

Application Interface for Java Commands

Version 1 Release 1



Application Interface for Java Commands

Version 1 Release 1

Note

Before using this information and the product it supports, read the information in "Notices" on page 43.

Contents

Preface v
Chapter 1. Initialization Parameter Commands 1
Chapter 2. List Directory Commands 3
Chapter 3. Message Commands 5
Chapter 4. Native Commands 7
Chapter 5. Netmap Commands 9
Chapter 6. Process Commands 17
Chapter 7. Proxy Commands 21

Chapter 8. Secure Plus Commands	23
Chapter 9. Statistics Commands	29
Chapter 10. Tracing Commands	33
Chapter 11. Translation Table Commands	35
Chapter 12. User Authority Commands	37
Notices	43 . 45 . 46

Preface

The IBM Sterling Connect:Direct Application Interface for Java enables a Java application to connect to a IBM Sterling Connect:Direct for Microsoft Windows, IBM Sterling Connect:Direct for UNIX or IBM Sterling Connect:Direct for z/OS system and perform Connect:Direct functions such as submit process, control Processes, select statistics, select process, netmap functions, user authorization, proxies, change translate tables, and control tracing. These functions are accomplished through a series of commands issued to the Connect:Direct node. The results from the command must be cast into the appropriate class as indicated below for each command. After the results have been cast into the appropriate class, your application can use them. A sample Java program is provided that shows how to use the IBM Sterling Connect:Direct Application Interface for Java to sign on to a Connect:Direct, issue various commands, and process their results.

Note: For detailed information about Keyword values, refer to the Connect:Direct documentation set for your operating system.

Note: A special string is defined to allow a null parameter to be specified for the value to a keyword. This special string is '~[DATA]' (single quote, tilde, begin bracket, "DATA", end bracket, single quote). If this string is needed to be the actual value to a keyword instead of a null value, you may set the value by using the null='~[...]' keyword in the command. The value must begin with single quote, tilde, begin bracket; and end with end bracket, single quote. For each command, the value of the special string is '~[DATA]' unless overriden by the null= in that command.

Example:

select statistics null='~[XYZ]' pname='~[DATA]'

Chapter 1. Initialization Parameter Commands

For a description of Connect:Direct initialization parameters, see the IBM Sterling Connect:Direct for Microsoft Windows System Guide or IBM Sterling Connect:Direct for z/OS Administration Guide.

Change Initparms

The **change initparms** command is used to alter the initialization parameters of the Connect:Direct server.

Command	Keyword	Description
change initparms	data=	Specifies the entire initialization parameters, each separated by a CRLF. The entire string must be enclosed in double quotes.

Example:

change initparms data="[Miscellaneous Commands]\r\nserver.path= ..."

Result Object and Associated Key Object:

CDInit, CDInitKeys

Select Initparms

The **select initparms** command is used to retrieve the current initialization parameters from the Connect:Direct server.

Command	Keyword	Description
select initparms	server=	Specifies the IBM Sterling Connect:Direct/Plex server name. If not specified, the select initparms command applies to the IBM Sterling Connect:Direct/Plex Manager.
	update_intent=	Specify true to get the IBM Sterling Connect:Direct for z/OS initparms in the format required for updating.

Example:

select initparms

Result Object and Associated Key Object:

CDInit, CDInitKeys

Chapter 2. List Directory Commands

List Directory

The **lsdir** command is used to retrieve a listing of files within a given directory.

Command	Keyword	Description
lsdir	"directory to list"	Specifies a directory to list, enclosed in double quotes.

Example:

lsdir "C:\UploadDir"

Result Object:

CDListDir

Chapter 3. Message Commands

Select Message

The **select message** command is used to retrieve the short and long text of a specified message id.

Command	Keyword	Description
select message	msgid=	Specifies the 8-character message id to be retrieved from the Connect:Direct server.

Example:

select message msgid=SITA0011

Result Object:

Message

Chapter 4. Native Commands

For information about IBM Sterling Connect:Direct for z/OS command formats and reports, see the IBM Sterling Connect:Direct for z/OS User Guide or IBM Sterling Connect:Direct for z/OS Quick Reference.

