriptor table when RACF is using a newly initialized database.

For information on sharing a POSIT value, see the POSIT keyword of the RDEFINE command.

GLOBAL | NOGLOBAL

GLOBAL(*class-name ...* | *)

Specifies those classes eligible for global access checking. If you specify an asterisk (*), you activate global access checking for all valid classes.

Valid classes you may specify are:

- The DATASET class
- The NODES grouping class
- The SECLABEL grouping class
- All other classes defined in the class descriptor table, except for the remaining grouping classes.

For a list of general resource classes defined in the class descriptor table supplied by IBM, see Appendix B, "Supplied RACF resource classes," on page 647.

If you specify GLOBAL with REFRESH, only those currently active and authorized classes are refreshed. If you have deleted the GLOBAL profile for a class, you should issue the SETROPTS command with the NOGLOBAL operand specified, rather than GLOBAL with REFRESH specified.

Note:

1. If you activate global access checking for a class using SETROPTS GLOBAL, RACF activates global access checking for all classes in the class descriptor table that have the same POSIT value as the class you specify, except the excluded grouping classes. For example, the resource classes TIMS and AIMS and the grouping class GIMS all have a POSIT value of 4 in their respective class descriptor table entries. If you activate global access checking for TIMS, you also activate it for AIMS. However, you cannot activate this option for GIMS because GIMS is a grouping class.

   For more information on sharing a POSIT value, see the POSIT keyword of the RDEFINE command.
2. If RACF is enabled for sysplex communication, it propagates the SETROPTS GLOBAL and SETROPTS GLOBAL REFRESH commands to other systems in the sysplex if the command is successful on the system on which it was entered. If RACF is not enabled for sysplex communication, the command has to be issued on each system sharing the database.
3. Global access checking is bypassed if the user ID has the RESTRICTED attribute.

NOGLOBAL(*class-name ...* | *)

Deactivates global access checking for the specified classes. For more information on valid classes that are processed by the NOGLOBAL operand, see the GLOBAL operand description.

NOGLOBAL(*) is in effect when RACF is using a newly initialized database.

Note: If you deactivate global access checking for a class using SETROPTS NOGLOBAL, RACF deactivates global access checking for all classes in the class descriptor table that have the same POSIT value as the class you specify, except for the excluded grouping classes. For example, the resource classes TIMS and AIMS and the grouping class GIMS all have a POSIT value of 4 in their respective class descriptor table entries. If you deactivate global access checking for TIMS, you also deactivate it for AIMS. However, GIMS is unaffected because it is a grouping class.

For more information on sharing a POSIT value, see the POSIT keyword of the RDEFINE command.

GRPLIST | NOGRPLIST

GRPLIST

Specifies that authorization checking processing is to perform list-of-groups access checking for all system users. When you specify GRPLIST, a user's authority to access or define a resource is not based only on the authority of the user's current connect group; access is based on the authority of any group to which the user is connected.

NOGRPLIST

Specifies that the user's authority to access a resource is based on the authority of the user's current connect group.

NOGRPLIST is in effect when RACF is using a newly initialized database.

INACTIVE | NOINACTIVE

INACTIVE(*unused-userid-interval*)

Specifies the number of days (1 - 255) that a user ID can remain unused and still be considered valid. RACF user verification checks the number of days since the last successful time the user accessed the system against the INACTIVE value and, if the former is larger, revokes the user's right to use the system. INACTIVE does not apply to Protected user IDs. Protected user IDs are protected from being revoked through inactivity. If you specify INACTIVE, INITSTATS must be in effect.

If the backup database is needed but does not contain current information, some user IDs can be revoked because they appear to have been unused beyond the number of days specified on the INACTIVE operand. For more information, see *z/OS Security Server RACF System Programmer's Guide*.

NOINACTIVE

Specifies that RACF user verification is not to check user IDs against an *unused-userid-interval*.

NOINACTIVE is in effect when RACF is using a newly initialized database.

INITSTATS | NOINITSTATS

INITSTATS

Specifies that statistics available during RACF user verification are to be recorded. These statistics include the date and time the user was verified by RACF, the number of user verifications that specified a particular group, and the date and time of the user last requested verification with a particular group. If you specify INACTIVE, REVOKE, or WARNING, INITSTATS must be in effect.

For applications that specify the APPL operand on the RACROUTE REQUEST=VERIFY macro, you can define a profile in the APPL class to specify that the application needs only daily statistics recorded for its users. To do this, specify the `RACF-INITSTATS(DAILY)` string in the APPLDATA field. For more information about statistics collection, see *z/OS Security Server RACF Security Administrator's Guide*.

INITSTATS is in effect when RACF is using a newly initialized database.

NOINITSTATS

Specifies that statistics available during user verification are not to be recorded.

JES

Controls job entry subsystem (JES) options. The JES options are:

BATCHALLRACF | NOBATCHALLRACF

BATCHALLRACF
Specifies that JES is to test for the presence of a user ID and password on the job statement or for propagated RACF identification information for all batch jobs. If the test fails, JES is to fail the job.

NOBATCHALLRACF
Specifies that JES is not to test for the presence of a user ID and a password on the statement, or propagated RACF identification information for all batch jobs.

NOBATCHALLRACF is in effect when RACF is using a newly initialized database.

EARLYVERIFY | NOEARLYVERIFY
This setting is ignored. Early verification is always done, even if the SETROPTS command has been issued with JES(NOEARLYVERIFY) specified or if SETROPTS LIST states that the JES-EARLYVERIFY OPTION IS INACTIVE. See the z/OS Security Server RACF Security Administrator's Guide: *JES user ID early verification* in *z/OS Security Server RACF Security Administrator's Guide*.

XBMALLRACF | NOXBMALLRACF

XBMALLRACF
Specifies that JES is to test for the presence of either a user ID and password on the JOB statement, or JES-propagated RACF identification information for all jobs to be run with an execution batch monitor. If the test fails, JES is to fail the job.

XBMALLRACF is only used on JES2.

NOXBMALLRACF
Specifies that JES is not to test for the presence of either a user ID and password on the JOB statement, or JES-propagated RACF identification information for all jobs to be run with an execution batch monitor.

NOXBMALLRACF is in effect when RACF is using a newly initialized database.

NJEUSERID(*userid*)
Defines the name (user ID) associated with SYSOUT or jobs that arrive through the network without an RTOKEN or UTOKEN.

The initial user ID (default user ID) after RACF data set initialization is ???????? (eight question marks).

Note: The variable *userid* cannot be a user ID defined in the RACF database. For more information, see the section on providing security for JES in *z/OS Security Server RACF Security Administrator's Guide*.

UNDEFINEDUSER(*userid*)
Defines the name (user ID) that is associated with local jobs that enter the system without a user ID.

The initial user ID (default user ID) after RACF data set initialization is ++++++++ (eight plus signs).

Note: The variable *userid* cannot be a user ID defined in the RACF database. For more information, see the section on providing security for JES in *z/OS Security Server RACF Security Administrator's Guide*.

KERBLVL
Specifies what level of key encryption processing should occur when a KERB segment is being processed for user and realm profiles. Beginning with z/OS Version 1 Release 9, the KERBLVL setting is ignored.

See *z/OS Integrated Security Services Network Authentication Service Administration* for information about how z/OS Network Authentication Service uses keys and how to customize environment variables related to keys.

LANGUAGE

Specifies the system-wide defaults for national languages (such as American English or Japanese) to be used on your system. You can specify a primary language, a secondary language, or both. The languages you specify depend on which products, when installed on your system, check for primary and secondary languages (using RACROUTE REQUEST=EXTRACT).

- If this user establishes an extended MCS console session, the languages you specify should be the same as the languages specified on the LANGUAGE LANGCODE statements in the MMSLSTxx PARMLIB member. See your MVS system programmer for this information.
- If this is a CICS user, see your CICS administrator for the languages supported by CICS on your system.

The SETROPTS LANGUAGE operand does not affect the language in which the RACF ISPF panels are displayed. The order in which the RACF ISPF panel libraries are allocated determines the language used. If your installation ordered a translated feature of RACF, the RACF program directory gives instructions for setting up the ISPF panels.

PRIMARY(*language*)

Specifies the installation's default primary language.

The variable *language* can be a quoted or unquoted string.

If the PRIMARY suboperand is not specified, the primary language is not changed.

SECONDARY(*language*)

Specifies the installation's default secondary language.

The language name can be a quoted or unquoted string.

If the SECONDARY suboperand is not specified, the secondary language is not changed.

Note:

1. For both the PRIMARY and SECONDARY suboperands, specify the installation-defined name of a currently active language (a maximum of 24 characters) or one of the language codes (3 characters in length) that is installed on your system. For a list of valid codes, see *National Language Design Guide, Volume 2, National Language Support Reference Manual*, SE09-8002.
2. If the MVS message service is not active, the PRIMARY and SECONDARY values must be a 3-character language code.
3. The same language can be specified for both PRIMARY and SECONDARY.
4. RACF is shipped with both the primary and secondary language defaults set to ENU, meaning United States English.

LIST

Specifies that the current RACF options are to be displayed. If you specify operands in addition to LIST on the SETROPTS command, RACF processes the other operands before it displays the current set of options.

If RACF is enabled for sysplex communication and the system is in read-only mode, users on that system can issue the SETROPTS LIST command. All other operands are ignored.

You must have the SPECIAL, AUDITOR, ROAUDIT, group-SPECIAL, or group-AUDITOR attribute to enter the LIST operand.

If you have the SPECIAL or group-SPECIAL attribute, RACF displays all operands except these auditing operands:

- APPLAUDIT | NOAPPLAUDIT
- AUDIT | NOAUDIT
- CMDVIOL | NOCMDVIOL
- LOGOPTIONS
- OPERAUDIT | NOOPERAUDIT

- ROAUDIT | NOROAUDIT
- SAUDIT | NOSAUDIT
- SECLABELAUDIT | NOSECLABELAUDIT.

If you have the AUDITOR, ROAUDIT, or the group-AUDITOR attribute, RACF displays all operands.

Notes:

- SETROPTS LIST with no other keywords specified is not eligible for automatic command direction. Do not specify the ONLYAT and LIST keywords together without any other keywords on a SETROPTS command.
- To ensure that SETROPTS LIST shows the most current information, SETROPTS LIST reads information from the RACF database and may write to the RACF database

LOGOPTIONS (*auditing-level* (*class-name* . . .) . . .)

Audits access attempts to resources in specified classes according to the auditing level specified. You must have the AUDITOR attribute. You can specify the DATASET class and any classes in the class descriptor table. The resources need not have profiles created in order for auditing to occur. See *z/OS Security Server RACF Auditor's Guide* for more information on when auditing occurs.

The SUCCESSES and FAILURES operands result in auditing in addition to any auditing specified in profiles in the class. In contrast, the ALWAYS and NEVER operands override any auditing specified in profiles in the class. Note that LOG=NONE, specified on a RACROUTE REQUEST=AUTH, takes precedence (auditing is not performed).

auditing-level

Specifies the access attempts to be logged for *class-name*. These options are processed in the following order. Thus, if *class-name* is specified with both SUCCESSES and ALWAYS in the same command, auditing takes place at the SUCCESSES level because option SUCCESSES is processed after ALWAYS.

ALWAYS

All access attempts to resources protected by the class are audited.

NEVER

No access attempts to resources protected by the class are audited. (All auditing is suppressed.)

SUCCESSES

All successful access attempts to resources protected by the class are audited.

FAILURES

All failed access attempts to resources protected by the class are audited.

DEFAULT

Auditing is controlled by the profile protecting the resource, if a profile exists. You can specify DEFAULT for all classes by specifying an asterisk (*) with DEFAULT.

LOGOPTIONS(DEFAULT) is in effect when RACF is using a newly initialized database.

class-name

The RACF class to which *auditing-level* applies. The *class-name* value can be DATASET and any classes in the class descriptor table. Each class can have only one auditing level associated with it. The auditing levels are processed in the following order:

1. ALWAYS
2. NEVER
3. SUCCESSES
4. FAILURES
5. DEFAULT.

This processing order occurs independently of the order you specify the auditing levels. If you specify two or more auditing levels for a class in the same command, only the *last* option processed takes effect. Thus, if you specify the following command:

```
SETR LOGOPTIONS (FAILURES (DATASET,SECLABEL),
          ALWAYS (DATASET, APPL),
          DEFAULT (DATASET, GLOBAL))
```

The options in effect for the classes is:

- `ALWAYS` for the `APPL` class
- `FAILURES` for the `SECLABEL` class
- `DEFAULT` for the `DATASET` and `GLOBAL` classes

The DATASET and APPL classes are first assigned auditing-level ALWAYS. The DATASET class is then assigned auditing-level FAILURES, as is class SECLABEL. Finally, the DATASET class is assigned DEFAULT auditing-level, as is class GLOBAL.

If you specify one *auditing-level* for *class-name* and in a separate command specify a new auditing level for the same class name, the new auditing-level take effects.

SETROPTS LOGOPTIONS(DEFAULT(*)) is in effect when RACF is using a newly initialized database.

For information on sharing a POSIT value, see the POSIT keyword of the RDEFINE command.

MLACTIVE | NOMLACTIVE

For the relationships among the SECLABEL class and the MLS, MLACTIVE, MLNAMES, MLQUIET, and SECLBYSYSTEM options, see *z/OS Security Server RACF Security Administrator's Guide.*.

MLACTIVE (FAILURES | WARNING)

Causes security labels to be required on all work entering the system and on all resources defined to USER, DATASET, and all classes defined in the class descriptor table that require security labels.

Rules:

- This option is available only if the SECLABEL class is active. Activation of MLACTIVE will fail if the SECLABEL class is not active or being activated by the command activating MLACTIVE.
- With MLACTIVE, user tasks running in a server address space must have a security label that is equivalent to the address space's security label.

Data set and general resource profiles in WARNING mode: A user or task can access a resource that is in WARNING mode and has no security label even when MLACTIVE(FAILURES) is in effect and the class requires security labels. The user or task receives a warning message and gains access. (A data set or general resource is in WARNING mode when you define or modify the profile that protects it and you specify the WARNING operand.)

FAILURES

Specifies that RACF is to reject any request to create or access any resource that requires a security label in the profile that protects it, and does not have one, and to reject any work entering the system that does not have a security label.

The only exception is if MLS(FAILURES) and MLACTIVE(FAILURES) are in effect, and a privileged started task or a user with the SPECIAL attribute and the SYSHIGH SECLABEL attempts to access a resource that requires a security label and does not have one. In this case, RACF allows the request as long as the request does not declassify data.

WARNING

Specifies that when a user requests access to a resource that does not have a security label and the resource belongs to a class that requires security labels, access is allowed but a warning is issued. Also, when work enters the system without a security label, access is allowed but a warning is issued.

MLACTIVE(WARNING) is the default value.

NOMLACTIVE

Allows work to enter the system without a security label and allows requests to access a resource that does not have a security label and the resource belongs to a class that requires security labels.

NOMLACTIVE is in effect when RACF is using a newly initialized database.

MLFSOBJ

MLFSOBJ (<u>ACTIVE</u> | INACTIVE)

ACTIVE

Specifies that security labels are required for files and directories. When the SECLABEL class is active, and MLFSOBJ is active, access to files and directories without security labels is denied except by trusted or privileged started tasks. This option cannot be activated if the SECLABEL class is not active.

If you do not specify ACTIVE or INACTIVE, MLFSOBJ(ACTIVE) is the default.

INACTIVE

Specifies that security labels are not required for files and directories.

INACTIVE is in effect when RACF is using a newly initialized database.

MLIPCOBJ

MLIPCOBJ (<u>ACTIVE</u> | INACTIVE)

ACTIVE

Specifies that security labels are required for interprocess communication. When the SECLABEL class is active, and MLIPCOBJ is active, access to semaphores, message queues and shared memory without associated security labels is denied except by trusted or privileged started tasks. This option cannot be activated if the SECLABEL class is not active.

If you do not specify ACTIVE or INACTIVE, MLIPCOBJ(ACTIVE) is the default.

INACTIVE

Specifies that security labels are not required for interprocess communication.

INACTIVE is in effect when RACF is using a newly initialized database.

MLNAMES | <u>NOMLNAMES</u>

MLNAMES

Specifies that users are restricted to viewing only the names of files and directories that could be read from their current security label, and to viewing data set names that they have access to from their current security label. When MLNAMES is active, users listing catalogs or directories will not see names of resources that they cannot currently access.

NOMLNAMES

Specifies that users are not restricted to viewing only the names of files and directories that they cannot currently access.

If you do not specify MLNAMES or NOMLNAMES, NOMLNAMES is the default.

NOMLNAMES is in effect when RACF is using a newly initialized database.

MLQUIET | NOMLQUIET

For the relationships among SECLABEL, MLS, MLACTIVE, and MLQUIET, see *z/OS Security Server RACF Security Administrator's Guide.*.

MLQUIET

Allows only started tasks, console operators, or users with the SPECIAL attribute to log on, start new jobs, or access resources. Actions requiring user verification, resource access checking, or resource definition are available only to the security administrator (SPECIAL user), a trusted computer base job (as indicated in the token), or the console operator.

When this option is enabled, the system is in a tranquil state.

NOMLQUIET

Allows all users access to the system.

NOMLQUIET is in effect when RACF is using a newly initialized database.

MLS | NOMLS

For the relationships among SECLABEL, MLS, MLACTIVE, and MLQUIET, see *z/OS Security Server RACF Security Administrator's Guide.*.

MLS (FAILURES |WARNING)

Prevents a user from declassifying data. In order to copy data, the security label of the target must encompass the security label of the source.

Rules:

- This option is available only if the SECLABEL class is active.
- Activation of MLS will fail if the SECLABEL class is not active or being activated by the command activating MLS.

FAILURES

Specifies that RACF is to reject any request to declassify data.

WARNING

Specifies that when a user attempts to declassify data, RACF is to allow the request but issue warning messages to the user and the security administrator.

MLS(WARNING) is the default value if you do not specify either FAILURES or WARNING.

NOMLS

Allows users to declassify data within the same CATEGORY.

NOMLS is in effect when RACF is using a newly initialized database.

MLSTABLE | NOMLSTABLE

MLSTABLE

Allows the installation to indicate that no one on the system is allowed to alter the security label of an object or alter the definition of the security label, unless MLQUIET is in effect.

NOMLSTABLE

Allows the alteration of security label definitions or the security labels within a profile without requiring MLQUIET to be in effect.

NOMLSTABLE is in effect when RACF is using a newly initialized database.

MODEL | NOMODEL

MODEL

Specifies, through the following suboperands, the model profile processing options. For information about automatic profile modeling, refer to the *z/OS Security Server RACF Security Administrator's Guide.*.

GDG | NOGDG

Specifies that RACF should attempt to protect RACF-indicated members of a generation data group (GDG) using a base profile with the same name as the GDG data set base name. If a base profile exists for a particular RACF-indicated member, then RACF uses the base profile when determining whether the user can access or create the member. Otherwise, RACF uses, or creates, an individual profile for the model. MODEL(GDG) has no effect on GDG members that are protected by generic profiles.

NOGDG specifies that GDG members should not be treated specially by RACF; they are processed as any other data set would be.

GROUP | NOGROUP

Specifies that when creating a new profile for a group-named data set, RACF should check whether a model profile is specified in the group profile. If so, that model profile should be used to complete the definition of the new data set profile.

NOGROUP specifies that RACF should not use model profiles to complete the definition of new group-named data sets.

USER | NOUSER

Specifies that when creating a new profile for all user ID-named data sets, RACF should check whether a model profile is specified in the user profile. If so, that model profile should be used to complete the definition of the new data set profile.

NOUSER specifies that RACF should not use model profiles to complete the definition of new user ID-named data sets.

NOMODEL

Specifies that there is no model profile processing for GDG, GROUP, or USER data sets.

NOMODEL is in effect when RACF is using a newly initialized database.

OPERAUDIT | NOOPERAUDIT

Specifies whether RACF is to log all actions allowed only because a user has the OPERATIONS (or group-OPERATIONS) attribute. You must have the AUDITOR attribute to enter these operands.

OPERAUDIT

Specifies that RACF is to log all actions, such as accesses to resources and commands, allowed only because a user has the OPERATIONS or group-OPERATIONS attribute.

NOOPERAUDIT

Specifies that RACF is not to log the actions allowed only because a user has the OPERATIONS or group-OPERATIONS attribute.

NOOPERAUDIT is in effect when RACF is using a newly initialized database.