Issue Native Command

The **native command** command allows any valid command to be issued to the IBM Sterling Connect:Direct for z/OS server.

Command	Keyword	Description
native command	data=	Specifies the native command to be issued. The native command must be enclosed in double quotes.

Example:

native command data="INQ INITPARMS"

Result Object and Associated Key Object:

CDNcmd, CDNcmdKeys

Chapter 5. Netmap Commands

For more information about Connect:Direct Netmap entries, see IBM Sterling Connect:Direct for Microsoft Windows System Guide or IBM Sterling Connect:Direct for z/OS Administration Guide.

Add or Change Mode

The **add netmap** type=mode command is used to add a new mode definition to the netmap. The **change netmap**type=mode command is used to change the specifications of an existing mode definition.

Command	Keyword	Description
add netmap change netmap	type=mode	Specifies that this add netmap or change netmap command applies to a mode definition.
	name=	Specifies the name of the mode definition.
	buffer_size=	Specifies the buffer size.
	max_pacing_size=	Specifies pacing size.
	max_ru_size=	Specifies the ru size.
	max_sessions=	Specifies the maximum number of sessions.
	pacing_send_count=	Specifies the pacing send count.
	pacing_send_delay=	Specifies pacing send delay.
	protocol=	Specify tcp/ip or appc. Valid for add netmap type=mode only.
	tcp_crc=	Specify on or off

Example:

add netmaptype=mode protocol=tcp/ip buffer_size=16364

Result Object and Associated Key Object:

CDMode, CDModeKeys

Delete Mode

The **delete netmap** type=mode command is used to delete a mode definition from the netmap.

Command	Keyword	Description
delete netmap type=n name=	type=mode	Specifies that this delete netmap command applies to a mode definition.
	name=	Specifies the name of the mode definition.

Example:

delete netmap type=mode name=appcmode

Result Object and Associated Key Object:

CDMode, CDModeKeys

Select Mode

The **select netmap** type=mode command is used to retrieve the specifications for a mode entry.

Command	Keyword	Description
select netmap	type=mode	Specifies that this delete netmap command applies to a mode definition.
	name=	Specifies the name of the mode definition. For all mode definitions, specify name=*all.
	detail=	Specify y or n for detail information about the mode definition.

Example:

select netmap type=mode name=*all detail=y

Result Object and Associated Key Object:

CDMode, CDModeKeys

Add or Change Node

The **add netmap** type=node command is used to add a new node setting for the netmap.

The **change netmap** type=node command is used to alter a node for the netmap.

Command	Keyword	Description
add netmap change netmap	type=node	Specifies that the add netmap or change netmap command applies to a node record.
	adjacent_node=	Specifies adjacent node for a IBM Sterling Connect:Direct for z/OS netmap entry.
	alt_comm=	Specifies alternate communications for a IBM Sterling Connect:Direct for z/OS netmap entry.
	alt_comm_outbound=	Specifies alternate communications outbound for a IBM Sterling Connect:Direct for UNIX or a IBM Sterling Connect:Direct for Microsoft Windows netmap entry.
	alternate_comminfo=	Specifies alternate communications info for a IBM Sterling Connect:Direct for UNIX or a IBM Sterling Connect:Direct for Microsoft Windows netmap entry.
	appc_mode=	Specifies appc mode name for this entry.
	applids=	Specifies applids for a IBM Sterling Connect:Direct for z/OS netmap entry.
	batch_applids=	Specifies batch applids for a IBM Sterling Connect:Direct for z/OS netmap entry.
	buffer_size=	Specifies buffer size for a IBM Sterling Connect:Direct for z/OS or IBM Sterling Connect:Direct for UNIX netmap entry.
	cdftp_plugin=	Specifies CDFTP.PLUGIN for a IBM Sterling Connect:Direct for z/OS netmap entry.
	cdftp_tempfile=	Specifies CDFTP.TEMPFILE for a IBM Sterling Connect:Direct for z/OS netmap entry.
	cics_applids=	Specifies CICS applids for a IBM Sterling Connect:Direct for z/OS netmap entry.
	class=	Specifies the default class for this netmap entry.
	<pre>conn_retry_exhaust_action=</pre>	Specify hold or delete. IBM Sterling Connect:Direct for UNIX only.
	environment=	Specifies environment for a IBM Sterling Connect:Direct for z/OS netmap entry.
	fasp=	Specify yes or no. Controls whether or not fasp is used for file transfers.

Command	Keyword	Description
add netmap change netmap	fasp.bandwidth=	Specifies the bandwidth for fasp file transfers. Specified as nnn nnnK nnnKB nnnM nnnMB nnnG nnnGB.
	fasp.filesize.threshold=	Specifies the filesize threshold for fasp file transfers. Specified as nnn nnnK nnnKB nnnM nnnMB nnnG nnnGB.
	fasp.policy=	Specify fair fixed high low for the fasp policy for file transfers.
	ip_address=	Specifies ip address for the netmap entry.
	logmode=	Specifies logmode for a IBM Sterling Connect:Direct for z/OS netmap entry.
	ldns=	Specifies long domain name server name for a IBM Sterling Connect:Direct for z/OS netmap entry.
	ltretry_attempts=	Specifies long term retry attempt number.
	ltretry_interval=	Specifies long term retry interval as hh:mm:ss.
	lu62_writex_retry_attempts	Specify the LU62 writex retry attempts. IBM Sterling Connect:Direct for UNIX only.
	lu62_writex_wait=	Specify the LU62 writex wait time. IBM Sterling Connect:Direct for UNIX only.
	max_pnode_sess=	Specifies maximum pnode sessions.
	netid=	Specifies the network id for this netmap entry.
	max_snode_sess=	Specifies maximum snode sessions.
	netmap_check=	Specify true false yes no local remote. Specify local for outbound processes only; remote for inbound processes only. IBM Sterling Connect:Direct for UNIX only.
	network_name=	Specifies the network name for this netmap entry.
	operating_system=	Specifies operating system type for this netmap entry.
	outgoing.address=	Specify the outgoing address. IBM Sterling Connect:Direct for UNIX only.
	parsess=	Specifies parallel sessions limit for this IBM Sterling Connect:Direct for z/OS netmap entry.

Command	Keyword	Description
add netmap	partner_lu=	Specifies the partner lu name.
cnange netmap	path=	Specifies path name for this netmap entry.
	plexclass=	Specifies the default plexclasses for this remote node.
	pnode_lus=	Specifies pnode lu names.
	replace=	Specify y (replace full netmap entry) or n (update existing values only). IBM Sterling Connect:Direct for z/OS only.
	snode_lus=	Specifies snode lu names.
	sourceip=	Specifies source IP address to use. IBM Sterling Connect:Direct for z/OS only.
	<pre>stretry_attempts=</pre>	Specifies the short term retry attempt number.
	stretry_interval=	Specifies the short term retry interval as hh:mm:ss.
	tcpapi=	Specifies tcp api for a IBM Sterling Connect:Direct for z/OS netmap entry.
	tcp_api_bufsize=	Specifies tcp api buffer size for a IBM Sterling Connect:Direct for UNIX netmap entry.
	<pre>tcp_api_inactivity_timeout</pre>	Specifies tcp api inactivity timeout (in seconds) for a IBM Sterling Connect:Direct for UNIX netmap entry.
	tcp_crc=	Specify y or n. CRC overrides are allowed. Note: For IBM Sterling Connect:Direct for UNIX, specify true or false.
	tcp_mode=	Specifies the tcp mode name.
	tso_applids=	Specifies tso applids for a IBM Sterling Connect:Direct for z/OS netmap entry.
	udt33_address=	Specifies the udt33 address for the netmap entry.
	udt33_crc=	Specify y or n. CRC overrides are allowed.
	udt33_mode=	Specifies the udt33 mode name for the netmap entry.
	use_server_node=	Specify y or n for a IBM Sterling Connect:Direct for z/OS netmap entry.
	zfba=	Specifies ZFBA=(ccuu,ccuu) for a IBM Sterling Connect:Direct for z/OS netmap entry.

change netmap type=node name=tcp.node class=2 ...