PASSWORD (*suboperands*)

Specifies options to monitor and check passwords and password phrases:

ALGORITHM(KDFAES) | NOALGORITHM

ALGORITHM(KDFAES)

Indicates that RACF should start using the KDFAES algorithm to encrypt user passwords and password phrases. After enablement, the existing algorithm continues to be used to evaluate a user's password or password phrase until the user's password or password phrase is changed. The first time a user's password or password phrase is changed, the new algorithm is used from that point forward.

The KDFAES algorithm is more secure than DES, but is more computationally intensive, by design.

The PWCONVERT keyword of **ALTUSER** can be used to convert a user's password from DES to KDFAES format without requiring the password to be changed.

If ALGORITHM is specified without a sub-operand, it is ignored.

NOALGORITHM

Indicates that the legacy algorithm is used to encrypt passwords. This is the default setting. In this case, the algorithm in effect is determined by the ICHDEX01 exit, with DES being the default if there is no exit installed.

If you deactivate KDFAES after some set of passwords have been encrypted using KDFAES, each password continues to be evaluated using KDFAES. When the password is changed, the legacy algorithm is used from that point forward. Any history entries that were created with KDFAES continue to be evaluated using KDFAES. The PWCONVERT keyword of **ALTUSER** can be used to delete KDFAES history entries, if you want, after reverting to DES.

HISTORY | NOHISTORY

HISTORY(*number-of-previous-values*)

Specifies the number (1 - 32) of previous passwords and password phrases that RACF saves for each user and compares with each new intended value. When RACF finds a match with a previous value, or with the current password or password phrase, RACF rejects the new intended value.

For passwords, RACF stores only *previous* passwords in each user's history. For password phrases, RACF saves the user's *current* password phrase in addition to the user's previous password phrases. Therefore, for password phrases, RACF saves one fewer previous value than the number you specify for history.

For example, if you specify 12 for your HISTORY number, RACF saves up to 12 previous passwords and up to 11 previous password phrases for each user.

```
SETROPTS PASSWORD(HISTORY(12))
```

If you increase the HISTORY number, RACF saves and compares that number of passwords and password phrases to the new intended value. If you subsequently reduce the HISTORY number, any previous passwords and password phrases stored in the user profile in excess of the newly specified HISTORY number are not deleted and continue to be used for comparison.

For example, if you specify 12 for your HISTORY number and subsequently reduce it to 8, RACF compares the old passwords and password phrases 9 - 12 with the new intended value.

Attention: You should use ALTUSER PWCLEAN to clean up history entries for all users any time you change the HISTORY value.

NOHISTORY

Specifies that new password and password phrase values are only compared with the current password or password phrase. If prior history information exists in the user profile, it is neither deleted nor changed. ALTUSER PWCLEAN can be used to delete history from USER profiles when NOHISTORY is in effect.

NOHISTORY is in effect when RACF is using a newly initialized database.

INTERVAL(*maximum-change-interval*)

Specifies the maximum number of days during which a user's password and password phrase (if set) remain valid; the value must be 1 to 254 days. The date of the password change counts as the first day. For example, if the maximum-change-interval is 90, the password expires at midnight local time the morning of the 90th day following the change.

RACF uses the value you specify for *maximum-change-interval* as both:

- The default value for new users defined to RACF through the ADDUSER command.
- The upper limit for users who specify the INTERVAL operand on the PASSWORD command.

When a user logs on to the system, RACF compares this INTERVAL value (the system interval) with the interval value specified in the user's profile (the user's interval). RACF uses the lower of the two values to determine if the user's password and password phrase have expired.

The initial default at RACF initialization is 30 days. The maximum change interval cannot be less than the minimum change interval set with the MINCHANGE keyword.

When the system password phrase interval is set to zero the password interval is also used as the password phrase interval. In this case the following line is displayed from a SETROPTS LIST:

```
PASSWORD CHANGE INTERVAL IS IN EFFECT FOR PASSWORD PHRASES.
```

Notes: The INTERVAL setting is overridden for password phrases in the following cases:

1. The user has a non-zero PHRASEINT value
2. The user has NOPHRASEINT
3. The system has a non-zero PHRASEINT value

MINCHANGE(*minimum-change-interval*)

Specifies the number of days that must pass between a user's password and password phrase changes. Acceptable values are 0 - 254 (days), providing the number of days between changes does not exceed the maximum change interval specified by the INTERVAL keyword. For example, if you specify 5 for your MINCHANGE number, users cannot change their passwords more than once in 5 days, nor can they change their password phrases (if assigned) more than once in 5 days.

The initial default is `0` days, allowing users to change their passwords and password phrases more than once on the same day.

Users can *not* change their own passwords and password phrases within the minimum change interval. However, you can use the ALTUSER command to change *another* user's password within the minimum change interval if you have at least one of the following authorities:

- You have the SPECIAL attribute.
- The user is within the scope of a group in which you have the group-SPECIAL attribute.
- You are the owner of the user's profile.
- You have at least CONTROL authority to the IRR.PASSWORD.RESET resource in the FACILITY class, and the other user does not have the SPECIAL, OPERATIONS, AUDITOR, or PROTECTED attribute.
- You have at least CONTROL access to an appropriate resource in the FACILITY class (IRR.PWRESET.OWNER.*owner* or IRR.PWRESET.TREE.*owner*), and *both* of the following conditions are also true:
  - The other user does not have the SPECIAL, OPERATIONS, AUDITOR, or PROTECTED attribute.
  - You are not excluded from altering the user by the IRR.PWRESET.EXCLUDE.*excluded-user* resource in the FACILITY class.

  For more information about the IRR.PWRESET profiles, see *z/OS Security Server RACF Security Administrator's Guide.*.

MIXEDCASE | NOMIXEDCASE

MIXEDCASE

Indicates that all applications on this system and those that share the RACF database support mixed-case and lowercase passwords. The syntax rules must be modified to allow mixed-case and lowercase characters. (See "RULEn | NORULEn | NORULES" on page 599 for more information.) When this option is activated, the RACF ALTUSER, ADDUSER, PASSWORD and RACLINK commands do not translate passwords to uppercase, nor do applications that provide mixed-case password support, such as TSO/E and z/OS UNIX Systems Services. This option is inactive by default.

If you are propagating passwords with RRSF, see RRSF considerations for mixed-case passwords in *z/OS Security Server RACF Security Administrator's Guide.*.

Important: The MIXEDCASE option is intended to be activated - after evaluating and updating applications and implementing appropriate password syntax rules - and never deactivated. Deactivate it only if problems are encountered. If you deactivate MIXEDCASE after it was active, any users who changed their passwords to mixed-case or lowercase (when MIXEDCASE was active) will no longer be able to enter the system until an authorized user resets their passwords to uppercase. If you subsequently reactivate MIXEDCASE, the same users must enter their passwords in upper case.

PHRASEINT(password-phrase-change-interval)

Specifies the default number of days (0 - 65534) each user's password phrase is valid. For example, if you specify 365 for your PHRASEINT number, each user's password phrase is valid for 365 days.

The default PHRASEINT value is 0 which indicates that the system does not have a password phrase interval value. In this case, when the user PHRASEINT is set to a non-zero value, that value is this user’s effective password phrase interval. When both the system PHRASEINT value and the user level PHRASEINT are set to 0 the shorter of either the user’s INTERVAL value or the system INTERVAL is used as the effective password phrase interval.

When the system password phrase interval is set to zero the following line is displayed from a SETROPTS LIST:

```
PASSWORD CHANGE INTERVAL IS IN EFFECT FOR PASSWORD PHRASES.
```

When a user logs on to the system, RACF compares this PHRASEINT value (the system interval) with the interval value specified in the user's profile (the user's interval). When a user has a nonzero PHRASEINT value that value is used as their password phrase interval. When a user has a user PHRASEINT value of 0 the system level PHRASEINT value is used as their password phrase interval.

The password phrase change interval cannot be less than the minimum change interval set with the MINCHANGE keyword.

NOMIXEDCASE

Indicates that mixed-case and lowercase passwords are not supported. This is the default setting.

Important: If you issue SETR NOMIXEDCASE after MIXEDCASE was active, any users who changed their passwords to mixed-case or lowercase (when MIXEDCASE was active) can no longer enter the system until an authorized user resets their passwords to uppercase. See the important note for the MIXEDCASE operand.

REVOKE | NOREVOKE

REVOKE(*number-of-unsuccessful-attempts*)

Specifies the number of consecutive unsuccessful attempts (1 - 255) to access the system (using an incorrect password or password phrase) before RACF revokes the user ID on the next unsuccessful attempt. If you specify REVOKE, INITSTATS must be in effect.

The REVOKE number you specify applies to the combination of incorrect passwords and password phrases RACF allows. For example, if you specify 5 as your REVOKE number, a user will be revoked upon three consecutive incorrect passwords followed by three consecutive incorrect password phrases.

NOREVOKE

Specifies that RACF ignores the number of consecutive unsuccessful attempts to access the system using an incorrect password or password phrase.

RULE*n* | NORULE*n* | NORULES

Tip: You might find the ISPF panels easier to use for entering password rules.

RULE*n* (LENGTH (*m1:m2*) *content-keyword* (*position*))

Specifies an individual syntax rule for new passwords that users specify at logon, on JCL job cards, or on the PASSWORD command. Also applies to passwords specified on the ALTUSER commands that have the NOEXPIRED operand. Eight syntax rules are allowed. Therefore, for the **RULE*n*** suboperand, the value of *n* is 1 - 8.

These syntax rules do *not* apply to:

- Password phrases
- Logon passwords that are currently in effect for a user
- Logon passwords specified on the ADDUSER command
- Logon passwords specified on the ALTUSER command with the PASSWORD operand and with the EXPIRED operand either specified or defaulted

If multiple rules are defined, a password that passes at least one rule is accepted.

Restriction: Changes to password syntax rules will not force users to immediately change their passwords. RACF does not apply new password rules to users until users change their passwords - either voluntarily or at password expiration.

LENGTH(*m1:m2*)
Specifies the minimum and maximum password lengths to which this particular rule applies (*m2* must be greater than or equal to *m1*). Because RACF allows passwords no longer than 8 alphanumeric characters, the value for *m2* must be less than or equal to 8. If you omit the *m2* value, the rule applies to a password of one length only.

***content-keyword*(*position*)**
Specifies the syntax rules for the positions indicated by the LENGTH suboperand. Rules specifying mixed-case characters other than MIXEDALL should only be set when the MIXEDCASE option is in effect. New passwords will not match these rules when mixed-case passwords are not supported, either because the MIXEDCASE option is not in effect or because an application is used that does not support mixed-case passwords. The possible values for *content-keyword* are:

ALPHA
Includes uppercase alphabetic characters and the national characters # (X'7B'), $ (X'5B'), and @ (X'7C')

ALPHANUM
Includes the ALPHA characters - uppercase alphabetic characters and the national characters # (X'7B'), $ (X'5B'), and @ (X'7C') - and NUMERIC characters.

If the password syntax rule requires only one ALPHANUM character, passwords must contain either one ALPHA character or one NUMERIC character.

If the password syntax rule requires two or more ALPHANUM characters, passwords must contain at least one ALPHA character and at least one NUMERIC character in the specified ALPHANUM positions.

VOWEL
Includes uppercase vowel characters, namely A, E, I, O, and U

NOVOWEL
Includes characters that are not vowels, such as

- Uppercase alphabetic characters that are consonants, not vowels
- National and special characters
- Numeric characters

CONSONANT
Includes uppercase non-vowel characters

NUMERIC
Includes numeric characters

NATIONAL
Includes the national characters # (X'7B'), $ (X'5B'), and @ (X'7C')

MIXEDALL
Includes all allowable password characters separated into the following categories. There are either three or four "active" categories, depending on whether SETROPTS PASSWORD(MIXEDCASE) is enabled.

1. The national characters, and special characters if SETROPTS PASSWORD(SPECIALCHARS) is in effect
2. Numeric characters
3. Uppercase alphabetic characters (not including the national characters)

4. Lowercase alphabetic characters, if SETROPTS PASSWORD(MIXEDCASE) is in effect.

MIXEDALL is intended to force a mixture of character types that can include special characters. MIXEDALL requires a character from as many different active categories as there are MIXEDALL positions specified, in any combination:

- When one MIXEDALL position is specified, any character from any active category may be specified in that position. This is equivalent to not specifying a content-keyword in this position.
- When two MIXEDALL positions are specified, two characters from any two different active categories must be specified in the designated positions.
- When three MIXEDALL positions are specified, three characters from any three different active categories must be specified in the designated positions.
- When four or more MIXEDALL positions are specified, and SETROPTS PASSWORD(MIXEDCASE) is enabled, then at least one of every category must be specified anywhere across the designated positions. If MIXEDCASE is not enabled, then there is no change in behavior from having three MIXEDALL positions, other than in the number of positions over which the three active categories may be spread.

MIXEDCONSONANT

Includes uppercase and lowercase non-vowel characters

MIXEDVOWEL

Includes the uppercase and lowercase vowel characters, A, E, I, O, U, and a, e, i, o, u

MIXEDNUM

Includes all characters of the following three types of MIXEDNUM characters:

1. ALPHA characters - includes uppercase alphabetic characters and the national characters # (X'7B'), $ (X'5B'), and @ (X'7C')
2. Lowercase alphabetic characters
3. NUMERIC characters.

If the password syntax rule requires only one MIXEDNUM character, passwords must contain at least one character of *any* one of the three MIXEDNUM character types.

If the password syntax rule requires two MIXEDNUM characters, passwords must contain two characters of *different* MIXEDNUM character types, in one of the following valid combinations:

- An ALPHA character and a lowercase alphabetic
- An ALPHA character and a NUMERIC character
- A lowercase alphabetic character and a NUMERIC character.

If the password syntax rule requires three or more MIXEDNUM characters, passwords must contain three or more MIXEDNUM characters including at least one character of *each* MIXEDNUM character type in the specified MIXEDNUM positions.

SPECIAL

Includes the special characters documented under SETROPTS PASSWORD(SPECIALCHARS) as well as the national characters # (X'7B'), $ (X'5B'), and @ (X'7C').

If the values in the *content-keywords* do not define every position specified by the LENGTH value, the undefined positions can consist of any combination of alphanumeric characters.

Each *content-keyword* is followed by a position (in the form of *k*, not greater than 8), list of positions (form of `*k1,k2,k3...*` in any order), or a range (form of *k4:k5*, where *k5* must be greater than or equal to *k4*).

- **Example**:

  ```
  RULE1(LENGTH(8) CONSONANT(1,3,5:8) NUMERIC(2,4))
  ```

- **Result**:

  Syntax RULE1 applies to passwords eight characters in length with consonants in positions 1, 3, 5, 6, 7, and 8 and numbers in positions 2 and 4. The password B2D2GGDD obeys RULE1, and C3PIBOLO does not.

- **Example**:

  ```
  RULE2(LENGTH(6) NATIONAL(3) MIXEDNUM(4:6))
  ```

- **Result**:

  Syntax RULE2 applies to passwords 6 characters in length with a national character in position 3 and requires an uppercase alphabetic, a lowercase alphabetic, and a numeric in positions 4, 5, and 6. The password AB@1tD obeys RULE2.

NORULE*n*

Specifies that RACF is to delete the particular rule identified by *n*.

NORULES

Specifies that RACF is to delete all password syntax rules established by the installation.

NORULES is in effect when RACF is using a newly initialized database.

SPECIALCHARS | NOSPECIALCHARS

SPECIALCHARS

Indicates that all applications on this system and those that share the RACF database support additional special characters in passwords. For more information, see Allowing special characters in passwords (PASSWORD option) in *z/OS Security Server RACF Security Administrator's Guide.*. This option is inactive by default.

NOSPECIALCHARS

Indicates that special characters are not allowed in passwords. This is the default setting. If NOSPECIALCHARS is specified after users have already starting using special characters in passwords, those users will still be able to logon with their existing password, but will not be able to include special characters in the new password when they change their password.

WARNING | NOWARNING

WARNING(*days-before-password-expires*)

Specifies the number of days (1 - 255) before a password or password phrase expires, indicating that RACF is to issue a warning message to the TSO user or to the job log of a batch job that specified the expiring password or password phrase.

If you specify a WARNING value that exceeds the INTERVAL value, a warning message is issued at each logon. If you do not want the warning with each logon, specify a value for WARNING that is less than the value you specify for INTERVAL. If you specify WARNING, INITSTATS must be in effect.

NOWARNING

Specifies that RACF is not to issue the warning message for expiring passwords or password phrases.

NOWARNING is in effect when RACF is using a newly initialized database.

PREFIX | NOPREFIX

PREFIX(*prefix*)

Activates RACF protection for data sets that have single-qualifier names, and specifies the 1 - 8 character prefix to be used as the high-level qualifier in the internal form of the names. The variable *prefix* should be a predefined group name, and it must not be the high-level qualifier of any actual data sets in the system.

NOPREFIX

Deactivates RACF protection for data sets that have single-level names.

When EGN is active and NOPREFIX is in effect, a data set can be protected with a generic profile of the form `ABC.**`, where ABC equals the data set name.

NOPREFIX is in effect when RACF is using a newly initialized database.

PROTECTALL | NOPROTECTALL

PROTECTALL(FAILURES | WARNING)

Activates PROTECTALL processing. When PROTECTALL processing is active, the system automatically rejects any request to create or access a data set that is not RACF-protected. This processing includes DASD data sets, tape data sets, catalogs, and GDG basenames. Temporary data sets that comply with standard MVS temporary data set naming conventions are excluded from PROTECTALL processing.

Note that PROTECTALL requires all data sets to be RACF-protected. This includes tape data sets if your installation specifies the TAPEDSN operand on the SETROPTS command.

In order for PROTECTALL to work effectively, you must specify GENERIC to activate generic profile checking. Otherwise, RACF would allow users to create or access only data sets protected by discrete profiles. If your installation uses nonstandard names for temporary data sets, you must also predefine entries in the global access checking table that allow these data sets to be created and accessed.

The WARNING suboperand enables you to specify a warning message to the requestor in place of rejecting the request.

FAILURES

Specifies that RACF is to reject any request to create or access a data set that is not RACF-protected.

The default value is FAILURES.

If PROTECTALL(FAILURES) is in effect and a user with the SPECIAL attribute requests access to an unprotected data set, RACF accepts the request, audits the event, and issues a PROTECTALL warning message.

If PROTECTALL(FAILURES) is in effect and a trusted started task requests access to an unprotected data set, RACF accepts the request, audits the event, and no warning message is issued.

If PROTECTALL(FAILURES) is in effect and a privileged started task requests access to an unprotected data set, RACF accepts the request, the event is not audited, and no warning message is issued.

WARNING

Specifies that when a user requests creation of, or access to, a data set that is not RACF-protected, RACF is to allow the request but issue warning messages to the user and the security administrator.

NOPROTECTALL

Specifies that a user can create or access a data set that is not protected by a profile.

NOPROTECTALL is in effect when RACF is using a newly initialized database.

RACLIST | NORACLIST

RACLIST(*class-name ...*)

Activates the sharing of in-storage profiles, both generic and discrete, for the classes specified. Also see GENLIST operand.

Activate this function to improve the performance of resource access checking for a general resource class. With the profiles for the class in storage, RACF requires no database I/O when making an access decision.

A valid *class-name* is any member class for which the class descriptor table allows or requires RACLIST processing. Grouping classes are not valid, except for RACFVARS and NODES. If *class-name* is valid, not only the specified *class-name*, but all classes that share the same POSIT are processed. If some classes sharing the same POSIT do not allow RACLIST processing, those classes are skipped.

Only active classes are RACLISTed. Be sure to activate each class you want to RACLIST. For example:

```
SETROPTS RACLIST(DIGTCERT) CLASSACT(DIGTCERT)
```

If REFRESH is also specified, member classes for which the class descriptor table does not allow RACLIST processing are also valid because the SETROPTS RACLIST(*class-name*) REFRESH command refreshes classes that were RACLISTed by RACROUTE REQUEST=LIST,GLOBAL=YES or SETROPTS RACLIST. Likewise, classes for which SETROPTS GENLIST was specified are also valid.

You cannot SETROPTS RACLIST and SETROPTS GENLIST for the same general resource class.

Rule: If the following supplied classes are active, you *must* issue the SETROPTS RACLIST command to share them:

ACEECHK	DIGTCRIT	NODES	RACFVARS	SYSMVIEW
APPCSERV	DIGTNMAP	OPERCMDS	RDATALIB	UNIXPRIV
APPCTP	FIELD	PKISERV	SDSF	VTAMAPPL
CRYPTOZ	FSACCESS	PROPCNTL	SECLABEL	WBEM
CSFKEYS	FSEXEC	PSFMPL	SERVAUTH	XCSFKEY
CSFSERV	IDIDMAP	PTKTDATA	STARTED	
DEVICES	IDTDATA	RACFHC	SYSAUTO	

In-storage profiles for the following supplied classes can be optionally shared by using SETROPTS RACLIST.