Result Object and Associated Key Object:

CDNode, CDNodeKeys

Change Node Description

The **change netmap** type=desc command alters the description information for a node definition.

Command	Keyword	Description
change netmap	type=desc	Specifies that this command applies to the description information for a node definition.
	name=	Specifies the name of the node definition.
	<pre>contact_name=</pre>	Specifies the contact name information. The data must be enclosed in double quotes.
	contact_phone=	Specifies the contact phone information. The data must be enclosed in double quotes.
	node_description=	Specifies the descriptive information about the node. The data must be enclosed in double quotes.

change netmap type=desc name=CD.NODE node_description="This is a z/OS Node in Texas"

Result Object and Associated Key Object:

CDNode, CDNodeKeys

Delete Node

The **delete netmap** type=node command is used to remove a node entry from the netmap.

Command	Keyword	Description
delete netmap	type=desc	Specifies that the delete netmap command applies to a node entry. Note: For IBM Sterling Connect:Direct for z/OS servers, all entries required for an add or change must be specified when you delete a node entry. See add node.
	name=	Specifies the name of the node entry to be deleted.

Example:

delete netmap type=node name=cd.unix

Result Object and Associated Key Object:

CDNode, CDNodeKeys

Select Node

The **select netmap** type=node command is used to retrieve the specifications for a node entry.

Command	Keyword	Description
select netmap	type=node	Indicates that this select netmap command applies to node entries.
	name=	Specifies the name of the desired node entry. If all entries are desired, specify *all.
	detail=	Specify y or n for detail information about the node definition.

select netmap type=node name=*all

Result Object and Associated Key Object:

CDNode, CDNodeKeys

Select Node Description

The **select netmap** type=desc command is used to retrieve the node description information.

Command	Keyword	Description
select netmap type=desc	type=desc	Specifies that the select netmap command applies to the node description.
	name=	Specifies the name of the node entry.

Example:

select netmap type=desc name=cd.unix

Result Object and Associated Key Object:

CDNode, CDNodeKeys

Add or Change Path

The **add netmap** type=path command is used to add a new path definition in the netmap.

The **change netmap** type=path command is used to alter the specifications of an existing path definition in the netmap.

Command	Keyword	Description
add netmap change netmap	type=path	Specifies that this add netmap or change netmap command applies to a path entry.
	name=	Specifies the name of the path entry.
	adapter_number=	[APPC only] Specify primary or alternate.
	lu_name=	[APPC only] Specifies the lu name.
	protocol=	Specify tcp/ip or appc. Only valid for add netmap type=path command.
	<pre>remote_address=</pre>	[APPC only] Specifies the remote address for this path entry.

Example:

add netmap type=path name=TCPPath protocol=tcp/ip

Result Object and Associated Key Object:

CDPath, CDPathKeys

Delete Path

The **delete netmap** type=path command is used to delete a path definition from the netmap.

Command	Keyword	Description
delete netmap type=path	Specifies that this delete netmap command applies to path entries.	
	name=	Specifies the name of the path entry.

Example:

delete netmap type=path name=APPCPath

Result Object and Associated Key Object:

CDPath, CDPathKeys

Select Path

The **select netmap** type=path command is used to retrieve path information from the netmap.

Command	Keyword	Description
select netmap	type=path	Specifies that the select netmap command applies to path entries.
	name=	Specifies the name of the path entry. To retrieve all path entries, use *all

Example:

select netmap type=path name=*all

Result Object and Associated Key Object:

CDPath, CDPathKeys

Chapter 6. Process Commands

Change Process

The **change process** command is used to alter the characteristics of one or more non-executing Processes in the Connect:Direct processing queue.