ACCTNUM *	DIGTRING	JESJOBS	PTKTVAL	TSOPROC *
ALCSAUTH	DLFCLASS	JESSPOOL	RRSFDATA *	VMBATCH
APPCPORT	DSNR	KEYSMSTR	RACFEVNT	VMCMD
APPCSI	EJBROLE	LDAPBIND *	RAUDITX	VMDEV
APPL *	FACILITY *	LDAP	REALM	VMLAN
CBIND	FCICSFCT	LFSCLASS	SERVER	VMNODE
CDT *	HBRADMIN	LOGSTRM	SMESSAGE	VMSEGMT
CONSOLE	HBRCONN	MFADEF	SOMDOBJS	WRITER
CPSMOBJ	HBRCMD	MGMTCLAS	STORCLAS	XFACILIT
CPSMXMP	INFOMAN	MQCMDS	SUBSYSNM	ZMFAPLA
DASDVOL	ILMADMIN	MQCONN	SURROGAT	ZMFCLOUD
DBNFORM	IZP	NETCMDS	TERMINAL *	
DCEUUIDS	JAVA	PERFGRP *	TMEADMIN	

DIGTCERT *	JESINPUT	PRINTSRV *	TSOAUTH *	

Important: For each class marked with an asterisk (*), you might incur performance degradation or missing function if you do not issue the SETROPTS RACLIST command when you define profiles in the class and activate it. For important details about each class, see *z/OS Security Server RACF Security Administrator's Guide* (for classes used for RACF functions) or the appropriate program documentation.

If you have, or are considering, authorizing a large number of users for a resource in a class that can be processed to an in-storage profile using the SETROPTS RACLIST command, you must consider the number of entries in the access list, because RACLIST processing merges profiles and the access lists of each profile. The combined number of access-list entries might cause the profile to become too large to be processed, and RACLIST processing might fail. See *z/OS Security Server RACF Security Administrator's Guide* for more information about limiting the size of access lists and profile sizes.

Note:

1. When you activate RACLIST processing for a class, RACF copies both discrete and generic profiles for that class into a data space.
2. When the RACGLIST class is active and *class-name* profiles have been specified in the RACGLIST class, SETROPTS RACLIST(*class-name*) stores the RACLISTed results from the data space in the RACGLIST *classname_nnnnn* profiles on the RACF database, enabling all systems sharing the database to access the same level of profile information.

   For example if you issue the commands:

   ```
   SETR CLASSACT(RACGLIST)
   RDEFINE RACGLIST TERMINAL
   ```

   Then either when you issue:

   ```
   SETROPTS RACLIST(TERMINAL)
   ```

   or at the next IPL, if the TERMINAL class was RACLISTed before the RACGLIST class was activated, RACF creates RACGLIST `TERMINAL_00001`, RACGLIST `TERMINAL_00002`, and so on, to hold the results of the SETROPTS RACLIST processing.

   The profiles are available to all authorized users, thereby eliminating the need for RACF to retrieve a profile each time a user requests access to a resource protected by that profile. Thus, when you activate this function, you reduce processing overhead.

   The SETROPTS RACLIST(*class-name*) command overrides a RACROUTE REQUEST=LIST,GLOBAL=YES request for the same class. The data space and RACGLIST *classname_nnnnn* profiles, if any, are refreshed by the SETROPTS RACLIST. SETROPTS LIST output will list the class in the `SETR RACLIST CLASSES =` line rather than the `GLOBAL=YES RACLIST ONLY =` line.
3. If you specify RACLIST with REFRESH, RACF rebuilds the discrete and generic profiles for the class and places them in the new data space. If the RACGLIST class is active and contains a profile for *class-name*, the *classname_nnnnn* profiles for the class are also rebuilt, or are created if they had not been built previously.

   SETROPTS RACLIST(*class-name*) REFRESH can also be used to refresh classes RACLISTed by RACROUTE REQUEST=LIST,GLOBAL=YES, as well as classes that are RACLISTed. It refreshes the class, but has no effect on SETROPTS LIST output. If the class was processed using SETROPTS RACLIST solely by RACROUTE REQUEST=LIST,ENVIR=CREATE,GLOBAL=YES, the class are listed in the `GLOBAL=YES RACLIST ONLY =` line. Regardless of whether the class was RACLISTed by GLOBAL=YES, if it was RACLISTed by SETROPTS RACLIST (*classname*) then the class is listed only in the `SETR RACLIST CLASSES =` line.

   SETROPTS RACLIST(*classname*) REFRESH can also be issued to create the RACGLIST profiles for the class, even if the class were not RACLISTed by either RACROUTE

REQUEST=LIST,GLOBAL=YES or by SETROPTS RACLIST. Then the first RACROUTE REQUEST=LIST,GLOBAL=YES uses the RACLIST profiles to build the RACLIST data space, rather than accessing the database for each individual discrete and generic profile.

While the rebuild is in progress, RACF continues to use the old in-storage profiles for authorization requests until the new ones are created. When all systems have completed rebuilding the local data spaces, the coordinator signals the members of the data sharing group to discard the old ones, and to begin using the new one.

4. When RACF is enabled for sysplex communication, RACF propagates a SETROPTS RACLIST(*class-name*) or SETROPTS RACLIST(*class-name*) REFRESH command issued from any one system (coordinator) to other systems in the data sharing group (peers) if the command is successful on the system on which it was entered. If the RACGLIST *classname_nnnnn* profiles were built for the class, peer members of the sysplex use the results to build the RACLIST data space on their system, but do not rebuild the RACGLIST profiles.

   If a refresh is being done, RACF continues to use the old in-storage profiles for authorization requests until the new ones are created. When all systems have completed rebuilding the local data spaces, the coordinator signals the members of the data sharing group to discard the old ones, and to begin using the new one.

   If RACF is not enabled for sysplex communication, you must issue the SETROPTS RACLIST(*class-name*) command and the SETROPTS RACLIST(*class-name*) REFRESH command on each system sharing the database.

5. When you activate RACLIST processing for the CDT class, the dynamic class descriptor table is built in a dataspace instead of in-storage profiles. The information in the dataspace is not used for authorization checking. If authorization checking using RACROUTE REQUEST=FASTAUTH is required for the CDT class, you must use RACROUTE REQUEST=LIST,GLOBAL=NO to locally RACLIST the CDT class profiles. Alternatively, RACROUTE REQUEST=AUTH may be used for the CDT class, and RACF will use CDT profiles in the RACF database for authorization checking. For more information on the dynamic CDT, see *z/OS Security Server RACF Security Administrator's Guide.*.

NORACLIST(*class-name ...*)

Deactivates the sharing of in-storage profiles, both generic and discrete, for the classes specified. Also see the NOGENLIST operand.

When you specify NORACLIST, RACF deletes the data space containing the generic and discrete profiles for the specified classes. The data space might have been created by specifying the class with either a SETROPTS RACLIST command or a RACROUTE REQUEST=LIST,GLOBAL=YES request. In the latter case, all applications that issued a RACROUTE REQUEST=LIST,ENVIR=CREATE,GLOBAL=YES for the class should issue a RACROUTE REQUEST=LIST,ENVIR=DELETE before a SETROPTS NORACLIST is issued that processes the class. The SETROPTS NORACLIST should be used to delete the data space only after all applications have relinquished their access to it.

For both the SETROPTS RACLIST and RACROUTE REQUEST=LIST,GLOBAL=YES cases, if RACGLIST *classname_nnnnn* profiles exist for the class, they are deleted. Even if the class was not RACLISTed, SETROPTS NORACLIST can be used to delete these profiles. In all cases, the RACGLIST *classname* profile remains.

A valid *class-name* is any member class in the class descriptor table. Grouping classes are not valid, except for RACFVARS and NODES. If *class-name* is valid, not only the specified class but all classes that share the same POSIT are processed. For a list of general resource classes defined in the class descriptor table supplied by IBM, see Appendix B, “Supplied RACF resource classes,” on page 647.

Because SETROPTS NORACLIST, like SETROPTS RACLIST REFRESH, operates on classes that are RACLISTed by RACROUTE REQUEST=LIST,GLOBAL=YES, or SETROPTS RACLIST, member classes in the class descriptor table that do not allow RACLIST processing are now valid classes for the command. Both these conditions are still invalid for SETROPTS RACLIST.

When RACF is enabled for sysplex communication, RACF propagates the SETROPTS NORACLIST command to other systems in the data sharing group, if the command was successful on the system in which it was entered. If RACF is not enabled for sysplex communication, you must issue the SETROPTS NORACLIST command on each system sharing the database.

NORACLIST is in effect for all classes defined in the class descriptor table when RACF is using a newly initialized database.

When SETROPTS NORACLIST(CDT) is issued, the dataspace containing the dynamic class descriptor table is deactivated, but not deleted. The dataspace remains until the system is restarted. For more information on the dynamic CDT, see *z/OS Security Server RACF Security Administrator's Guide.*.

REALDSN | NOREALDSN

REALDSN
Specifies that RACF is to record, in any SMF log records and operator messages, the real data set name (not the naming-conventions name) used on the data set commands and during resource access checking and resource definition.

NOREALDSN
Specifies that RACF is to record, in any SMF log records and operator messages, the data set names modified according to RACF naming conventions.

NOREALDSN is in effect when RACF is using a newly initialized database.

REFRESH
Refreshes the in-storage generic profiles when specified with GENERIC, GLOBAL or RACLIST, or the in-storage program control tables when specified with WHEN(PROGRAM).

RETPD(*nnnnn*)
Specifies the default RACF security retention period for tape data sets, where *nnnnn* is a 1-5 digit number in the range of 0 through 65533 or 99999 to indicate a data set that never expires. The security retention period is the number of days that RACF protection is to remain in effect for a tape data set; RACF stores the value in the tape data set profile.

If you specify RETPD, you must also specify TAPEDSN to activate tape data set protection. If you omit TAPEDSN, RACF records the value you specify for security retention period in the list of RACF options. However, without tape data set protection activated, this value is meaningless.

If you specify RETPD and TAPEDSN, the value you specify for security retention period is the default for your installation; RACF places the value in each tape data set profile unless the user specifies one of the following:

- An EXPDT in the JCL other than the current date
- An RETPD other than 0 on the ADDSD command.

If you specify TAPEDSN and do not specify RETPD, RACF uses a value of 0 for the default security retention period.

RVARYPW([SWITCH(*switch-pw*)] [STATUS(*status-pw*)])
Specifies the passwords that the operator is to use to respond to requests to approve RVARY command processing, where *switch-pw* is the response to a request to switch RACF databases or change the operating mode of RACF, and *status-pw* is the response to a request to change RACF or database status from ACTIVE to INACTIVE or from INACTIVE to ACTIVE. You can specify different passwords for each response. Note that NO is not a valid password for either SWITCH or STATUS.

When RACF is using a newly initialized database, the switch password and the status password are both set to YES.

SAUDIT | NOSAUDIT
Specifies whether RACF is to log RACF commands issued by users with the SPECIAL or group-SPECIAL attribute. You must have the AUDITOR attribute to specify these operands.

SAUDIT

Specifies that RACF is to log RACF commands (except LISTDSD, LISTGRP, LISTUSER, RLIST, and SEARCH) issued by users who either had the SPECIAL attribute or who gained authority to issue the command through the group-SPECIAL attribute.

SAUDIT is in effect when RACF is using a newly initialized database.

NOSAUDIT

Specifies that RACF is not to log the commands issued by users with the SPECIAL or group-SPECIAL attribute.

SECLABELAUDIT | NOSECLABELAUDIT

You must have the AUDITOR attribute to specify these options.

SECLABELAUDIT

Specifies that the SECLABEL profile's auditing options are to be used in addition to the auditing options specified for the user or resource. This additional auditing occurs whenever an attempt is made to access or define a resource protected by a profile, FSP, or ISP that has a security label specified, or when a user running with a security label attempts to access or define a resource.

The SECLABEL profile requires SETROPTS RACLIST processing. If SECLABEL profile audit options are not specified, SECLABEL auditing is not done.

For more information, refer to *z/OS Security Server RACF Auditor's Guide*.

NOSECLABELAUDIT

Disables auditing by SECLABEL.

NOSECLABELAUDIT is in effect when RACF is using a newly initialized database.

SECLABELCONTROL | NOSECLABELCONTROL

SECLABELCONTROL

Limits the users who can specify the SECLABEL operand on RACF commands. Those allowed to specify the operand are:

- Users with the SPECIAL attribute can specify the SECLABEL operand on any RACF command.
- Users with the group-SPECIAL attribute can specify the SECLABEL operand on the ADDUSER and ALTUSER commands when adding a user to a group within their scope of control (provided the group-SPECIAL is permitted to the SECLABEL).

NOSECLABELCONTROL

Allows any user to change the SECLABEL field in a profile, as long as the user has at least READ access authority to the associated SECLABEL profile.

NOSECLABELCONTROL is in effect when RACF is using a newly initialized database.

SECLBYSYSTEM | NOSECLBYSYSTEM

SECLBYSYSTEM

Specifies that security labels can be activated on a system image basis. When SECLBYSYSTEM is active, the SMF ID values specified in the member list of the profiles in the SECLABEL class will determine whether or not the security label is valid for each system. Security labels that are not valid for a system are considered inactive and cannot be used or listed by users without SPECIAL or AUDITOR on that system. After activating SECLBYSYSTEM, SETR RACLIST(SECLABEL) REFRESH must be issued to complete the activation of security labels by system. This option cannot be activated if the SECLABEL class is not active.

NOSECLBYSYSTEM

Specifies that security labels are not activated on a system image basis.

NOSECLBYSYSTEM is in effect when RACF is using a newly initialized database.

SECLEVELAUDIT | NOSECLEVELAUDIT

You must have the AUDITOR attribute to specify these operands.

SECLEVELAUDIT (*security-level*)

Activates auditing of access attempts to all RACF-protected resources based on the specified installation-defined security level. RACF audits all access attempts for the specified security level and higher.

You can specify only a security level name defined by your installation as a SECLEVEL profile in the SECDATA class. (For information on defining security levels, see the description of the RDEFINE and RALTER commands.)

NOSECLEVELAUDIT

Deactivates auditing of access attempts to RACF-protected resources based on a security level.

NOSECLEVELAUDIT is in effect when RACF is using a newly initialized database.

SESSIONINTERVAL | NOSESSIONINTERVAL

SESSIONINTERVAL(*n*)

Sets the maximum value that can be specified by RDEFINE or RALTER for session key intervals. This *n* value must be a number in the range of 1 - 32767 (inclusive).

The SESSIONINTERVAL value after RACF data set initialization is 30. This value is used for:

1. A default if SESSION is specified without INTERVAL on RDEFINE when defining an APPCLU class profile.
2. An upper limit if INTERVAL is specified on RDEFINE or RALTER for APPCLU class profiles.

NOSESSIONINTERVAL

Disables the global limit on the number of days before a session key expires. The internal value is set to zero.

STATISTICS | NOSTATISTICS

Use these operands to cause RACF to record or not record statistical information for the specified class name. The valid class names are DATASET and those classes defined in the class descriptor table. For a list of general resource classes defined in the class descriptor table supplied by IBM, see Appendix B, “Supplied RACF resource classes,” on page 647.

Note: If you activate or deactivate statistics processing for a class, all other classes in the class descriptor table with the same POSIT number are also be activated or deactivated. If, for instance, you activate statistics processing for the TIMS class, statistics processing is activated for classes AIMS and GIMS because they share POSIT number 4.

For more information on sharing a POSIT value, see the POSIT keyword of the RDEFINE command.

STATISTICS(*class-name ...* | *)

Specifies that RACF is to record statistical information for *class-name*.

If you specify an asterisk (*), you activate the recording of statistical information for the DATASET class and all classes defined in the class descriptor table.

When RACF is using a newly initialized database, the recording of class statistics is turned off. Because statistics recording has an impact on system performance, it is recommended that you do not activate this option for any class until your installation evaluates the need to use it versus the potential performance impact. For more information, see *z/OS Security Server RACF System Programmer's Guide*.

NOSTATISTICS(*class-name ...* | *)

Specifies the names of the classes to be deleted from those previously defined to have statistical information recorded.

If you specify an asterisk (*), you deactivate the recording of statistical information for the DATASET class and all classes defined in the class descriptor table.

TAPEDSN | NOTAPEDSN

TAPEDSN

Activates tape data set protection. When tape data set protection is in effect, RACF can protect individual tape data sets as well as tape volumes.

If you activate tape data set protection, you should also activate the TAPEVOL class. If you do not also activate TAPEVOL, RACF does not check the retention period before it deletes a tape data set, and you must provide your own protection for tape data sets that reside on a volume that contains more than one data set.

Before you activate tape data set protection, see *z/OS Security Server RACF Security Administrator's Guide* for a complete description of the relationship between TAPEDSN and activating the TAPEVOL class.

NOTAPEDSN

Deactivates tape data set protection. When NOTAPEDSN is in effect, RACF cannot protect individual tape data sets, though it can protect tape volumes.

NOTAPEDSN is in effect when RACF is using a newly initialized database.

TERMINAL(READ | NONE)

Is used to set the universal access authority (UACC) associated with undefined terminals. If you specify TERMINAL but do not specify READ or NONE, the system prompts you for a value.

WHEN | NOWHEN

WHEN(PROGRAM)

Activates RACF program control, which includes both access control to load modules and program access to data sets.

To set up access control to load modules, you must identify your controlled programs by creating a profile for each in the PROGRAM class. To set up program access to data sets, you must add a conditional access list to the profile of each program-accessed data set. Then, when program control is active, RACF ensures that each controlled load module is executed only by callers with the defined authority. RACF also ensures that each program-accessed data set is opened only by users who are listed in the conditional access list with the proper authority and who are executing the program specified in the conditional access list entry.

When RACF is enabled for sysplex communication, the SETROPTS WHEN(PROGRAM) command and the SETROPTS WHEN(PROGRAM) REFRESH command are propagated to other members of the data sharing group if the command was successful on the system on which it was entered. When RACF is not enabled for sysplex communication, you must issue the SETROPTS WHEN(PROGRAM) command and the SETROPTS WHEN(PROGRAM) REFRESH command on each system sharing the database.

For more information about program control, see *z/OS Security Server RACF Security Administrator's Guide*.

Note: The PROGRAM class does not have to be active.

NOWHEN(PROGRAM)

Specifies that RACF program control is not to be active.

NOWHEN(PROGRAM) is in effect when RACF is using a newly initialized database.

Examples

Example	Activity label	Description
1	*Operation*	User FRG34 wants to establish logging options that causes RACF to log all activity in the USER and GROUP classes, log the activities of users with the SPECIAL and group-SPECIAL attributes, log all accesses allowed only because the user has the OPERATIONS or group-OPERATIONS attribute, log all command violations, and audit all attempts to access RACF-protected resources based on the installation-defined security level SECRET.
	Known	User FRG34 has the AUDITOR attribute. SECRET is defined as a SECLEVEL profile in the SECDATA class. User FRG34 wants to issue this command as a RACF TSO command.
	Command	`SETROPTS AUDIT(USER GROUP) OPERAUDIT SECLEVELAUDIT(SECRET)`
	Defaults	SAUDIT CMDVIOL
2	*Operation*	User RVU03 wants to establish a set of syntax rules for passwords that obey the following rules: • The minimum password length is 4 characters • Four character passwords must have at least one numeric and one alphabetic character • Five character passwords must contain at least one numeric character or be completely alphabetic • Passwords of 6 or more characters consist of any combination of alphabetic and numeric characters.
	Known	User RVU03 has the SPECIAL attribute. User RVU03 wants to issue this command as a RACF TSO command.
	Command	`SETROPTS PASSWORD(RULE1(LENGTH(4:5) ALPHANUM(1:5)) RULE2(LENGTH(5) ALPHA(1:5)) RULE3(LENGTH(6:8) ALPHANUM(1:8)) RULE4(LENGTH(6:8) NUMERIC(1:8)) RULE5(LENGTH(6:8) ALPHA(1:8)))`
	Defaults	None.
3	*Operation*	User ADM1 wants to display the RACF options currently in effect.
	Known	User ADM1 has the SPECIAL and AUDITOR attributes. User ADM1 wants to issue this command as a RACF TSO command.
	Command	`SETROPTS LIST`
	Defaults	None.
	Output	See Figure 86 on page 613 for a sample listing.

Example	Activity label	Description
4	*Operation*	User RVU02 wants to establish system-wide options for an installation. The installation requires tape data set protection and tape volume protection, and the maximum change interval is to be 60 days. The default RACF security retention period for tape data sets is to be 360 days.
	Known	User RVU02 has the SPECIAL attribute. User RVU02 wants to issue this command as a RACF TSO command.
	Command	`SETROPTS PASSWORD(INTERVAL(60)) CLASSACT(TAPEVOL) TAPEDSN RETPD(360)`
	Defaults	None.
5	*Operation*	User ADM1 wants to enable the generic profile checking facility for the DATASET class.
	Known	User ADM1 has the SPECIAL attribute. User ADM1 wants to issue this command as a RACF TSO command.
	Command	`SETROPTS GENERIC(DATASET)`
	Defaults	None.
6	*Operation*	User ADM1 wants to activate global access checking for the DATASET class.
	Known	User ADM1 has the SPECIAL attribute. User ADM1 wants to issue this command as a RACF TSO command.
	Command	`SETROPTS GLOBAL(DATASET)`
	Defaults	None.
7	*Operation*	User ADM1 wants to activate erase-on-scratch processing for all resources with a security level of CONFIDENTIAL or higher and set the SWITCH and STATUS passwords for the RVARY command.
	Known	User ADM1 has the SPECIAL attribute. The CONFIDENTIAL security level name is known to RACF. User ADM1 wants to issue this command as a RACF TSO command.

	Command	`SETROPTS ERASE(SECLEVEL(CONFIDENTIAL))`
		`RVARYPW(SWITCH(LINUS) STATUS(LUCY))`

	Defaults	None.
8	*Operation*	The RACF system administrator wants to activate installation defaults for the primary and secondary national languages. The primary language is Japanese and the secondary language is Canadian French.
	Known	The system administrator has the SPECIAL attribute. The MVS message service is not active. The 3-character language code for Japanese is JPN. The language code for Canadian French is FRC. The system administrator wants to issue this command as a RACF TSO command.
	Command	`SETROPTS LANGUAGE(PRIMARY(JPN) SECONDARY(FRC))`
	Defaults	None.

```
SETROPTS LIST[1]
ATTRIBUTES = INITSTATS NOWHEN(PROGRAM) TERMINAL(READ) SAUDIT CMDVIOL NOOPERAUDIT
STATISTICS = DATASET AIMS APPL DASDVOL GCICSTRN GIMS PCICSPSB QCICSPSB TAPEVOL
       TCICSTRN TERMINAL TIMS
AUDIT CLASSES = DATASET USER GROUP AIMS APPL DASDVOL GCICSTRN GIMS
        PCICSPSB QCICSPSB TAPEVOL TCICSTRN TERMINAL TIMS
ACTIVE CLASSES = DATASET USER GROUP ACICSPCT AIMS APPL BCICSPCT CCICSCMD DASDVOL
         DCICSDCT ECICSDCT FCICSFCT GCICSTRN GIMS GLOBAL GMBR HCICSFCT
         JCICSJCT KCICSJCT MCICSPPT NCICSPPT PCICSPSB QCICSPSB RACGLIST
         SCICSTST TAPEVOL TCICSTRN TERMINAL TIMS UCICSTST VCICSCMD VMRDR
         VMMDISK
GENERIC PROFILE CLASSES = DATASET ACICSPCT AIMS APPL CCICSCMD DASDVOL DCICSDCT
             FCICSFCT GMBR JCICSJCT MCICSPPT PCICSPSB SCICSTST
             TAPEVOL TCICSTRN TERMINAL TIMS VMBATCH VMCMD VMMDISK
             VMNODE VMRDR
GENERIC COMMAND CLASSES = DATASET ACICSPCT AIMS APPL CCICSCMD DASDVOL DCICSDCT
             FCICSFCT GMBR JCICSJCT MCICSPPT PCICSPSB SCICSTST
             TAPEVOL TCICSTRN TERMINAL TIMS VMBATCH VMCMD VMMDISK
             VMNODE VMRDR
GENLIST CLASSES = NONE
GLOBAL CHECKING CLASSES = VMMDISK
SETR RACLIST CLASSES = ACCTNUM DASDVOL
GLOBAL=YES RACLIST ONLY = JCICSJCT TCICSTRN
LOGOPTIONS "ALWAYS" CLASSES = DASDVOL GDASDVOL SECLABEL
LOGOPTIONS "NEVER" CLASSES = FACILITY VMXEVENT VXMBR
LOGOPTIONS "SUCCESSES" CLASSES = APPCLU RACFVARS RVARSMBR
LOGOPTIONS "FAILURES" CLASSES = DATASET PMBR PROGRAM PROPCNTL
LOGOPTIONS "DEFAULT" CLASSES = GTERMINL TAPEVOL TERMINAL
AUTOMATIC DATASET PROTECTION IS IN EFFECT
ENHANCED GENERIC NAMING IS IN EFFECT
REAL DATA SET NAMES OPTION IS ACTIVE
JES-BATCHALLRACF OPTION IS INACTIVE
JES-XBMALLRACF OPTION IS INACTIVE
JES-EARLYVERIFY OPTION IS INACTIVE
PROTECT-ALL OPTION IS NOT IN EFFECT
TAPE DATA SET PROTECTION IS ACTIVE
SECURITY RETENTION PERIOD IN EFFECT IS 365 DAYS
ERASE-ON-SCRATCH IS INACTIVE
SINGLE LEVEL NAME PREFIX IS RDSPRFX
LIST OF GROUPS ACCESS CHECKING IS ACTIVE.
INACTIVE USERIDS ARE NOT BEING AUTOMATICALLY REVOKED.
DATA SET MODELLING NOT BEING DONE FOR GDGS.
USER DATA SET MODELLING IS BEING DONE.
GROUP DATA SET MODELLING IS BEING DONE.
```

Figure 86. Output for SETROPTS LIST

1
The second line of this display, ATTRIBUTES =, refers to global RACF attributes in effect. These attributes can be set only with the SETROPTS command. They are different from, and should not be confused with, the RACF user attributes.

```
PASSWORD PROCESSING OPTIONS:
 THE ACTIVE PASSWORD ENCRYPTION ALGORITHM IS KDFAES
 PASSWORD CHANGE INTERVAL IS 254 DAYS.
 PASSWORD PHRASE CHANGE INTERVAL IS 365 DAYS.
 PASSWORD MINIMUM CHANGE INTERVAL IS 2 DAYS.
 MIXED CASE PASSWORD SUPPORT IS IN EFFECT.
 SPECIAL CHARACTERS ARE ALLOWED.
 13 GENERATIONS OF PREVIOUS PASSWORDS BEING MAINTAINED.
 AFTER  4 CONSECUTIVE UNSUCCESSFUL PASSWORD ATTEMPTS, A USERID WILL BE REVOKED.
  PASSWORD EXPIRATION WARNING LEVEL IS 186 DAYS.
 INSTALLATION PASSWORD SYNTAX RULES:
  RULE 1 LENGTH(4:5)  LLLLL
  RULE 2 LENGTH(5)   AAAAA
  RULE 3 LENGTH(6:8)  LLLLLLLL
  RULE 4 LENGTH(6:8)  NNNNNNNN
  RULE 5 LENGTH(6:8)  AAAAAAAA
 LEGEND:
  A-ALPHA C-CONSONANT L-ALPHANUM N-NUMERIC V-VOWEL W-NOVOWEL *-ANYTHING
  c-MIXED CONSONANT m-MIXED NUMERIC v-MIXED VOWEL $-NATIONAL s-SPECIAL x-MIXEDALL
DEFAULT RVARY PASSWORD IS IN EFFECT FOR THE SWITCH FUNCTION.
DEFAULT RVARY PASSWORD IS IN EFFECT FOR THE STATUS FUNCTION.
SECLEVELAUDIT IS INACTIVE
SECLABEL AUDIT IS IN EFFECT
SECLABEL CONTROL IS IN EFFECT
GENERIC OWNER ONLY IS IN EFFECT
COMPATIBILITY MODE IS IN EFFECT
MULTI-LEVEL QUIET IS IN EFFECT
MULTI-LEVEL STABLE IS IN EFFECT
NO WRITE-DOWN IS IN EFFECT. CURRENT OPTIONS:
  "MLS WARNING" OPTION IS IN EFFECT
MULTI-LEVEL SECURE IS IN EFFECT. CURRENT OPTIONS:
  "MLS WARNING" OPTION IS IN EFFECT
MULTI-LEVEL ACTIVE IS IN EFFECT. CURRENT OPTIONS:
  "MLACTIVE FAIL" OPTION IS IN EFFECT
CATALOGUED DATA SETS ONLY, IS IN EFFECT. CURRENT OPTIONS:
  "CATDSNS WARNING" OPTION IS IN EFFECT
USER-ID FOR JES NJEUSERID IS : ????????
USER-ID FOR JES UNDEFINEDUSER IS : ++++++++
PARTNER LU-VERIFICATION SESSIONKEY INTERVAL MAXIMUM/DEFAULT IS  30 days
APPLAUDIT IS IN EFFECT
ADDCREATOR IS IN EFFECT
KERBLVL = 0
MULTI-LEVEL FILE SYSTEM IS IN EFFECT
MULTI-LEVEL INTERPROCESS COMMUNICATIONS IS IN EFFECT
MULTI-LEVEL NAME HIDING IS NOT IN EFFECT
SECURITY LABEL BY SYSTEM IS NOT IN EFFECT
PRIMARY LANGUAGE DEFAULT : ENU / AMERICAN
SECONDARY LANGUAGE DEFAULT : ENU / AMERICAN
```

Note: The language name (in this example, AMERICAN) only appears if the MVS message service is active.

SIGNOFF (Sign off sessions)

Background

Persistent verification allows users to sign on to a partner LU (logical unit) and have their authority persist. In other words, once a user has signed on, a password is not required for subsequent signon attempts.

APPC/MVS invokes RACF to create and maintain a list called the signed-on-from list. If persistent verification is being used, the signed-on-from list consists of the users currently signed on with Persistent Verification authority.

Purpose

The RACF SIGNOFF operator command removes user entries from the signed-on-from list. Entries in the signed-on-from list are selected by the SIGNOFF command using the following information:

- User ID
- Group
- APPL (the local LU name)
- POE (the partner LU name from which the user is signed on)

The SIGNOFF command has operands which correspond to the preceding items. You can use these operands to select which user entries to remove from the signed-on-from list.

To determine which user entries are signed off by issuing a particular SIGNOFF command, issue a DISPLAY command with corresponding selection criteria.

Issuing options

The following table identifies the eligible options for issuing the SIGNOFF command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
No	Yes	No	No	Yes

For information on issuing this command as a RACF operator command, see Chapter 4, “RACF operator commands,” on page 21.

Related commands

Use the DISPLAY operator command to view the signed-on-from list.

Authorization required

You might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

Syntax

For the key to the symbols used in the command syntax diagrams, see “Syntax of RACF commands and operands” on page 11. The complete syntax of the SIGNOFF command is:

*subsystem-prefix*SIGNOFF
APPL(*local-luname* | *)
POE(*partner-luname* | *)
USER(*userid-name* | *)
[GROUP(*group-name* | *)]
[SECLABEL(*security-label* | *)]

For information on issuing this command as a RACF operator command, see “Rules for entering RACF operator commands” on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Only specify the subsystem prefix when issuing this command as a RACF operator command. The subsystem prefix is required when issuing RACF operator commands.

The following listed operands allow the operator to specify the user entries to be signed off. The APPL, POE and USER operands are required to uniquely identify a user entry to be signed off. The GROUP operand is optional and defaults to a *group-name* consisting of blanks.

APPL(*local-luname* | *)

This is a required operand. The *local-luname* is a 1 - 8 character name of the local LU to be searched for. An asterisk can occupy the last position of the *local-luname* in order to provide a partial generic selection capability. A character string consisting of a single asterisk is permitted as a full generic that matches any APPL name in the signed-on-from list.

POE(*partner-luname* | *)

This is a required operand. The *partner-luname* is a 1 - 7 character name of the partner LU to be searched for. A *partner-luname* consisting of a single asterisk is permitted as a full generic that matches any POE name in the signed-on-from list.

USER(*userid-name* | *)

This is a required operand. The *userid-name* is a 1 - 8 character specification which represents the RACF user ID to be searched for. A character string consisting of a single asterisk is permitted as a full generic that matches any user ID in the signed-on-from list.

GROUP(*group-name* | *)

This is an optional operand. The *group-name* is a 1 - 8 character name which represents the RACF group to be searched for. A character string consisting of a single asterisk is also permitted as a full generic which matches any *group-name* in the signed-on-from list. If this operand is not specified, the default value is a *group-name* consisting of blanks.

Note that entries in the signed-on-from list might not always be added to that list with a *group-name* value. Such entries have *group-names* consisting of blanks.

SECLABEL(*security-label* | *)

This is an optional operand. The *security-label* is a 1 - 8 character name that represents the RACF security label to be searched for. This operand is currently ignored.

Examples

Example	Activity label	Description
1	*Operation*	Sign off a user from a local/partner LU pair.
	Known	The local LU is `locallu`, the partner LU is `prtnrlu5`, and the *userid-name* is `jim`. The RACF subsystem prefix is `@`.
	Command	`@signoff user(jim),appl(locallu),poe(prtnrlu5)`
	Defaults	A *group-name* consisting of blank characters.

Example	Activity label	Description
2	*Operation*	Sign off all of the users from a local/partner LU pair.
	Known	The local LU is `locallu`, the partner LU is `prtnrlu5`, and the RACF subsystem prefix is `@`.
	Command	`@signoff appl(locallu),poe(prtnrlu5),user(*)`
	Defaults	A *group-name* consisting of blank characters.
3	*Operation*	Sign off a user from all the local/partner LU pairs to which that user is signed on.
	Known	The *userid-name* is Kurt, and the RACF subsystem prefix is `@`.
	Command	`@signoff appl(*),poe(*),group(*),user(jim)`
	Defaults	None.
4	*Operation*	Sign off all users from all the partner LUs of a particular local LU.
	Known	The local LU is `locallu`, the RACF subsystem prefix is `@`.
	Command	`@signoff appl(locallu),poe(*),user(*),group(*)`
	Defaults	None.
5	*Operation*	Sign off all users of a particular group from a particular local LU.
	Known	The local LU is `locallu`, the group is `grp1`, and the RACF subsystem prefix is `@`.
	Command	`@signoff appl(locallu),poe(*),user(*),group(grp1)`
	Defaults	None.

STOP (Stop RACF subsystem)

Purpose

Use the STOP command to allow the MVS operator to stop the RACF subsystem address space if restarting a subtask is not sufficient to recover from a failure. This command shuts down the RACF subsystem address space and prevents the loss of any outstanding requests that are waiting for completion.

Other uses: The STOP command can also be used to:

- Stop the RACF subsystem address space before an IPL.
- Disable the subsystem event notification facility (ENF) listening function without stopping the address space.

Guidelines:

- If you are directing work to the RACF subsystem, stop the RACF subsystem address space before IPLing to prevent the loss of outstanding requests.
- If you are using automatic direction or password synchronization, do not stop the address space *except* immediately before an IPL. If you stop it at other times, updates that are made to the local node might not be sent to the other nodes.
- Ensure that all users or applications that update the RACF database are finished before issuing the STOP command.

Issuing options

The following table identifies the eligible options for issuing the STOP command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
No	Yes	No	No	No

For information on issuing this command as a RACF operator command, see Chapter 4, “RACF operator commands,” on page 21.

Related commands

- To restart the RACF subsystem address space, use the MVS START command.
- To restart a function in the RACF subsystem address space, see “RESTART (Restart RACF subsystem functions)” on page 509. You must restart the RACF subsystem address space before restarting functions within the RACF subsystem address space.

Authorization required

You might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

Syntax

The complete syntax of the STOP command is:

```
subsystem-prefixSTOP

    [ ENF86 ]
```

For information on issuing this command as a RACF operator command, see “Rules for entering RACF operator commands” on page 21.

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix is defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

The subsystem prefix is a required keyword for RACF operator commands.

ENF86

Specifies that the ENF listening function for ENF code 86 is to be disabled. This action should be performed only for problem determination. The listening function can be reactivated by using the RESTART ENF86 command.

Examples

Example	Activity label	Description
1	*Operation*	User AMT02 wants to shut down the RACF subsystem address space in an orderly manner without losing any remote RRSF requests.
	Known	The RACF subsystem prefix is @.
	Command	@STOP
	Defaults	None.

TARGET (Manage RRSF nodes)

Purpose

Use the TARGET command to:

- List the operational and network protocol attributes of one or more RRSF nodes.
- Add or modify an RRSF node.
- Convert a remote RRSF node from one network protocol to another.
- Add a network protocol or modify protocol attributes for an RRSF node.
- Activate or inactivate an RRSF node or a protocol instance for an RRSF node.
- Specify a prefix and other attributes for the workspace data sets allocated and used by each RRSF node.
- Purge a workspace data set for an RRSF node.
- Delete an RRSF node or a protocol instance for an RRSF node.

Before using the TARGET command for the first time, you should be familiar with the information in RACF remote sharing facility (RRSF) in *z/OS Security Server RACF System Programmer's Guide*. To help you determine the information you will need to issue the TARGET command, complete the worksheet found in RRSF initialization worksheet and scenario in *z/OS Security Server RACF System Programmer's Guide*.

Issuing options

The following table identifies the eligible options for issuing the TARGET command:

As a RACF TSO command?	As a RACF operator command?	With command direction?	With automatic command direction?	From the RACF parameter library?
No	Yes	No	No	Yes (except the NEWMAIN and PLEXNEWMAIN operands)

For general information about issuing RACF operator commands, see Chapter 4, “RACF operator commands,” on page 21.

Related commands

- To specify and enable options for automatic direction using RRSF, see “SET” on page 553.
- To restart functions of the RACF subsystem address space, see “RESTART (Restart RACF subsystem functions)” on page 509.
- To stop the RACF subsystem address space, see “STOP (Stop RACF subsystem)” on page 617.

Authorization required

You might require sufficient authority to the proper resource in the OPERCMDS class. For details about OPERCMDS resources, see Controlling the use of operator commands in *z/OS Security Server RACF Security Administrator's Guide*.

Syntax

For the key to the symbols used in the command syntax diagrams, see "Syntax of RACF commands and operands" on page 11. The complete syntax of the TARGET command is:

```
subsystem-prefixTARGET

    [ALLOWINBOUND | DENYINBOUND | RESETDENYINBOUNDCOUNT]

    [DELETE | DORMANT | OPERATIVE]

    [ DESCRIPTION('description') ]

    [ LIST ]

    [ LISTPROTOCOL ]

    [ LOCAL ]

    [ MAIN ]

    [ NEWMAIN | PLEXNEWMAIN ]

    [ NODE(nodename|*) ]

    [ PREFIX | NEWPREFIX(qualifier ...) ]

    [ PROTOCOL(
        [ APPC(
            [ LUNAME(luname) ]
            [ TPNAME(profile-name) ]
            [ MODENAME(mode-name) ]
            ) ]
        [ TCP(
            [ ADDRESS(address) ]
            [ PORTNUM(number) ]
            ) ]
      ) ]

    [ PURGE(INMSG | OUTMSG) ]

    [ SYSNAME(sysname |*) ]

    [ WDSQUAL(qualifier) ]
    [ WORKSPACE | NEWWORKSPACE( {
        [ STORCLAS(class-name) ]
        [ DATACLAS(class-name) ]
        [ MGMTCLAS(class-name) ]
            | [ VOLUME(volume-serial) ] }
        [ FILESIZE([ nnnnnnnnnn | 500 ]
            ) ]
        ) ]
```

Parameters

subsystem-prefix

Specifies that the RACF subsystem is the processing environment of the command. The subsystem prefix can be either the installation-defined prefix for RACF (1 - 8 characters) or, if no prefix has been defined, the RACF subsystem name followed by a blank. If the command prefix was registered with CPF, you can use the MVS command D OPDATA to display it or you can contact your RACF security administrator.

Rule: You must specify the subsystem prefix when issuing the TARGET command.

DELETE | DORMANT | OPERATIVE

Specifies whether to delete, inactivate, or activate an RRSF node or a network protocol instance for an RRSF node.

DELETE

Deletes an RRSF node or a protocol instance for the local node.

Subsequent attempts to perform operations requiring the existence of a deleted node fail and a message is issued.

When you delete a node, any workspace data sets for the node that are currently allocated are deallocated. If the workspace data sets are empty, they are also deleted.

The local node cannot be deleted until all target nodes are deleted.