Command	Keyword	Description	
change process	The following keywords identify the Process.		
	pname=	Identifies the Process name. May be a single Process name, or a list separated by commas.	
	pnumber=	Identifies the Process number. May be a single Process number, or a list separated by commas.	
	snode=	Identifies the secondary node of the Process.	
	submitter=	Identifies the node and userid of the submitter as (node,userid). If multiple submitters are specified, specify as ((node,userid),(node2,userid2)).	
	The following keywords are	used to change the characteristics of the Process.	
	class=	Specifies the new class of the Process.	
	debug=	[z/OS only] Specifies the debug settings for the Process.	
	fasp=	Specify yes no. Controls whether or not fasp is used for file transfers.	
	fasp.bandwidth=	Specifies the bandwidth for fasp file transfers. Specified as nnn nnnK nnnKB nnnM nnnMB nnnG nnnGB.	
	fasp.filesize.threshold=	Specifies the filesize threshold for fasp file transfers. Specified as nnn nnnK nnnKB nnnM nnnMB nnnG nnnGB.	
	fasp.policy=	Specify fair fixed high low for the fasp policy for file transfers.	
	hold=	Specify yes, no, or call. Specify no to release a Process that is in hold state.	
	newsnode=	Specifies the new destination node for the Process.	
	plexclass=	[z/OS only] Specifies the plexclass for the Process.	
	prty=	Specifies the new priority of the Process.	
	restart=	Specifies the restart conditions for the Process.	
	retain=	Specify yes, no or initial.	
	start=	[z/OS only] Specifies the start date and time for the Process. The date portion must be specified in MM/DD/YYYY format.	

Example:

change process pnumber=1 hold=yes

Result Object and Associated Key Object:

Delete Process

The **delete process** command is used to delete one or more non-executing Processes from the Connect:Direct processing queue. The **delete process** command can also delete an executing Process when the option force=*yes* is set.

Command	Keyword	Description
delete process	pname=	Identifies the Process name. May be a single Process name, or a list separated by commas.
	pnumber=	Identifies the Process number. May be a single Process number, or a list separated by commas.
	snode=	[Unix and Microsoft Windows Only] Identifies the secondary node of the Process.
	submitter=	Identifies the node and userid of the submitter as (node,userid). If multiple submitters are specified, specify as ((node,userid),(node2,userid2)).
	hold=	Specifies whether the Process should be held in the processing queue or not. Valid values yes or no.
	force=	If yes is specified, the Process identified is to be deleted even if it is running. Valid values yes or no.

Example:

delete process pnumber=1 pname=myproc

Result Object and Associated Key Object:

CDProcess, CDProcKeys

Select Process

The **select process** command is used to get the characteristics of one or more Processes in the Connect:Direct processing queue.

Command	Keyword	Description
select process	pname=	Identifies the Process name. May be a single Process name, or a list separated by commas.
	pnumber=	Identifies the Process number. May be a single Process number, or a list separated by commas.
	queue=	Identifies the processing queue.
	snode=	Identifies the secondary node of the Process.
	status=	Identifies the status of the Process.
	submitter=	Identifies the node and userid of the submitter as (node,userid). If multiple submitters are specified, specify as ((node,userid),(node2,userid2)).

Example:

select process pnumber=(1,2)

Result Object and Associated Key Object:

Submit Process

The **select process** command is used to get the characteristics of one or more Processes in the Connect:Direct processing queue.

Command	Keyword	Description
submit	fasp=	Specify yes no. Controls whether or not fasp is used for file transfers.
	fasp.bandwidth=	Specifies the bandwidth for fasp file transfers. Specified as nnn nnnK nnnKB nnnM nnnMB nnnG nnnGB.
	fasp.filesize.threshold=	Specifies the filesize threshold for fasp file transfers. Specified as nnn nnnK nnnKB nnnM nnnMB nnnG nnnGB.
	fasp.policy=	Specify fair fixed high low for the fasp policy for file transfers.
	file=	[z/OS Only] Specifies the Process that resides on the IBM Sterling Connect:Direct for z/OS server to be submitted.
	proc=	Specifies the fully qualified filename of the process to be submitted. The file must be accessable on the file system where the AIJ is running, and must reside in an allowed directory (see note above).
	newname=	Specifies the new Process name.
	snode=	Specifies the new secondary node name.
	class=	Specifies the new class of the Process.
	hold=	Specifies the new hold specification.
	maxdelay=	A value of UNLIMITED causes the command to wait until the specified Process completes. Refer to the appropriate Connect:Direct platform documentation for other acceptable values.
	notify=	Specifies the userid to notify about Process progress.
	pacct=	Specifies the new pnode accounting information. The data must be enclosed in double quotes.
	pnodeid=	Specifies the new pnode userid and password. The data must be enclosed in parentheses.
	prty=	Specifies the new priority of the Process.
	retain=	Specifies the new retain characteristics of the Process.
	sacct=	Specifies the new snode accounting information.
	snodeid=	Specifies the new snode userid and password. The data must be enclosed in parentheses.
	startt=	Specifies the new Process start date and time. The date portion must be specified in MM/DD/YYYY format.