The local system of a multisystem node cannot be deleted until all other targets are deleted. The TARGET command identifies the local system as the system with the SYSNAME that matches the CVTSNAME of the system the command is to run on.

For a multisystem node, the local MAIN system can be deleted only after all of its remote targets are deleted.

The MAIN system of a remote multisystem node can be deleted only after all other peer systems of that remote multisystem node are deleted.

You cannot delete a remote node with an active connection to the local node. You must first inactivate the connection using the DORMANT operand of the TARGET command.

The DELETE operand cannot be specified with DORMANT or OPERATIVE. The only operands that can be specified with DELETE are NODE, LOCAL, PROTOCOL, PURGE, and SYSNAME.

If the PURGE operand is specified with DELETE, the PURGE operand is processed first, regardless of the order in which the operands are specified.

DORMANT

Inactivates an RRSF node or a protocol instance for an RRSF node and places it in the DORMANT state.

While a node is dormant, all network communication with the node is stopped. No RRSF work or output is sent or received by the node. Existing work at the dormant node is completed but the resulting output, if any, is held in the workspace data set. Any RRSF work or output intended for a dormant node is held in the workspace data set of the sending node and is released when the dormant node becomes operative.

Once a node is dormant, the workspace data sets are allocated, if not already allocated. Therefore, no changes to the PREFIX or WORKSPACE characteristics of the data sets are allowed. See the descriptions of those operands for more information

For the local node, if you specify a protocol name for which no protocol instance exists, it is created.

If either the remote node or local node is a multisystem node, you must define a MAIN system for the multisystem node before specifying DORMANT.

The DORMANT operand cannot be specified with DELETE or OPERATIVE.

If the PURGE operand is specified with DORMANT, the DORMANT operand is processed first, regardless of the order in which the operands are specified.

OPERATIVE

Activates an RRSF node or protocol instance for a node, places it in the OPERATIVE state, and sends any new or previously held requests to the node.

The OPERATIVE operand attempts to activate the node or protocol instance for the node only if the PREFIX for the node is defined and sufficient WORKSPACE and PROTOCOL attributes are defined.

When a node is made operative, the workspace data sets are allocated, if not already allocated. Once the node is operative, no changes to the PREFIX or WORKSPACE characteristics of the data sets are allowed. See the descriptions of those operands for more information

If the node is already operative when the OPERATIVE operand is specified, the connection to that node is refreshed. No existing workspace or protocol information can be changed.

- If the node is the local node and the APPC server is already registered, the server is reregistered and the APPC transaction program (TP program) is restarted for local and remote nodes.
- If the node is the local node and the TCP listener process is already active, the listener is restarted.

For the local node, if you specify a protocol for which no protocol instance exists, it is created.

For a remote node, activating a second protocol converts its connection with the local node to the new protocol and, upon successful conversion, deletes the original protocol. For details about converting from one protocol to another, see changing the protocol for a connection in *z/OS Security Server RACF System Programmer's Guide*.

If the node is a remote multisystem node, you must define a MAIN system to the multisystem node before specifying OPERATIVE.

The OPERATIVE operand cannot be specified with DELETE or DORMANT.

If the PURGE operand is specified with OPERATIVE, the PURGE operand is processed first, regardless of the order in which the operands are specified.

DENYINBOUND|ALLOWINBOUND|RESETDENYINBOUNDCOUNT

DENYINBOUND

Inbound work requests (directed commands, RACLINK DEFINE commands, password synchronization requests, etc) will be failed when sent from the node specified in the TARGET command. DENYINBOUND is ignored for the local node.

When DENYINBOUND is specified for any system in a remote multisystem node, the setting is applied to all systems in the node. The SYSNAME(*) keyword may be specified.

If a new system is added to an existing multisystem node without specifying the DENYINBOUND setting, it is copied from another system in the multisystem node automatically.

Guideline: In the RACF parameter library, when defining an outbound-only relationship for a remote multisystem node, you should specify DENYINBOUND for all systems in the multisystem node.

ALLOWINBOUND

Inbound work requests (directed commands, RACLINK DEFINE commands, password synchronization requests, etc) will be allowed when sent from the node specified in the TARGET command. This is the default setting. ALLOWINBOUND is ignored for the local node.

When ALLOWINBOUND is specified for any system in a remote multisystem node, the setting is applied to all systems in the node. The SYSNAME(*) keyword may be specified.

RESETDENYINBOUNDCOUNT

Resets the count of denied inbound work requests to 0 for the node and system specified on the command. This count is visible in TARGET LIST output.

DESCRIPTION('*description*')

Specifies a comment that describes the node. The description is displayed in the TARGET LIST output for the node.

Rules:

- The maximum length of the description is 32 characters.
- If the description contains any lowercase characters, they are translated to uppercase characters.
- If parentheses, commas, blanks, or semicolons are part of the description, the character string must be enclosed in single quotation marks.
- If a single quotation mark is part of the description, and the entire character string is enclosed in single quotation marks, two single quotation marks must be entered together for each single quotation mark within the character string.
- If the first character of the description is a single quotation mark, then the string must be entered within single quotation marks and two single quotation marks must be entered for the first character.

LIST

Lists the current operational and protocol attributes of one or more nodes.

For a multisystem node, the LIST operand displays information about the node and about the member systems that comprise the node.

Note: When PROTOCOL(*protocol*) is specified with the name of the local node, LIST is not the default function. Instead, a protocol instance for the specified protocol, if not already established, is added to the local node. For information about adding a protocol instance to the local node, see *z/OS Security Server RACF System Programmer's Guide*.

When LIST is specified in combination with any other operand, LIST displays the operational and protocol attributes as they exist after RACF processes the other TARGET operands.

The LIST operand displays a summary or a detailed list of information for a node, depending on the options specified with NODE, if any, as shown in Table 51 on page 624.

When NODE is omitted, a summary is displayed for all nodes known to the node where the command executes.

Table 51. Type of output displayed when you specify LIST with the following TARGET options

TARGET LIST options	**Local node**	**Single-system node**	**Multisystem node**
None	Summary	Summary	Summary
PROTOCOL(*protocol*)			
NODE(*nodename*)	Detailed	Detailed	
NODE(*nodename*) PROTOCOL(*protocol*)			
NODE(*)			Detailed
NODE(*) PROTOCOL(*protocol*)			
NODE(*nodename*) SYSNAME(*systemname*)		Not applicable	
NODE(*nodename*) SYSNAME(*systemname*) PROTOCOL(*protocol*)			
NODE(*nodename*) SYSNAME(*)			
NODE(*nodename*) SYSNAME(*) PROTOCOL(*protocol*)			

PROTOCOL(*protocol*)
Displays a summary of only nodes, including systems on multisystem nodes, that contain an instance of the specified protocol.

NODE(*nodename*)
For a remote single-system node or the local node, displays a detailed list of the specified node.

For a multisystem node, displays a summary for each member system of the multisystem node.

NODE(*nodename*) PROTOCOL(*protocol*)
When specified with no other operands for a remote node, displays a detailed list of the specified node only when it contains an instance of the specified protocol. If it does not, no node information is displayed.

When specified with LIST and other operands for a remote node, protocol information is displayed after all other operands are processed. If the specified protocol instance does not exist for the specified node, it is added and then listed.

Note: For the local node, these options add a protocol instance for the specified protocol if it does not already exist.

NODE(*)
Displays a detailed list, sorted by node name, of all known nodes including systems on multisystem nodes.

NODE(*) PROTOCOL(*protocol*)
Displays a detailed list, sorted by node name, of only nodes, including systems on multisystem nodes, that contain an instance of the specified protocol.

NODE(*nodename*) SYSNAME(*systemname*)
Displays a detailed list of the specified system.

NODE(*nodename*) SYSNAME(*systemname*) PROTOCOL(*protocol*)
Displays a detailed list of the specified system for a remote multisystem node only if the system contains an instance of the specified protocol. If it does not, no system information is displayed.

NODE(*nodename*) SYSNAME(*)
Displays a detailed list of each system in the multisystem node.

NODE(*nodename*) SYSNAME(*) PROTOCOL(*protocol*)
Displays a detailed list of only those systems in the specified node that contain an instance of the specified protocol.

LISTPROTOCOL

Lists the current operational and protocol attributes of one or more nodes and lists the protocol name of each listed node.

Specify LISTPROTOCOL when you have a mixed protocol network and want to list protocol attributes with the summary information for each remote node. By contrast, LIST displays a summary list that includes protocol information only when the node has more than one protocol defined. The LISTPROTOCOL option allows you to avoid displaying a detailed list of all nodes and systems when you want to review protocol information.

LOCAL

Defines the node specified with the NODE operand as the local node and defines any other TARGET operand as a local node attribute. You can define only one local node.

If you omit LOCAL, the specified node is defined as a remote node.

Rule: You must define the local node before attempting to activate a remote node. This is because information about the local node is used to allocate and process the RRSF workspace data sets of the remote node.

Once you define a node as the local node, you need not specify LOCAL on subsequent TARGET commands issued for the same node or for systems you add to the local multisystem node.

MAIN

Defines the system specified with the SYSNAME operand as the main system in a multisystem node.

Rules:

- Define the same main system on each system in the multisystem node and on each node that communicates with the multisystem node.
- Define the main system of a multisystem node before attempting to activate or inactivate any system in the multisystem node.
- For a remote node, you must specify MAIN and SYSNAME when adding another protocol to the main system of a multisystem node.

NEWMAIN | PLEXNEWMAIN

NEWMAIN

Indicates that the system name specified in the SYSNAME keyword is to become the MAIN system in the local multisystem node. This keyword performs different processing depending upon the system on which it is entered:

- On the current MAIN system: All remote connections are made DORMANT, and the INMSG files are drained of work. Once all INMSG files are empty, the remote connections are made OPERATIVE again with the local system no longer acting as MAIN. You must wait for this processing to complete before issuing the NEWMAIN keyword on any other system, or work could run out of order.
- On the new MAIN system: All remote connections are made DORMANT, and then made OPERATIVE with the local system now acting as MAIN.
- On any other peer system: Internal state is updated so that subsequent TARGET LIST commands issued on that system will indicate the proper current MAIN system in the local multisystem node.

NEWMAIN cannot be used to change the MAIN system of a remote node.

When NEWMAIN is specified, NODE and SYSNAME are the only other keywords that can be specified, and they are both required.

When in a sysplex, use the PLEXNEWMAIN keyword instead of NEWMAIN to simplify the switch even further.

The NEWMAIN operand cannot be specified in a TARGET command that is issued from a RACF parameter library member.

Please read and understand the documentation for dynamic MAIN switches in *z/OS Security Server RACF System Programmer's Guide* before using this keyword.

PLEXNEWMAIN

Indicates that the system name specified in the SYSNAME keyword is to become the MAIN system in the local multisystem node. Using PLEXNEWMAIN in a sysplex, instead of NEWMAIN, simplifies the switching procedure. RRSF will use XCF messaging services to coordinate the switch so that only one command, issued from any system in the sysplex, is required to effect the switch. When not in a sysplex, use the NEWMAIN keyword instead.

PLEXNEWMAIN cannot be used to change the MAIN system of a remote node.

When PLEXNEWMAIN is specified, NODE and SYSNAME are the only other keywords that can be specified, and they are both required.

The PLEXNEWMAIN operand cannot be specified in a TARGET command that is issued from a RACF parameter library member.

Please read and understand the documentation for dynamic MAIN switches in *z/OS Security Server RACF System Programmer's Guide* before using this keyword.

NODE(*nodename* |*)

Defines the name of a new RRSF node or specifies the name of the node being listed or modified.

Rule: You must define a node name for the local node and any node that communicates with the local node.

nodename

Specifies the name of the node.

Guideline: Choose a name that is meaningful because users frequently specify node when issuing the RACLINK command and when specifying the AT and ONLYAT operands of several RACF commands.

Syntax rules:

- The maximum length is 8 characters.
- The first character of the name must be one of the following:

  `A - Z`, # (X'7B'), $ (X'5B'), or @ (X'7C')
- Each remaining character of the name must be one of the following:

  `A - Z`, `0 - 9`, # (X'7B'), $ (X'5B'), or @ (X'7C')

*****

Specifies all nodes and systems when specified with only the LIST operand. If any other operand of the TARGET command is specified with NODE(*), the command fails.

PREFIX | NEWPREFIX(*qualifier ...*)

PREFIX

Defines the high-level qualifiers that RACF uses to determine the workspace data set names for the specified node. (Use the WORKSPACE operand to specify the other attributes of the workspace data sets.)

Rule: You must define the prefix for a node before using the OPERATIVE or DORMANT operand.

Once the workspace data sets are allocated (when you issue OPERATIVE or DORMANT), you cannot change the prefix.

qualifier

Specifies one or more data set qualifiers as the highest level qualifiers of the workspace data set names. If you specify multiple qualifiers, they must be separated by periods.

The maximum length of the PREFIX value is 19 characters including periods.

Example:

```
PREFIX(RSFJ.WORK.NODE1)
```

NEWPREFIX

Specify NEWPREFIX to reallocate the workspace data sets for the specified nodes. (Use the NEWWORKSPACE operand to specify the other attributes of the workspace data sets.)

Rules:

- The NEWPREFIX keyword may only be specified for an RRSF node which is in the OPERATIVE ACTIVE state.
- The LOCAL RRSF node must also be OPERATIVE ACTIVE.
- The NEWPREFIX value must be different than the current PREFIX value.
- The NEWWORKSPACE keyword must be specified if the NEWPREFIX keyword is specified.
  - Suboperands of the NEWWORKSPACE keyword are reused from the existing workspace data sets, but can be overridden by specifying them as sub-keywords of the NEWWORKSPACE keyword.
  - Because dataset reallocation happens immediately, all necessary suboperands of the NEWWORKSPACE keyword must be specified at once.
- Only NODE, SYSNAME, LIST, WDSQUAL may also be specified with the NEWPREFIX keyword.
- NODE(*) and / or SYSNAME(*) may not be specified.
- The node may only have one protocol defined and must not be in the middle of a communications protocol conversion. This restriction does not apply to the LOCAL node.
- The workspace data sets cannot be reallocated without changing the prefix. To change the attributes of the workspace dataset while retaining the prefix:
  - Reallocate the workspace data sets with a temporary prefix. Be sure that the new datasets are protected by RACF profiles.
  - Reallocate the workspace data sets again with the original prefix.

The reallocation of the workspace data sets for the specified node starts immediately. New workspace data sets are allocated using the NEWPREFIX, NEWWORKSPACE and WDSQUAL (if specified on the command with NEWPREFIX) information. Communication with the specified node is dropped and re-established. RRSF reads data from both the old and new workspace data sets until the old workspace data sets are empty, at which time they are deleted.

TARGET LIST may show multiple sets of workspace data sets while the dataset reallocation is in progress.

Message IRRC083I is issued when the dataset reallocation has completed.

The maximum length of the NEWPREFIX value is 19 characters including periods.

If you make a permanent change to the RRSF VSAM workspace data set names, be sure to make the same change in the RACF parameter library so the changed name is used at the next restart of RRSF.

Example:

```
NEWPREFIX(RSFJNEW.WORK.NODE1)
```

Important: When selecting a prefix, ensure that the workspace data sets are protected by a data set profile, and that the user ID associated with the RACF subsystem address space has authority to create and access them.

Guideline: Define the same prefix for each member system in a local or remote multisystem node.

PROTOCOL

Specifies the name of the network protocol or defines protocol attributes for the specified node. You can change protocol attributes only when the node is in the initial, DORMANT, or DEFINED state.

The local node can support multiple protocol instances. For remote nodes, adding a second protocol instance is intended to convert the protocol of the node. For details about converting from one protocol to another, see changing the protocol for a connection in *z/OS Security Server RACF System Programmer's Guide*.

For a remote node, you can specify the protocol name without protocol attributes to qualify other TARGET keywords when multiple protocols exist for the specified node. Specifying the protocol name is optional when the remote node has only one protocol instance.

Example:

```
TARGET NODE(NODE5) PROTOCOL(TCP) DESCRIPTION('MY TCP NODE')
```

If no protocol instance exists for the specified node and protocol, RACF attempts to create it unless one of the following conditions is found:

- LIST is the default function of the TARGET command.

  For details describing when LIST is the default function, see the LIST operand.
- PROTOCOL is specified with the DELETE or LIST operand.

Tip: When you specify PROTOCOL(TCP) with no protocol attributes for the local node, a usable protocol instance for the specified protocol is created based on default values for the local node. (The same does not apply when you specify PROTOCOL(APPC) because you must specify APPC protocol attributes.)

When you specify a protocol name with no other operands for a remote node, the TARGET LIST function displays information for only nodes that contain the specified protocol instance. (See the description of TARGET LIST for more details.)

Specify only one protocol name per TARGET command. If you specify more than one protocol, only the second one is processed. To define multiple protocols for a node, issue multiple TARGET commands.

Do not specify PROTOCOL for the local node when it is running in local mode.

APPC

Specifies that APPC is the network protocol for the node. This is the default value.

LUNAME(*luname*)

Defines or changes the logical unit (LU) name associated with the node. You can define or change the LU name when the node is in the initial or DEFINED state. For the local node, you can also change the LU name only if no remote APPC node is already using it and only when the local node is in the initial or DORMANT state.

The LU name can be found in the ACBNAME specification in the APPCPM*xx* member of SYS1.PARMLIB for the node.

Rule: You must define an LU name for the local node and an LU name for a remote node before making the connection between them dormant or operative.

luname

Specifies the LU name as either one of the following:

- An unqualified LU name of 1 - 8 characters.
- A qualified LU name of 1 - 17 characters in the form of *netid.luname*, where *netid* and *luname* are each 1 - 8 characters separated by a period.

The output of the TARGET LIST command contains the qualified LU name if it is defined.

The LUNAME value you specify is used to determine the names of the RRSF workspace data sets. See the description of the WORKSPACE operand for details.

RACF performs no validity checking on the specified LU name value. You must ensure that the specified LU name is correct.

TPNAME(*profile-name*)

Defines or changes the APPC transaction program (TP) profile for the node.

profile-name

Specifies a 1 - 64 character name.

If TPNAME is omitted, the default value is `IRRRACF`.

MODENAME(*mode-name*)

Defines or changes the APPC mode name that designates the network properties for the session to be allocated.

For information about APPC modes, see *z/OS Communications Server: SNA Programmer's LU 6.2 Guide*.

mode-name

Specifies a 1 - 8 character name consisting of alphanumeric characters.

If MODENAME is omitted, the default is IRRMODE. If omitted, the MODENAME value is listed as `<NOT SPECIFIED>` in the TARGET LIST output.

TCP

Specifies that TCP/IP is the network protocol for the node. The TCP option is valid only for systems running z/OS V1R13 and higher.

ADDRESS(*address*)

Defines or changes the host name or IPv4 address of the remote node. You need not define ADDRESS for the local node.

address

Specifies a 1 - 255-character address expressed as a host name or a static IP address. Lowercase characters in the host name are translated to uppercase characters. An IP address may be specified as an IPv4 address or an IPv6 address (if TCP IPv6 is enabled on the system).

If omitted, the default value for the local node is `0.0.0.0`, or :: if TCP IPv6 is enabled on the system. If omitted for a remote node, the address is listed as `<NOT SPECIFIED>` in the TARGET LIST output.

You must define ADDRESS for a remote node before activating it using the OPERATIVE operand.

RACF performs no validity checking on the specified ADDRESS value. You must ensure that the specified address is correct.

If IPv6 is enabled on the system, TARGET LIST detailed output will display resolved IPv6 addresses, where possible.

PORTNUM(*number*)

Defines or changes the port number.

number

Specifies the port on which the node establishes the TCP socket to listen for requests initiated by a node.

This value must be in the range of 1 to 65535. However, network conventions and existing port assignments will likely further restrict the value that you can choose.

If PORTNUM is omitted, the default value is 18136.

Guidelines:

- Accept the default value unless port 18136 is already in use.
- Use the same port for all RRSF nodes.

PURGE(INMSG)
PURGE(OUTMSG)

Specifies that all entries in the INMSG or OUTMSG workspace data set for the specified node are to be purged.

You can purge an INMSG or OUTMSG workspace data set only when the node is dormant.

When PURGE is specified with DORMANT, the DORMANT operand is processed first, regardless of the order in which the operands are specified.

When PURGE is specified with DELETE or OPERATIVE, the PURGE operand is processed first, regardless of the order in which the operands are specified.

SYSNAME(*sysname* | *)

Defines the name of a new system in a multisystem node or specifies the name of the system being modified or listed. You cannot change the name of a system. If the specified name does not exist for the node, it is created.

If the SYSNAME operand is specified, you must also specify NODE. The SYSNAME operand is required for multisystem nodes. If it is not specified, RACF assumes that the node is a single-system node. The SYSNAME operand is not required if LIST is specified or defaulted.

When the TARGET command is for the local node, and you specify OPERATIVE or DORMANT, RACF compares the SYSNAME you specified with the CVTSNAME of the system where the command is to run. If they do not match, RACF does not process the OPERATIVE or DORMANT operand. The same is true for a SYSNAME value of a target system that does not match its CVTSNAME when you specify SYSNAME(*) with OPERATIVE or DORMANT for the local node. In addition, because a conversation should not exist between the systems of a multisystem node, RACF issues an informational message and places it in the SYSLOG. This message might help diagnose why an expected conversation was not established.

sysname

Specifies the name of the system in a multisystem node.

The *sysname* value must match the value in the CVTSNAME field of the system being modified or listed.

Syntax rules:

- The maximum length is 8 characters.
- The first character of the name must be one of the following:

  `A - Z`, # (X'7B'), $ (X'5B'), or @ (X'7C')
- Each remaining character of the name must be one of the following:

  `A - Z`, `0 - 9`, # (X'7B'), $ (X'5B'), or @ (X'7C')

*****

Specifies all systems currently defined for the specified node but only when specified with the NODE, DORMANT, OPERATIVE, DELETE, PURGE, LIST, ALLOWINBOUND, DENYINBOUND or RESETDENYINBOUNDCOUNT operand.

Tip: Use SYSNAME(*) to issue a common set of TARGET commands on all the systems in a multisystem node.

When specified with DORMANT, OPERATIVE, DELETE, PURGE , ALLOWINBOUND, DENYINBOUND or RESETDENYINBOUNDCOUNT the requested action is attempted for all systems defined for the specified node. If any other operand of the TARGET command is specified with SYSTEM(*), the command fails.

Specify SYSNAME(*) with LIST to display a detailed list of each system in a specified node. If NODE(*) is specified, SYSNAME must be specified as SYSNAME(*) or omitted.

WDSQUAL(*qualifier*)

Specifies a substitute qualifier for RACF to use to determine the names of the workspace data sets for the specified RRSF node.

qualifier

Specifies a data set name qualifier consisting of 1 - 8 characters. The first character must be alphabetic.

For details about the naming conventions for work space data sets, see Workspace data sets in *z/OS Security Server RACF System Programmer's Guide*.

Guideline: Specify WDSQUAL when the CVTSNAME of the local node or the LU name of a remote APPC node would not render syntactically valid names for the workspace data sets.

For the local node, WDSQUAL specifies the second qualifier of the workspace data set names. If you omit WDSQUAL, the second qualifier defaults to the CVTSNAME name of the local system. The WDSQUAL value also propagates as the second qualifier of the workspace data set names for remote TCP nodes, but not for APPC nodes.

For a remote node, WDSQUAL specifies the third qualifier of the workspace data set names, substituting for the remote qualifier value.

You can change WDSQUAL for a node that is either in the defined or initial state. You cannot change WDSQUAL for a node in the DORMANT nor OPERATIVE state. If you preallocated the workspace data sets, you cannot change the WDSQUAL value.

Important: When selecting a WDSQUAL qualifier, ensure that the workspace data sets are protected by a data set profile, and that the user ID associated with the RACF subsystem address space has authority to create and access them.

WORKSPACE | NEWWORKSPACE

Specifies the data set characteristics of two workspace data sets for the specified node. RRSF uses these two message queues to control information and messages associated with work being processed for the node.

The values you supply with the PREFIX, WDSQUAL, and WORKSPACE operands are used to determine the fully qualified names, size, and data management characteristics of the workspace data sets.

For details about the naming conventions for work space data sets, see Workspace data sets in *z/OS Security Server RACF System Programmer's Guide*.

If you opt to preallocate the workspace data sets, see Defining the workspace data sets in *z/OS Security Server RACF System Programmer's Guide* for details.

Guideline: Allow RACF to allocate your workspace data sets for you.

Unless already allocated, RACF allocates two workspace data sets for each node whenever you activate or inactivate the node using the DORMANT or OPERATIVE operands. No workspace data sets are allocated for peer systems in the same multisystem node or for non-main members between two multisystem nodes.

Once the workspace data sets are allocated, you cannot change the data set characteristics by specifying options of the WORKSPACE operand, although you can modify WORKSPACE values. When you display WORKSPACE information using the TARGET LIST command, be aware that the values listed might not be values in effect at the time the data sets were allocated.

Guideline: For multisystem nodes, ensure that all workspace data sets are allocated on shared resources so that all member systems of the multisystem node can access each workspace data set.

With the WORKSPACE operand, you can specify that RACF allocate your workspace data sets on a particular volume or use system-managed storage (SMS). The STORCLAS, DATACLAS, and MGMTCLAS suboperands of WORKSPACE apply to an SMS allocation. The VOLUME suboperand applies to a non-SMS allocation. The FILESIZE suboperand applies to either.

STORCLAS(*class-name*)

Specifies the SMS storage class name. For an SMS allocation, STORCLAS is required.

DATACLAS(*class-name*)
Specifies the SMS data class name. For an SMS allocation, DATACLAS is optional.

MGMTCLAS(*class-name*)
Specifies the SMS management class name. For an SMS allocation, MGMTCLAS is optional.

VOLUME(*volume-serial*)
Specifies the volume serial number. For a non-SMS allocation, VOLUME is required. The *volume-serial* specified must be a valid volume on the system where the TARGET command is issued.

You cannot specify VOLUME with either STORCLAS, MGMTCLAS, or DATACLAS.

FILESIZE(*nnnnnnnnnn* |500)
Specifies that the space allocated for the workspace data sets should be sufficient to contain *nnnnnnnnnn* records in each data set. If you omit FILESIZE, the default value is 500 records.

The allowable range of values for FILESIZE is 1 - 2147483647 records. RACF invokes Access Methods Services to issue the DEFINE CLUSTER command that allocates the RRSF work data sets and specifies your FILESIZE value as the RECORDS value. Note that your actual allocation might be less than specified if you specify a FILESIZE value that exceeds the current maximum RECORDS value.

NEWWORKSPACE
Specifies the data set characteristics of the NEW workspace data sets for the specified node. All sub-operands of WORKSPACE are accepted and have the same meaning. If sub-operands are not specified, the values currently defined for the node are used for NEWWORKSPACE.

Rules:

- The NEWWORKSPACE keyword may only be specified for an RRSF node which is in the OPERATIVE ACTIVE state.
- The LOCAL RRSF node must also be OPERATIVE ACTIVE.
- The NEWPREFIX keyword must be specified if the NEWWORKSPACE keyword is specified.
  - Suboperands of the NEWWORKSPACE keyword are reused from the existing workspace data sets, but can be overridden by specifying them as sub-keywords of the NEWWORKSPACE keyword.
  - Because dataset reallocation happens immediately, all necessary suboperands of the NEWWORKSPACE keyword must be specified at once.
- Only NODE, SYSNAME, LIST, WDSQUAL may also be specified with the NEWPREFIX keyword.
- NODE(*) and / or SYSNAME(*) may not be specified.
- The node may only have one protocol defined and must not be in the middle of a communications protocol conversion. This restriction does not apply to the LOCAL node.
- The workspace data sets cannot be reallocated without changing the prefix. To change the attributes of the workspace data set while retaining the prefix:
  - Reallocate the workspace data sets with a temporary prefix. Be sure that the new data sets are protected by RACF profiles.
  - Reallocate the workspace data sets again with the original prefix.

The reallocation of the workspace data sets for the specified node starts immediately. New workspace data sets are allocated using the NEWPREFIX, NEWWORKSPACE and WDSQUAL (if specified) information. Communication with the specified node is dropped and re-established. RRSF reads data from both the old and new workspace data sets until the old workspace data sets are empty, at which time they are deleted.

TARGET LIST may show multiple sets of workspace data sets while the dataset reallocation is in progress.

Message IRRC083I is issued when the dataset reallocation has completed.

The maximum length of the NEWPREFIX value is 19 characters including periods.

Example:

```
NEWWORKSPACE(size(400))
```

Retains all aspects of an existing workspace data set, except for size.

Examples

Example	Activity label	Description
1	*Operation*	User ADMIN wants a summary list of the current operational attributes for all nodes in the RRSF configuration.
	Known	The RACF subsystem prefix is <.
	Command	`<TARGET`
	Defaults	Because no operands are specified, LIST is the default. Because NODE is not specified, the command defaults to a summary listing for all target nodes known to the node the command runs on.
	Output	See Figure 87 on page 635.
2	*Operation*	User ADMIN wants a summary list of protocol status information for all target nodes and a detailed list of protocol status information for the local node.
	Known	The RACF subsystem prefix is <.
	Command	`<TARGET LISTPROTOCOL`
	Defaults	None.
	Output	See Figure 88 on page 635.
3	*Operation*	User ADMIN at POKMVSA wants to define POKMVSA as the local APPC node for an RRSF configuration, list the node, and make it operative.
	Known	• The RACF subsystem prefix is `@`. • POKMVSA has DFP non-SMS running. • The volume that contains the workspace data sets is DASD01. • The high-level qualifier for the workspace data sets is SYS1.RACF. • The APPC LUNAME is MF1AP001. • APPC and VTAM have been installed and configured. • Because the LIST operand is specified in combination with other TARGET operands, the information displayed provides the operational and protocol attributes as they exist after the processing of the other operands.

	Command	`@TARGET NODE(POKMVSA) LOCAL`
		`DESCRIPTION('POUGHKEEPSIE MVS SYSTEM A')`
		`PREFIX(SYS1.RACF) WORKSPACE(VOLUME(DASD01))`
		`PROTOCOL(APPC(LUNAME(MF1AP001))) OPERATIVE LIST`

	Defaults	• The APPC TP name defaults to IRRRACF. • FILESIZE defaults to 500.
	Output	See Figure 89 on page 635.

Example	Activity label	Description
4	*Operation*	User ADMIN at NODE1 wants a detailed list of the current operational attributes for the local node, which has both APPC and TCP protocol information defined.
	Known	The RACF subsystem prefix is <.
	Command	`<TARGET LIST NODE(NODE1)`
	Defaults	None.
	Output	See Figure 90 on page 636.
5	*Operation*	User ADMIN at NODE1 wants to define NODE2 as a remote TCP/IP node for an RRSF configuration, list the node, and make it operative.
	Known	• The RACF subsystem prefix is <. • NODE1 has DFP non-SMS running. • The volume that contains the workspace data sets is DASD01. • The high-level qualifier for the workspace data sets is SYS1.RRSF. • The TCP/IP host name is MVS5.POK.OURS.COM. • Because the LIST operand is specified in combination with other TARGET operands, the information displayed provides the operational and protocol attributes as they exist after the processing of the other operands.
	Command	`<TARGET NODE(NODE2) PROTOCOL(TCP(ADDRESS(MVS5.POK.OURS.COM))) PREFIX(SYS1.RRSF) WORKSPACE(VOLUME(DASD01)) OPERATIVE LIST`
	Defaults	• The TCP PORTNUM defaults to 18136. • FILESIZE defaults to 500.
	Output	See Figure 91 on page 636.
6	*Operation*	User ADMIN wants to purge the OUTMSG workspace data set for node POKMVSB.
	Known	The RACF subsystem prefix is @. POKMVSB must be dormant to purge the workspace data sets. When the PURGE and DORMANT operands are specified together, the DORMANT operand is processed first.
	Command	`@TARGET NODE(POKMVSB) PURGE(OUTMSG) DORMANT`
	Defaults	None.

	Results	User ADMIN receives an informational message.
		`@IRRM021I RACF SUBSYSTEM PURGE OF NODE POKMVSB OUTMSG FILE`
		`          SYS1.RACF.POKMVSA.OUTMSG IS COMPLETE.`
		`@IRRM002I RACF SUBSYSTEM TARGET COMMAND HAS COMPLETED SUCCESSFULLY.`

7	*Operation*	User ADMIN wants to delete node POKMVSC from the set of known target nodes.
	Known	The RACF subsystem prefix is @. POKMVSC is already dormant.
	Command	`@TARGET NODE(POKMVSC) DELETE`
	Defaults	None.

Example	Activity label	Description
8	*Operation*	User ADMIN wants to rename existing workspace data sets for NODE2 to SYS2.RACF, and change the size to 1000, while keeping the current volume.
	Known	The RACF subsystem prefix is ?.
	Command	`?TARGET node(node2) NEWPREFIX(SYS2.RACF) NEWWORKSPACE(FILESIZE(1000))`
	Defaults	All other attributes of NODE2 remain intact.
	Output	See Figure 92 on page 636. Note that communications will be briefly dropped and reestablished during RRSF workspace data set reallocation.

```
<TARGET
IRRM009I (<) LOCAL RRSF NODE NODE1 IS IN THE OPERATIVE ACTIVE STATE.
IRRM091I (<)      - LOCAL NODE TCP LISTENER IS ACTIVE.
IRRM091I (<)      - LOCAL NODE APPC LISTENER IS ACTIVE.
IRRM009I (<) REMOTE RRSF NODE NODE2 IS IN THE OPERATIVE ACTIVE STATE.
IRRM009I (<) REMOTE RRSF NODE NODE3 IS IN THE OPERATIVE PENDING
             CONNECTION STATE.
IRRM009I (<) REMOTE RRSF NODE NODE4 IS IN THE OPERATIVE PENDING
             CONNECTION STATE.
IRRM009I (<) REMOTE RRSF NODE NODE5 IS IN THE OPERATIVE PENDING
             CONNECTION STATE.
```

Figure 87. Summary TARGET LIST output

```
<TARGET LISTPROTOCOL
IRRM009I (<) LOCAL RRSF NODE NODE1 IS IN THE OPERATIVE ACTIVE STATE.
IRRM091I (<)      - LOCAL NODE TCP LISTENER IS ACTIVE.
IRRM091I (<)      - LOCAL NODE APPC LISTENER IS ACTIVE.
IRRM009I (<) REMOTE RRSF NODE NODE2 PROTOCOL APPC IS IN THE OPERATIVE
             ACTIVE STATE.
IRRM009I (<) REMOTE RRSF NODE NODE3 PROTOCOL APPC IS IN THE OPERATIVE
             PENDING CONNECTION STATE.
IRRM009I (<) REMOTE RRSF NODE NODE4 PROTOCOL TCP IS IN THE OPERATIVE
             PENDING CONNECTION STATE.
IRRM009I (<) REMOTE RRSF NODE NODE5 PROTOCOL TCP IS IN THE OPERATIVE
             PENDING CONNECTION STATE.
```

Figure 88. TARGET LISTPROTOCOL output

```
@TARGET NODE(POKMVSA) LOCAL DESCRIPTION('POUGHKEEPSIE MVS SYSTEM A')
 PREFIX(SYS1.RACF) WORKSPACE(VOLUME(DASD01)) PROTOCOL(APPC(LUNAME(MF1AP001)))
 OPERATIVE LIST
IRRM010I (@) RSWJ SUBSYSTEM PROPERTIES OF LOCAL RRSF NODE POKMVSA:
   STATE       - OPERATIVE ACTIVE
   DESCRIPTION - "POKR MVS SYSTEM A"
   PROTOCOL    - APPC
                 LU NAME          - MF1AP001
                 TP PROFILE NAME  - IRRRACF
                 MODENAME         - <NOT SPECIFIED>
                 LISTENER STATUS  - ACTIVE
   TIME OF LAST TRANSMISSION TO   - <NONE>
   TIME OF LAST TRANSMISSION FROM - <NONE>
   WORKSPACE FILE SPECIFICATION
         PREFIX                   - "SYS1.RACF"
         WDSQUAL                  - <NOT SPECIFIED>
         FILESIZE                 - 500
         VOLUME                   - DASD01
         FILE USAGE
                 "SYS1.RACF.NODE1.INMSG"
                                  - CONTAINS 0 RECORD(S)
                                  - OCCUPIES 1 EXTENT(S)
                 "SYS1.RACF.NODE1.OUTMSG"
                                  - CONTAINS 0 RECORD(S)
                                  - OCCUPIES 1 EXTENT(S)
```

Figure 89. Detailed TARGET LIST output for a local APPC node

```
<TARGET LIST NODE(NODE1)
IRRM010I (<) RSWJ SUBSYSTEM PROPERTIES OF LOCAL RRSF NODE NODE1:
   STATE       - OPERATIVE ACTIVE
   DESCRIPTION - <NOT SPECIFIED>
   PROTOCOL    - TCP
                 HOST ADDRESS     - 0.0.0.0
                 IP ADDRESS       - 9.57.1.243
                 LISTENER PORT    - 18136
                 LISTENER STATUS  - ACTIVE
   PROTOCOL    - APPC
                 LU NAME          - MF1AP001
                 TP PROFILE NAME  - IRRRACF
                 MODENAME         - <NOT SPECIFIED>
                 LISTENER STATUS  - ACTIVE
   TIME OF LAST TRANSMISSION TO   - <NONE>
   TIME OF LAST TRANSMISSION FROM - <NONE>
   WORKSPACE FILE SPECIFICATION
         PREFIX                   - "SYS1.RRSF"
         WDSQUAL                  - <NOT SPECIFIED>
         FILESIZE                 - 500
         VOLUME                   - TEMP01
         FILE USAGE
                 "SYS1.RRSF.NODE1.INMSG"
                                  - CONTAINS 0 RECORD(S)
                                  - OCCUPIES 1 EXTENT(S)
                 "SYS1.RRSF.NODE1.OUTMSG"
                                  - CONTAINS 0 RECORD(S)
                                  - OCCUPIES 1 EXTENT(S)
```

Figure 90. Detailed TARGET LIST output for a local node that supports multiple protocols

```
<TARGET LIST NODE(NODE2)
IRRM010I (<) RSWJ SUBSYSTEM PROPERTIES OF REMOTE RRSF NODE NODE2:
   STATE       - OPERATIVE ACTIVE
   DESCRIPTION - <NOT SPECIFIED>
   PROTOCOL    - TCP
                 HOST ADDRESS     - MVS5.POK.OURS.COM
                 IP ADDRESS       - 9.57.1.13
                 LISTENER PORT    - 18136
                 AT-TLS POLICY:
                   RULE_NAME      - RRSF-CLIENT
                   CIPHER ALG     - 35 TLS_RSA_WITH_AES_256_CBC_SHA
                   CLIENT AUTH    - REQUIRED
   TIME OF LAST TRANSMISSION TO   - 16:45:39 DEC 15, 2010
   TIME OF LAST TRANSMISSION FROM - 16:45:40 DEC 15, 2010
   WORKSPACE FILE SPECIFICATION
         PREFIX                   - "SYS1.RRSF"
         WDSQUAL                  - <NOT SPECIFIED>
         FILESIZE                 - 500
         VOLUME                   - DASD01
         FILE USAGE
                 "SYS1.RRSF.NODE1.NODE2.INMSG"
                                  - CONTAINS 0 RECORD(S)
                                  - OCCUPIES 1 EXTENT(S)
                 "SYS1.RRSF.NODE1.NODE2.OUTMSG"
                                  - CONTAINS 0 RECORD(S)
                                  - OCCUPIES 1 EXTENT(S)
```

Figure 91. Detailed TARGET LIST output for a remote TCP/IP node

```
?TARGET node(node2) NEWPREFIX(SYS2.RACF)
 NEWWORKSPACE(FILESIZE(1000))
IRRM002I (?) RSFX SUBSYSTEM TARGET COMMAND HAS COMPLETED SUCCESSFULLY.
IRRI027I (?) RACF COMMUNICATION WITH TCP NODE NODE2 HAS BEEN
             SUCCESSFULLY ESTABLISHED USING CIPHER ALGORITHM 35
             TLS_RSA_WITH_AES_256_CBC_SHA.
IRRC083I (?) REALLOCATION OF RRSF WORKSPACE DATASETS IS COMPLETE FOR
             NODE NODE2.
```

Figure 92. Summary TARGET NEWPREFIX output

Appendix A. Naming considerations for resource profiles

Profile definitions

In RACF, resource profiles contain a description of a resource, including the authorized users and the access authority of each user. Resource profiles can be discrete, generic, or, additionally for the DATASET class, fully qualified generic. Regardless of whether a resource profile name is discrete or generic, the format of the name must follow certain rules. For profiles that protect general resources these rules are described by the entries in the class descriptor table and vary from class to class. For profiles that protect data sets these rules are the same as those used by TSO except that the high-level qualifier must be a valid RACF-defined user ID or group name. Also, because the first qualifier is an id, RACF expects a data set name to have a minimum of two qualifiers. For a description of the TSO/E data set naming conventions, see *z/OS TSO/E User's Guide*.