Example:

submit newname=newproc file=proc1

Result Object and Associated Key Object:

Suspend Process

To stop the execution of one or more running Processes and optionally hold it in the Connect:Direct processing queue, see delete process command with the force=yes and hold=yes options.

Example:

delete process pnumber=1 hold=yes force=yes

Result Object and Associated Key Object:

Chapter 7. Proxy Commands

Add or Change Proxies

The **add proxies** command is used to add a new proxy definition to the Connect:Direct server.

The **change proxies** command is used to alter an existing proxy definition for the Connect:Direct server.

Command	Keyword	Description
add proxies	name=	Specifies the proxy name (as userid@nodename).
change proxies	copy_receive=	Valid values are yes, no or user. Specifies that the user is permitted to receive files on this Connect:Direct server. For IBM Sterling Connect:Direct Windows only, specify user if the functional authorizations of the local user are to be honored.
	copy_send=	Valid values are yes, no or user. Specifies that the user is permitted to send files from this Connect:Direct server. For IBM Sterling Connect:Direct Windows only, specify user if the functional authorizations of the local user are to be honored.
	description=	A description of this proxy. The value should be coded in double quotes.
	dir_download=	Specifies the directory used for any file downloads by this user.
	dir_process=	Specifies the directory where Processes reside for this user.
	dir_program=	Specifies the directory where programs reside for this user.
	dir_upload=	Specifies the directory to be used for any file uploads by this user.
	local_userid=	Specifies the local userid that this user will use.
	local_password=	Specifies the password of the local userid that this user will use.
	pstmt_copy=	Specify y or n. User is authorized to do Copy. IBM Sterling Connect:Direct for UNIX only.
	pstmt_runjob=	Specify y or n. User is authorized to do Runjob. IBM Sterling Connect:Direct for UNIX only.
	pstmt_runtask=	Specify y or n. User is authorized to do Runtask. IBM Sterling Connect:Direct for UNIX only.
	pstmt_submit=	Specify y or n. User is authorized to do Submit within Process. IBM Sterling Connect:Direct for UNIX only.

Example:

add proxies name=newname@cdnode copy_send=user copy_receive=user local_userid=locuser local_password=mypass
change proxies name=newname@cdnode copy_send=usercopy_receive=user local_userid=locuser local_password=\"mypass\"

Result Object and Associated Key Object:

CDProx, CDProxKeys

Delete Proxies

The **delete proxies** command is used to remove a proxy definition from the Connect:Direct server.

Command	Keyword	Description
delete proxies	name=	Specifies the proxy name to be deleted. The name is specified as <i>proxyname@nodename</i> .

Example:

delete proxies name=oldname@oldnode

Result Object and Associated Key Object:

CDProx, CDProxKeys

Select Proxies

The **select proxies** command is used to retrieve the proxy information from the Connect:Direct server.

Command	Keyword	Description
select proxies	name=	Specifies the name of the proxy to be retrieved. To retrieve all the proxy definitions, use <i>*all</i> .

Example:

select proxies name=*all

Result Object and Associated Key Object:

CDProx, CDProxKeys

Chapter 8. Secure Plus Commands

For a description of IBM Sterling Connect:Direct Secure Plus parameters, see the IBM Sterling Connect:Direct for Microsoft Windows Secure Plus Options Implementation Guide, IBM Sterling Connect:Direct for UNIX Secure Plus Option Implementation Guide or IBM Sterling Connect:Direct for z/OS Secure Plus Option Implementation Guide.