Discrete profiles

A *discrete* profile can protect a single resource that has unique security requirements. A discrete profile matches the name of the resource it protects and cannot exist independently of the resource. In the DATASET class, if you delete the resource, you delete the profile.

For example, a profile protecting a resource named `SMITH.REXX.EXEC` in class DATASET would protect the data set named `SMITH.REXX.EXEC`.

Generic profiles

A *generic* profile can protect several resources that have a similar naming structure and security requirements. Specify generic characters in the profile name if you want to protect more than one resource with the same security requirements.

One or more of the following generic characters are allowed:

- Percent sign (%)
- Single asterisk (*)
- Double asterisk (**)
- Ampersand (&)

Note:

1. The double asterisk (**) is not allowed with the DATASET class if enhanced generic naming (EGN) is inactive.
2. The ampersand (&) is only for general resource profile names and only if the RACFVARS class is active. Resource profiles can be created to protect resource names with *unlike* names. See *z/OS Security Server RACF Security Administrator's Guide* for more information.

For example, a profile protecting a resource named `SMITH.*` in class DATASET would protect all of SMITH's data sets that did not have a more specific profile defined (NOEGN is in effect).

Fully-qualified generic profiles (DATASET class only)

A *fully-qualified* generic profile matches exactly the name of the data set it protects.

One reason to choose a fully-qualified generic profile for data set protection is that the profile is not deleted if the data set is deleted. If the data set is deleted and then recreated, the protection is there without creating another profile. Another reason is to protect multiple copies with one profile.

Determining RACF protection

Although multiple generic profiles can match a general resource name, only the most specific profile actually protects it. For example, AB.CD*, AB.CD.**, and AB.**.CD all match the general resource name AB.CD, but AB.CD.** protects the resource.

The best way to determine which profile is protecting a given resource is to use one of the list commands.

To find out what profile is protecting a general resource, enter the RLIST command:

```
RLIST class-name resource-name
```

which looks for a discrete profile. If none is found, and generic profile checking is in effect for the class, the generic profile which protects the resource is displayed.

To find out what profile is protecting your data set, enter:

```
LISTDSD DA('data-set-name')
```

which looks for a discrete profile. If none is found, and generic profile checking is in effect for the DATASET class, enter:

```
LISTDSD DA('data-set-name') GENERIC
```

which looks for a generic profile.

The rest of the appendix discusses the rules governing:

- Profile names for data sets
- Profile names for general resources.

Profile names for data sets

For naming profiles in the DATASET class you can use discrete, generic, or fully qualified generic names.

Table 52 on page 638 shows the rules for using asterisks in the profile names of data sets when enhanced generic naming (EGN) is enabled and when it is not.

Note: Depending on whether EGN is active, the ending * has different meanings. These are explained in more detail later in this section.

Table 52. Generic naming for data sets

Enhanced generic naming (EGN) option	Ending .** allowed	Middle .**. allowed	Beginning * allowed	Middle * allowed	Ending * allowed
EGN on	Yes	Yes	No	Yes	Yes
EGN off	No	No	No	Yes	Yes

Discrete profiles

These are the same as TSO data set names (see *z/OS TSO/E Command Reference*), except that the high-level qualifier (or the qualifier supplied by a command installation exit) must be a valid RACF-defined user ID or group name.

Generic profile rules - enhanced generic naming inactive

In the DATASET class, you can use generic characters as follows:

- Specify % to match any single character in a data set name
- Specify * as follows:

- As a character at the end of a data set profile name (for example, ABC.DEF*) to match zero or more characters until the end of the name, zero or more qualifiers until the end of the data set name, or both
- As a qualifier at the end of a profile name (for example, ABC.DEF.*) to match one or more qualifiers until the end of the data set name
- As a qualifier in the middle of a profile name (for example, ABC.*.DEF) to match any one qualifier in a data set name
- As a character at the end of a qualifier in the middle of a profile name (for example, ABC.DE*.FGH) to match zero or more characters until the end of the qualifier in a data set name.

Note: For profiles in the DATASET class, the high-level qualifier of the profile name must not be, nor can it contain, a generic character - for example, *.ABC, AB%.B, and AB*.AB are not allowed.

Tables are provided to show the variety of profiles that can be created using generics, using enhanced generic naming, and what happens to the profile protection if enhanced generic naming is turned off.

Table 53 on page 639 and Table 54 on page 639 provide examples of data set names using generic naming. Enhanced generic naming has not been turned on (SETROPTS NOEGN, the default, is in effect).

Table 55 on page 640 and Table 56 on page 640 provide examples of data set names with enhanced generic naming (SETR EGN is on).

Table 57 on page 641 and Table 58 on page 641 provide examples of data set names if enhanced generic naming is turned off after being turned on. It is not recommended that you turn EGN off after you have turned it on.

Table 53. Generic naming for data sets with enhanced generic naming inactive - Asterisk at the end

Profile name	**AB.CD***	**AB.CD.***
Resources protected by the profile	AB.CD AB.CDEF AB.CD.EF AB.CD.XY AB.CD.EF.GH	AB.CD.EF AB.CD.XY AB.CD.EF.GH
Resources not protected by the profile	ABC.DEF ABC.XY.XY.DEF	AB.CD AB.CDEF ABC.DEF AB.XY.XY.DEF

Table 54. Generic naming for data sets with enhanced generic naming inactive - Asterisk or percent sign in the middle

Profile name	**ABC.%EF**	**AB.*.CD**	**AB.CD*.EF**
Resources protected by the profile	ABC.DEF ABC.XEF	AB.CD.CD	AB.CDEF.EF AB.CDE.EF
Resources not protected by the profile	ABC.DEFGHI ABC.DEF.GHI ABC.DDEF	AB.CD AB.CD.EF AB.CDEF ABC.DEF ABC.XY.CD AB.XY.XY.CD	AB.CD.XY.EF

Generic profile rules - enhanced generic naming active

The *enhanced generic naming* option applies only to data sets and allows you to use double asterisk (**) in the DATASET class. It also changes the meaning of the single asterisk (*) at the end of a profile name.

Your RACF security administrator activates enhanced generic naming by issuing the SETROPTS command with the EGN operand. SETROPTS EGN makes the rules for data set and general resource profiles consistent with each other. Additionally, generic profiles can be more precise, and the generic profile names are more similar to other IBM products.

New installations should set EGN on immediately.

The following rules apply if you have enhanced generic naming in effect.

Specify * as follows:

- As a character at the end of a data set profile name to match zero or more characters until the end of the qualifier.
- As a qualifier at the end of a profile name to match *one* qualifier until the end of the data set name.

  The meaning of an ending asterisk depends on whether the installation is using generic profiles with or without EGN.

Specify ** as follows:

- As either a middle or end qualifier in a profile name to match zero or more qualifiers. Only one occurrence of a double asterisk is allowed in a profile name.

  For example, ABC.DE.** is allowed; ABC.DE** is not allowed; and A.**.B.** is not allowed.

  RACF does not allow you to specify any generic characters in the high-level qualifier of a data set name.

Table 55 on page 640 and Table 56 on page 640 show examples of generic profile names you can create when enhanced generic naming is active, and the resources protected and not protected by those profiles.

Table 55. Generic data set profile names created with enhanced generic naming active - Asterisk and double asterisk at the end

Profile name	AB.CD*	AB.CD.*	AB.CD.**	AB.CD*.**	AB.CD.*.**
Resources protected by the profile	AB.CD AB.CDEF	AB.CD.EF AB.CD.XY	AB.CD AB.CD.EF AB.CD.EF.GH AB.CD.XY	AB.CD AB.CD.EF AB.CDEF AB.CDEF.GH AB.CD.EF.GH AB.CD.XY	AB.CD.EF AB.CD.EF.GH AB.CD.XY
Resources not protected by the profile	AB.CD.EF AB.CD.EF.GH AB.CD.XY ABC.DEF	AB.CD AB.CDEF AB.CD.EF.GH ABC.DEF	AB.CDEF AB.CDE.FG ABC.DEF	ABC.DEF	ABC.DEF AB.CDEF AB.CDEF.GH AB.CD ABC.XY.XY.EF

Table 56. Generic data set profile names created with enhanced generic naming active - Asterisk, double asterisk, or percent sign in the middle

Profile name	ABC.%EF	AB.*.CD	AB.**.CD
Resources protected by the profile	ABC.DEF ABC.XEF	AB.CD.CD	AB.CD AB.X.CD AB.X.Y.CD

Table 56. Generic data set profile names created with enhanced generic naming active - Asterisk, double asterisk, or percent sign in the middle (continued)

Profile name	ABC.%EF	AB.*.CD	AB.**.CD
Resources not protected by the profile	ABC.DEFGHI ABC.DEF.GHI ABC.DDEF	AB.CD AB.CD.EF AB.CDEF ABC.DEF ABC.XY.CD ABC.XY.XY.CD	AB.CD.EF AB.CDEF ABC.X.CD.EF ABC.DEF ABX.YCD

Note: Although multiple generic profiles might match a data set name, only the most specific actually protects the data set. For example, AB.CD*, AB.CD.**, and AB.**.CD all match the data set AB.CD, but AB.CD.** protects the data set.

In general, given two profiles that match a data set, you can find the more specific one by comparing the profile name from left to right. Where they differ, a nongeneric character is more specific than a generic character. In comparing generics, a % is more specific than an *, and an * is more specific than **. Another way to determine the most specific is with the SEARCH command, as there are some rare exceptions to the general rule. SEARCH always lists the profiles in the order of the most specific to the least specific.

Data set profiles created before enhanced generic naming is activated continue to provide the same RACF protection after this option is activated.

If you protect resources with generic profiles while enhanced generic naming is active and then deactivate this option, your resources can no longer be protected. Table 57 on page 641 and Table 58 on page 641 show examples of generic profiles created with enhanced generic naming active and the protection after deactivation.

Table 57. After deactivating EGN - Asterisk and percent sign in the middle

Profile name	ABC.%EF	ABC.*.DEF
How RACF displays the name after EGN is deactivated	ABC.%EF	ABC.*.DEF
Resources protected by the profile after EGN is deactivated	Same as before	Same as before

Table 58. After deactivating EGN - Asterisk and double asterisk at the end

Profile name	AB.CD*	AB.CD.*	AB.CD.**	AB.CD*.**	AB.CD.*.**
How RACF displays the name after EGN is deactivated	AB.CD*	AB.CD.*	AB.CD.	AB.CD*	AB.CD.*
Resources protected by the profile after EGN is deactivated	None	None	None	Same as before	Same as before

Choosing between discrete and generic profiles

- Choose a *generic* profile for one of the following reasons:

  - To protect more than one data set with the same security requirements. The data sets protected by a generic profile must have some identical characters in their names. The profile name contains one or more generic characters (* or %).
  - If you have a single data set that might be deleted, then recreated, and you want the protection to remain the same, you can create a fully qualified generic profile.
- Choose a *discrete* profile for the following reason:
  - To protect one data set with unique security requirements. The name of a discrete profile matches the name of the data set it protects.

    While you could also use a fully qualified generic, you should do so with care. Generic profiles can cause performance problems if they are not used to protect several data sets.

If a data set is protected by both a generic profile and a discrete profile, the discrete profile takes precedence and sets the level of protection for the data set.

If a data set is protected by more than one generic profile, the *most specific* profile takes precedence and sets the level of protection for the data set.

Note:

1. All the members of a partitioned data set (PDS) are protected by one profile (the profile that protects the data set).
2. For a generic profile, unit and volume information is ignored because the data sets that are protected under the generic profile can be on many different volumes.

Profile support

A generic profile might already exist under which the data set is protected. However, that profile might not provide the exact protection you want for your data set. In this case, you can create a more specific generic profile or a discrete profile for the data set.

All the components of a VSAM data set are protected by one profile (the profile that protects the cluster name). You do not need to create profiles that protect the index and data components of a cluster.

The protection offered by a generic profile is different, depending on the level of data management support installed on your system. Generic profiles protect all data sets that they apply to, including existing data sets and data sets to be created in the future.

A generic profile controls the *creation* of data sets. When a user creates a new tape or DASD data set that is protected by an existing generic profile, that profile must give the user ALTER authority. If the new data set is a group data set, the user must have either ALTER authority in the profile or CREATE authority in the group.

Data sets that are not RACF-indicated but are protected by a generic profile are *not* protected if they are transferred (in any way) or available (such as through shared DASD) to another system unless that system has all of the following:

- RACF protection
- The appropriate predefined generic profiles.

For more information, see *z/OS Security Server RACF Security Administrator's Guide*.

Profile names for general resources

For naming general resources, you can use discrete or generic profiles. As mentioned before, discrete profile names exactly match the general resource name.

Table 59 on page 643 shows the rules for using asterisks in profile names for general resources.

Note: The ending asterisk has different meanings and is explained further in the appropriate sections.

Table 59. Generic naming for general resources

Double asterisk in the beginning, middle, or end	Middle asterisk	Beginning asterisk	Ending asterisk
Allowed	Allowed	Allowed	Allowed

Valid generic characters are a percent sign (%), asterisk (*), double asterisk (**), and ampersand (&):

- Specify a percent sign to match any single character in a resource profile name.
- Specify a double asterisk once in a profile name as follows:
  - As the entire profile name to match all resource names in a class.
  - As either a beginning, middle, or ending qualifier (for example, **.ABC, ABC.**.DEF, or ABC.**) to match zero or more qualifiers in a resource name.

    Note: ** is always available for general resources. The SETROPTS EGN setting is exclusively for data sets.
- Specify an asterisk as follows:
  - As a qualifier at the beginning of a profile name to match any one qualifier in a resource name.
  - As a character at the end of a profile name (for example, ABC.DEF*) to match zero or more characters until the end of the resource name, zero or more qualifiers until the end of the resource name, or both.
  - As a qualifier at the end of a profile name (for example, ABC.DEF.*) to match one or more qualifiers until the end of the resource name.
  - As a qualifier in the middle of a profile name (for example, ABC.*.DEF) to match any one qualifier in a resource name.
  - As a character at the end of a qualifier in the middle of a profile name (for example, ABC.DE*.FGH) to match zero or more characters until the end of the qualifier in a resource name.
- Specify an ampersand as follows:
  - In a profile name to indicate that RACF is to use a profile in the RACFVARS class to determine the actual values to use for that part of the profile name.

Note:

1. If a class in the class descriptor table specifies a value for key qualifiers other than zero, generic profiles created in that class cannot contain generic characters in the specified number of qualifiers at the beginning of a profile name in that class.
2. If a class in the class descriptor table specifies a value for key qualifiers other than zero, all discrete and generic profiles in that class must have at least *nnn*+1 qualifiers in the profile name. The number of qualifiers is determined by counting the number of period characters in the profile and adding one; the first character is not examined. Any generic characters must be in the *nnn*+1 qualifier or beyond. Examples of valid profile names for KEYQUALIFIERS(2) are:

   ```
   A.B.C
   A.B.**
   A.B.C.D*
   ```

See *z/OS Security Server RACF Security Administrator's Guide* for the unique naming conventions of specific classes and for a discussion of the RACFVARS class. See also the product documentation (such as PSF or CICS) for the naming conventions of specific classes.

Restricted Use of %* in General Resources

New profiles with an ending %* are not allowed, nor are profiles named %*. The RDEFINE command returns an error message.

Existing profiles with an ending %* are usable, but they should be deleted before creating any new profiles with a middle or beginning * or **. The RALTER and RDELETE commands accepts %* to enable you to make the changes.

Instead of using an ending %*, create new profiles ending with %.** or * for similar function (change AB.C%* to AB.C%.** or AB.C*).

If you have existing profiles named %*, you should create new profiles (suggested name **).

Note: When creating the new profiles, consider using the FROM operand for continued use of the same access list.

Table 60 on page 644, Table 61 on page 644, and Table 62 on page 644 give examples of generic profile names for general resources.

Table 60. Generic naming for general resources - Percent sign, asterisk, or double asterisk at the beginning

Profile name	%.AB	*.AB	**.AB
Resources protected by the profile	B.AB A.AB	AB.AB ABC.AB A.AB	AB A.A.A.AB AB.AB A.AB
Resources not protected by the profile	AB.AB ABC.AB	AB.CD AB.C.AB AB	ABC.AB.DEF ABAB

Table 61. Generic naming for general resources - Asterisk or double asterisk at the end

Profile name	AB.CD*	AB.CD.*	AB.CD.**
Resources protected by the profile	AB.CD AB.CDEF AB.CD.EF AB.CD.XY AB.CD.EF.GH	AB.CD.EF AB.CD.XY AB.CD.EF.XY	AB.CD.CD AB.CD.X.Y.Z AB.CD AB.CD.EF.GH
Resources not protected by the profile	ABC.DEF ABC.XY.XY.DEF	AB.CD AB.CDEF ABC.DEF AB.XY.XY.DEF	ABC.CD AB.CDE.EF

Table 62. Generic naming for general resources - Asterisk, double asterisk, or percent sign in the middle

Profile name	ABC.%EF	AB.*.CD	AB.CD*.CD	AB.**.CD
Resources protected by the profile	ABC.DEF ABC.XEF	AB.CD.CD	AB.CD.CD AB.CDEF.CD	AB.CD AB.X.CD AB.X.Y.CD

Table 62. Generic naming for general resources - Asterisk, double asterisk, or percent sign in the middle (continued)

Profile name	ABC.%EF	AB.*.CD	AB.CD*.CD	AB.**.CD
Resources not protected by the profile	ABC.DEFGHI ABC.DEF.GHI	AB.CD AB.CD.EF AB.CDEF AB.X.Y.CD	AB.CD.XY AB.CD.XY.CD	AB.CD.EF AB.CDEF ABC.X.CD.EF ABC.DEF ABC.XY.CD ABC.XY.XY.CD

Although multiple generic profiles might match a general resource name, only the most specific actually protects the resource. For example, AB.CD*, AB.CD.**, and AB.**.CD all match the general resource AB.CD, but AB.CD** protects it.

In general, given two profiles that match a general resource, you can find the more specific one by comparing the profile name from left to right. Where they differ, a nongeneric character is more specific than a generic character. In comparing generics, a percent sign is more specific than an asterisk, and an asterisk is more specific than double asterisk. Another way to determine the most specific is with the SEARCH command, as there are some rare exceptions to the general rule. SEARCH always lists the profiles in the order of the most specific to the least specific.

Permitting profiles for GENERICOWNER classes

GENERICOWNER gives an installation the ability of restricting CLAUTH users from creating profiles in a class. In order to do this, an upper-level ** profile is defined. This profile is owned by the system administrator and this profile blocks all non-SPECIAL users from creating profiles. A *permitting* profile must be defined for each CLAUTH user. Each profile defines the subset of resources in the class that the user is allowed to create.

When a CLAUTH user attempts to define a resource, a search is made for a less-specific (permitting) profile that covers the profile being defined. This less-specific profile is a profile that matches the more specific profile name, character for character, up to the ending * or ** or ending contiguous % characters in the less-specific name.

This definition might appear simple, but is not exactly what you might expect in comparison to the preceding section.

Table 63. Permitting profile names containing asterisks (*)

Profile name	AA.*	AA.**	AA*	A.*.B.**
covered	AA.BB AA.B.C AA.%%	AA.* AA AA.BB AA.B.C AA.%	AA.* AA AA.BB AA.B.C AAC.BB AA%.%%	A.*.B.CC A.*.B.%%.%%
not covered	AA.** AA ABC.BB A%.AA	AAC.BB ABC.BB %A.%	ABC.BB A%A	A.A.B.CC A.%.B.%%.%%

*Table 64. Permitting profile names containing percent signs (**%**)*

Profile name	**AA.%**	**AA.%%**	**AA%**	**A.*.B.%%**
covered	AA.B	AA.BB AA.%B	AAC	A.*.B.CC
not covered	AA.** A%.A AA.CC	AA.B	AA.B A%A	A.A.B.CC A.%.B.%%

Appendix B. Supplied RACF resource classes

This appendix describes the general resource classes you can find in the supplied class descriptor table (CDT) and contains the following section:

- “Supplied resource classes for z/OS systems” on page 647

See *z/OS Security Server RACF Macros and Interfaces* to find the details (such as POSIT values) associated with the supplied CDT entry for each class.

Supplied resource classes for z/OS systems

Table 65 on page 647 lists the supplied CDT classes that can be used on z/OS systems. Several classes are listed in categories based on their usage. See restrictions at the end of the table.

Table 65. Resource classes for z/OS systems

Class name	Description
	RACF, MVS, and miscellaneous classes
ALCSAUTH	Supports the Airline Control System/MVS (ALCS/MVS) product.
ACEECHK	Configuration of RACF ACEE Privilege Escalation Detection.
APPCLU	Verifying the identity of partner logical units during VTAM session establishment.
APPCPORT	Controlling which user IDs can access the system from a given LU (APPC port of entry). Also, conditional access to resources for users entering the system from a given LU.
APPCSERV	Controlling whether a program that is being run by a user can act as a server for a specific APPC transaction program (TP).
APPCSI	Controlling access to APPC side information files.
APPCTP	Controlling the use of APPC transaction programs.
APPL	Controlling access to applications.
CACHECLS	Contains profiles that are used for saving and restoring cache contents from the RACF database.
CBIND	Controlling the client's ability to bind to the server.
CDT	Contains profiles for installation-defined classes for the dynamic CDT. “3” on page 656
CFIELD	Contains profiles that define the installation's custom fields. “3” on page 656
CONSOLE	Controlling access to MCS consoles. Also, conditional access to other resources for commands that originate from an MCS console.
DASDVOL	DASD volumes.
DBNFORM	Reserved for future IBM use.
DEVICES	Used by MVS allocation to control who can allocate devices such as: • Unit record devices (printers and punches) (allocated only by PSF, JES2, or JES3) • Graphics devices (allocated only by VTAM) • Teleprocessing (TP) or communications devices (allocated only by VTAM)
DIGTCERT	Contains digital certificates and information that is related to them.

Table 65. Resource classes for z/OS systems (continued)

Class name	Description
DIGTCRIT	Specifies additional criteria for certificate name filters.
DIGTNMAP	Mapping class for certificate name filters.
DIGTRING	Contains a profile for each key ring and provides information about the digital certificates that are part of each key ring.
DIRAUTH	Setting logging options for RACROUTE REQUEST=DIRAUTH requests. Also, if the DIRAUTH class is active, security label authorization checking is done when a user receives a message that is sent through the TPUT macro or the TSO SEND, or LISTBC commands. "5" on page 656
DLFCLASS	The data lookaside facility.
FACILITY	Miscellaneous uses. Profiles are defined in this class so resource managers (typically elements of z/OS) can check a user's access to the profiles when the user takes some action. Examples are the profiles that are used to control execution of RACDCERT command functions and the profiles that are used to control privileges in the z/OS UNIX environment. RACF does not document all of the resources used in the FACILITY class by other products. For information on the FACILITY class resources used by a specific product (other than RACF itself), see that product's documentation.
FIELD	Fields in RACF profiles (field-level access checking).
GDASDVOL	Resource group class for DASDVOL class. "1" on page 656
GLOBAL	Global access checking table entry. "1" on page 656
GMBR	Member class for the GLOBAL class. "4" on page 656
GSDSF	Resource group class for SDSF class. "1" on page 656
GTERMINL	Resource group class for TERMINAL class. "1" on page 656
GXFACILI	Grouping class for XFACILIT resources.
HBRADMIN	Controls whether server security and security for specific server resources are enabled or disabled.
HBRCONN	Specifies the user IDs that are authorized to connect to the zRule Execution Server for z/OS and execute rule sets. This class is ignored if server security is disabled.
HBRCMD	Specifies the user IDs that are authorized to issue zRule Execution Server for z/OS commands such as **START**, **STOP**, **PAUSE**, or **RESUME** from the z/OS console (or equivalent). This class is ignored if server security is disabled.
IBMOPC	Controlling access to OPC/ESA subsystems.
IDIDMAP	Contains distributed identity filters that are created with the RACMAP command.
IZP	Controls resources related to the IBM Unified Management Server.
JESINPUT	Conditional access support for commands or jobs that are entered into the system through a JES input device.
JESJOBS	Controlling the submission and cancellation of jobs by job name.
JESSPOOL	Controlling access to job data sets on the JES spool (that is, SYSIN and SYSOUT data sets).

Table 65. Resource classes for z/OS systems (continued)

Class name	Description
KEYSMSTR	Contains profiles that hold keys to encrypt data that is stored in the RACF database, such as LDAP BIND passwords, DCE passwords, and Distributed File Service (DFS) Server Message Block (SMB) passwords.
LDAP	Controls authorization roles for LDAP administration.
LDAPBIND	Contains the LDAP server URL, bind distinguished name, and bind password.
LOGSTRM	Controls system logger resources, such as log streams and the coupling facility structures associated with log streams.
NODES	Controlling the following on MVS systems: • Whether jobs are allowed to enter the system from other nodes • Whether jobs that enter the system from other nodes have to pass user identification and password verification checks
NODMBR	Member class for the NODES class. "4" on page 656
OPERCMDS	Controlling who can issue operator commands (for example, JES and MVS, and operator commands). "2" on page 656
PKISERV	Controls access to R_PKIServ administration functions.
PMBR	Member class for the PROGRAM class. "4" on page 656
PROGRAM	Protects executable programs. "1" on page 656
PROPCNTL	Controlling if user ID propagation can occur, and if so, for which user IDs (such as the CICS or IMS main task user ID), user ID propagation is *not* to occur.
PSFMPL	Used by PSF to perform security functions for printing, such as separator page labeling, data page labeling, and enforcement of the user printable area.
PTKTDATA	PassTicket key class enables the security administrator to associate a RACF secured signon secret key with a particular mainframe application that uses RACF for user authentication. Examples of such applications are IMS, CICS, TSO, z/VM®, APPC, and MVS batch.
RACFEVNT	Contains profiles that control the following events: • LDAP change log notification for changes to certain RACF profiles • New password and password phrase enveloping for a given user.
RACFHC	Used by IBM Health Checker for z/OS. Contains profiles that list the resources to check for each installation-defined health check. "1" on page 656
RACFVARS	RACF variables. In this class, profile names, which start with & (ampersand), act as RACF variables that can be specified in profile names in other RACF general resource classes.
RACGLIST	Class of profiles that hold the results of RACROUTE REQUEST=LIST,GLOBAL=YES or a SETROPTS RACLIST operation.
RACHCMBR	Used by IBM Health Checker for z/OS. Member class for the RACFHC class. "1" on page 656
RDATALIB	Used to control use of the `R_datalib` callable service (IRRSDL00 or IRRSDL64).
RRSFDATA	Used to control RACF remote sharing facility (RRSF) functions.
RVARSMBR	Member class for the RACFVARS class. "4" on page 656

Table 65. Resource classes for z/OS systems (continued)

Class name	Description
SCDMBR	Member class for the SECDATA class. "4" on page 656
SDSF	Controls the use of authorized commands in the System Display and Search Facility (SDSF). See also GSDSF class.
SECDATA	Security classification of users and data (security levels and security categories). "1" on page 656
SECLABEL	If security labels are used, and, if so, their definitions. "2" on page 656
SECLMBR	Member class for the SECLABEL class. "4" on page 656
SERVAUTH	Contains profiles used by servers to check a client's authorization to use the server or to use resources that are managed by the server. Also, can be used to provide conditional access to resources for users entering the system from a given server.
SERVER	Controlling the server's ability to register with the daemon.
SMESSAGE	Controlling to which users a user can send messages (TSO only).
SOMDOBJS	Controlling the client's ability to invoke the method in the class.
STARTED	Used in preference to the started procedures table to assign an identity during the processing of an MVS START command.
SURROGAT	If surrogate submission is allowed, and if allowed, which user IDs can act as surrogates.
SYSAUTO	IBM Automation Control for z/OS resources
SYSMVIEW	Controlling access by the SystemView for MVS Launch Window to SystemView for MVS applications.
TAPEVOL	Tape volumes.
TEMPDSN	Controlling who can access residual temporary data sets. "5" on page 656
TERMINAL	Terminals (TSO). See also GTERMINL class.
VTAMAPPL	Controlling who can open ACBs from non-APF authorized programs.
WBEM	Controls access to the Common Information Model (CIM) functions.
WRITER	Controlling the use of JES writers.
XFACILIT	Miscellaneous uses. Profile names in this class can be longer than 39 characters in length. Profiles are defined in this class so that resource managers (typically elements of z/OS) can check a user's access to the resources when the users take some action.
ZOWE	Controls resources related to the Zowe™ project.
	CICS classes
ACICSPCT	CICS program control table. "2" on page 656
BCICSPCT	Resource group class for the ACICSPCT class. "1" on page 656
CCICSCMD	Used to verify that a user is permitted to use CICS system programmer commands such as INQUIRE, SET, PERFORM, and COLLECT. "1" on page 656
CPSMOBJ	Used by CICSPlex® System Manager, which provides a central point of control when running multiple CICS systems, to determine operational controls within a CICS complex.

Table 65. Resource classes for z/OS systems (continued)

Class name	Description
CPSMXMP	Used by CICSPlex System Manager to identify exemptions from security controls within a CICS complex.
DCICSDCT	CICS destination control table. "2" on page 656
ECICSDCT	Resource group class for the DCICSDCT class. "1" on page 656
FCICSFCT	CICS file control table. "2" on page 656
GCICSTRN	Resource group class for TCICSTRN class. "2" on page 656
GCPSMOBJ	Resource grouping class for CPSMOBJ.
HCICSFCT	Resource group class for the FCICSFCT class. "1" on page 656
JCICSJCT	CICS journal control table. "2" on page 656
KCICSJCT	Resource group class for the JCICSJCT class. "1" on page 656
MCICSPPT	CICS processing program table. "2" on page 656
NCICSPPT	Resource group class for the MCICSPPT class. "1" on page 656
PCICSPSB	CICS program specification blocks (PSBs).
QCICSPSB	Resource group class for the PCICSPSB class. "1" on page 656
RCICSRES	CICS document templates.
SCICSTST	CICS temporary storage table. "2" on page 656
TCICSTRN	CICS transactions.
UCICSTST	Resource group class for SCICSTST class. "1" on page 656
VCICSCMD	Resource group class for the CCICSCMD class. "1" on page 656
WCICSRES	Resource group class for the RCICSRES class.
	Db2z/OS classes
DSNADM	Db2z/OS administrative authority class.
DSNR	Controls access to Db2z/OS subsystems.
GDSNBP	Grouping class for Db2z/OS buffer pool privileges.
GDSNCL	Grouping class for Db2z/OS collection privileges.
GDSNDB	Grouping class for Db2z/OS database privileges.
GDSNGV	Grouping class for Db2z/OS global variables.
GDSNJR	Grouping class for Java™ archive files (JARs).
GDSNPK	Grouping class for Db2z/OS package privileges.
GDSNPN	Grouping class for Db2z/OS plan privileges.
GDSNSC	Grouping class for Db2z/OS schemas privileges.
GDSNSG	Grouping class for Db2z/OS storage group privileges.
GDSNSM	Grouping class for Db2z/OS system privileges.
GDSNSP	Grouping class for Db2z/OS stored procedure privileges.
GDSNSQ	Grouping class for Db2z/OS sequences.

Table 65. Resource classes for z/OS systems (continued)

Class name	Description
GDSNTB	Grouping class for Db2z/OS table, index, or view privileges.
GDSNTS	Grouping class for Db2z/OS tablespace privileges.
GDSNUF	Grouping class for Db2z/OS user-defined function privileges.
GDSNUT	Grouping class for Db2z/OS user-defined distinct type privileges.
MDSNBP	Member class for Db2z/OS buffer pool privileges.
MDSNCL	Member class for Db2z/OS collection privileges.
MDSNDB	Member class for Db2z/OS database privileges.
MDSNGV	Member class for Db2z/OS global variables.
MDSNJR	Member class for Java archive files (JARs).
MDSNPK	Member class for Db2z/OS package privileges.
MDSNPN	Member class for plan privileges.
MDSNSC	Member class for Db2z/OS schema privileges.
MDSNSG	Member class for Db2z/OS storage group privileges.
MDSNSM	Member class for Db2z/OS system privileges.
MDSNSP	Member class for Db2z/OS stored procedure privileges.
MDSNSQ	Member class for Db2z/OS sequences.
MDSNTB	Member class for Db2z/OS table, index, or view privileges.
MDSNTS	Member class for Db2z/OS tablespace privileges.
MDSNUF	Member class for Db2z/OS user-defined function privileges.
MDSNUT	Member class for Db2z/OS user-defined distinct type privileges.
	DCE class
DCEUUIDS	Used to define the mapping between a user's RACF user ID and the corresponding DCE principal UUID. Also, used to enable encrypted password support for Distributed File Service (DFS) Server Message Block (SMB) users.
	Enterprise Identity Mapping (EIM) class
RAUDITX	Controls auditing for Enterprise Identity Mapping (EIM).
	Enterprise Java Beans classes
EJBROLE	Member class for Enterprise Java Beans authorization roles.
GEJBROLE	Grouping class for Enterprise Java Beans authorization roles.
JAVA	Contains profiles that are used by Java for z/OS applications to perform authorization checking for Java for z/OS resources.
	IMS classes
AIMS	Application group names (AGN).
CIMS	Command.
DIMS	Grouping class for command.

Table 65. Resource classes for z/OS systems (continued)

Class name	Description
FIMS	Field (in data segment).
GIMS	Grouping class for transaction.
HIMS	Grouping class for field.
IIMS	Program specification block (PSB).
JIMS	Grouping class for program specification block (PSB).
LIMS	Logical terminal (LTERM).
MIMS	Grouping class for logical terminal (LTERM).
OIMS	Other.
PIMS	Database.
QIMS	Grouping class for database.
RIMS	Open Transaction Manager Access (OTMA) transaction pipe (TPIPE).
SIMS	Segment (in database).
TIMS	Transaction (trancode).
UIMS	Grouping class for segment.
WIMS	Grouping class for other.
	Integrated Cryptographic Service Facility (ICSF) classes
CRYPTOZ	Controls access to PKCS #11 tokens.
CSFKEYS	Controls access to ICSF cryptographic keys.
CSFSERV	Controls access to ICSF cryptographic services.
GCSFKEYS	Resource group class for the CSFKEYS class. "1" on page 656
GXCSFKEY	Resource group class for the XCSFKEY class. "1" on page 656
XCSFKEY	Controls the exportation of ICSF cryptographic keys.
	Infoprint Server class
PRINTSRV	Controls access to printer definitions for Infoprint Server.
	Information/Management (Tivoli Service Desk) classes
GINFOMAN	Grouping class for Information/Management (Tivoli Service Desk) resources.
INFOMAN	Member class for Information/Management (Tivoli Service Desk) resources.
	LFS/ESA classes
LFSCLASS	Controls access to file services provided by LFS/ESA.
	License Manager class
ILMADMIN	Controls access to the administrative functions of IBM License Manager.
	Lotus Notes for z/OS and Novell Directory Services for OS/390 classes
NDSLINK	Mapping class for Novell Directory Services for OS/390 user identities.
NOTELINK	Mapping class for Lotus Notes for z/OS user identities.

Table 65. Resource classes for z/OS systems (continued)

Class name	Description
	MFA class
MFADEF	Contains profiles that define MFA factors. This class can also be used to define MFA application bypass profiles.
	IBM MQ
GMQADMIN	Grouping class for IBM MQ administrative options. "1" on page 656
GMQCHAN	Reserved for IBM MQ.
GMQNLIST	Grouping class for IBM MQ namelists. "1" on page 656
GMQPROC	Grouping class for IBM MQ processes. "1" on page 656
GMQQUEUE	Grouping class for IBM MQ queues. "1" on page 656
MQADMIN	Protects IBM MQ administrative options.
MQCHAN	Reserved for IBM MQ
MQCMDS	Protects IBM MQ commands.
MQCONN	Protects IBM MQ connections.
MQNLIST	Protects IBM MQ namelists.
MQPROC	Protects IBM MQ processes.
MQQUEUE	Protects IBM MQ queues.
	NetView classes
NETCMDS	Controlling which NetView commands the NetView operator can issue.
NETSPAN	Controlling which NetView commands the NetView operator can issue against the resources in this span.
NVASAPDT	NetView/Access Services.
PTKTVAL	Used by NetView/Access Services Secured Single Signon to store information needed when generating a PassTicket.
RMTOPS	NetView Remote Operations.
RODMMGR	NetView Resource Object Data Manager (RODM).
	z/OS Network Authentication Service classes
KERBLINK	Contains profiles that map local and foreign principals to RACF user IDs. Also controls which users are authorized to use the SKRBKDC started procedure to decrypt service tickets for a given principal. "3" on page 656
REALM	Used to define the local and foreign realms. "3" on page 656
	SMS (DFSMSdfp) classes
MGMTCLAS	SMS management classes.
STORCLAS	SMS storage classes.
SUBSYSNM	Authorizes a subsystem (such as a particular instance of CICS) to open a VSAM ACB and use VSAM record level sharing (RLS) functions.
	Tivoli classes

Table 65. Resource classes for z/OS systems (continued)

Class name	Description
ROLE	Specifies the complete list of resources and associated access levels that are required to perform the particular job function this role represents and defines which RACF groups are associated with this role.
TMEADMIN	Maps the user IDs of Tivoli administrators to RACF user IDs.
	TSO classes
ACCTNUM	TSO account numbers.
PERFGRP	TSO performance groups.
TSOAUTH	TSO user authorities such as OPER and MOUNT.
TSOPROC	TSO logon procedures.
	IBM MQ classes
GMXADMIN	Grouping class for IBM MQ administrative options.
GMXNLIST	Grouping class for IBM MQ namelists.
GMXPROC	Grouping class for IBM MQ processes.
GMXQUEUE	Grouping class for IBM MQ queues.
GMXTOPIC	Grouping class for IBM MQ topics.
MXADMIN	Protects IBM MQ administrative options.
MXNLIST	Protects IBM MQ namelists.
MXPROC	Protects IBM MQ processes.
MXQUEUE	Protects IBM MQ queues.
MXTOPIC	Protects IBM MQ topics.
	z/OSMF classes
ZMFAPLA	Member class for z/OSMF authorization roles.
GZMFAPLA	Grouping class for z/OSMF authorization roles.
ZMFCLOUD	Protects z/OS cloud resources.
	z/OS UNIX classes
DIRACC	Controls auditing (using SETROPTS LOGOPTIONS) for access checks for read/write access to z/OS UNIX directories. This class need not be active to control auditing. "5" on page 656
DIRSRCH	Controls auditing (using SETROPTS LOGOPTIONS) of z/OS UNIX directory searches. This class need not be active to control auditing. "5" on page 656
FSACCESS	Controls access to z/OS UNIX file systems.
FSEXEC	Controls execute access to z/OS UNIX file systems.
FSOBJ	Controls auditing (using SETROPTS LOGOPTIONS) of all access checks for z/OS UNIX file system objects except directory searches. Controls auditing (using SETROPTS AUDIT) of creation and deletion of z/OS UNIX file system objects. This class need not be active to control auditing. "5" on page 656

Table 65. Resource classes for z/OS systems (continued)

Class name	Description
FSSEC	Controls auditing (using SETROPTS LOGOPTIONS) of changes to the security data (FSP) for z/OS UNIX file system objects. This class need not be active to control auditing. When this class is active, it also controls whether ACLs are used during authorization checks to z/OS UNIX files and directories. "5" on page 656
IPCOBJ	Controls auditing (using SETROPTS LOGOPTIONS) of access checks for interprocess communication (IPC) objects and changes to security information of IPC objects. Controls auditing (using SETROPTS AUDIT) of the creation and deletion of IPC objects. This class need not be active to control auditing. "5" on page 656
PROCACT	Controls auditing (using SETROPTS LOGOPTIONS) of functions that look at data from, or affect the processing of, z/OS UNIX processes. This class need not be active to control auditing. "5" on page 656
PROCESS	Controls auditing (using SETROPTS LOGOPTIONS) of changes to UIDs and GIDs of z/OS UNIX processes. Controls auditing (using SETROPTS AUDIT) of dubbing and undubbing of z/OS UNIX processes. This class need not be active to control auditing. "5" on page 656
UNIXMAP	Contains profiles that are used to map z/OS UNIX UIDs to RACF user IDs and z/OS UNIX GIDs to RACF group names.
UNIXPRIV	Contains profiles that are used to grant z/OS UNIX privileges.

Restrictions:

1. Do not specify this class name on the GENCMD, GENERIC, and GLOBAL/NOGLOBAL operands of the SETROPTS command.
2. Do not specify this class name on the GLOBAL operand of SETROPTS or, if you do, the GLOBAL checking is not performed.
3. Do not specify this class name on the GENCMD and GENERIC operands of the SETROPTS command.
4. Do not specify this class name with any RACF command. This is a member class associated with a grouping class that has a special use.
5. Profiles are not allowed in this class.

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