Note: Some Secure Plus parameters have changed for IBM Sterling Connect:Direct for Microsoft Windows v4.7, IBM Sterling Connect:Direct for UNIX v4.2, IBM Connect:Direct for z/OS v5.2, and later releases. These changes are marked as ***SPV4** in this documentation. For applications using IBM Sterling Connect:Direct Application Interface for Java, the appName passed to the Node object must have a prefix of "V04" to support Secure Plus on these releases.

Note: Some Secure Plus parameters have changed for IBM Sterling Connect:Direct for Microsoft Windows v4.7.03 iFix18 and IBM Sterling Connect:Direct for UNIX v4.2.0.3 iFix 9 and later releases. These changes are marked as ***SPV5** in this documentation. Any changes marked as ***SPV4** also apply to ***SPV5**.

Add or Change Key Certificate

The **add s+keycert** command is used to add a key certificate to the Connect:Direct server and to provide a label for that key certificate. ***SPV4**: The **add s+keycert** command will fail if a key certificate exists that matches either the label or the public key data. Note also that key certificates can contain a trusted certificate in the chain. If a trusted certificate has already been added, and that trusted certificate is in the key certificate's chain, the **add s+keycert** command will fail. Use the **change s+keycert** command and specify the import.mode parameter instead.

The **change s+keycert** command is used to change an existing key certificate in the Connect:Direct server. ***SPV4**: The key certificate label and public key data must match the existing key certificate in the Connect:Direct server or the **change s+keycert** command will fail. ***SPV5**: The **change s+keycert** command will now support the import.mode and sync.nodes parameters.

Command	Keyword	Description
add s+keycert change s+keycert	cert.label=	Specifies the label to be given to the key certificate. This label can be referenced in the Secure Plus Node entry.
	cert.data=	Specifies the key certificate.
	cert.passphrase=	Specifies the passphrase for the keycertificate. Note: cert.label=must be specified before cert.passphrase=.
	import.mode=	*SPV5 Valid values are add, replace, or add_or_replace. The default value is replace. Specifies the import mode for the key certificate. Not valid for the add s+keycert command. Not valid on Connect:Direct for z/OS.
	sync.nodes=	*SPV5 Valid values are y or n. The default value is n. Specifies whether to update the label name stored in each Secure Plus node configuration, if the label name is changed. Not valid for the add s+keycert command. Not valid on Connect:Direct for z/OS.

```
add s+keycer cert.label=label1 cert.data="...data..." cert.passphrase="pass phrase"
change s+keycert cert.label=label1 cert.data="...data..." cert.passphrase="pass phrase" import.mode=add_or_replace
```

Result Object and Associated Key Object:

CDSecureCert, CDSecureCertKeys

Add or Change Trusted Certificate

The **add s+trustedcert** command is used to add a trusted certificate to the Connect:Direct server and to provide a label for that key certificate.

Command	Keyword	Description
add s+trustedcert change s+trustedcert	trusted.cert.label=	Specifies the label to be given to the trusted certificate. This label can be referenced in the Secure Plus Node entry.
	trusted.cert.data=	Specifies the trusted certificate.
	import.mode=	*SPV5 Valid values are add, replace, or add_or_replace. The default value is replace. Specifies the import mode for the key certificate. Not valid for the add s+trustcert command. Not valid on Connect:Direct for z/OS.

Example:

add s+trustedcert trusted.cert.label=label2 trusted.cert.data="...data..."
change s+trustedcert trusted.cert.label=label2 trusted.cert.data="...data..." import.mode=replace

Result Object and Associated Key Object:

CDSecureCert, CDSecureCertKeys

Select Key Certificate

The **select s+keycert** command is used to retrieve a key certificate by label.

Command	Keyword	Description
select s+keycert	cert.label=	Specifies the label of the key certificate.

Example:

select s+keycert cert.label=label1

Result Object and Associated Key Object:

CDSecureCert, CDSecureCertKeys

Select Trusted Certificate

The **select s+trustedcert** command is used to retrieve a trusted certificate by label.

Command	Keyword	Description
select s+keycert	<pre>trusted.cert.label=</pre>	Specifies the label of the trusted certificate.

select s+trustedcert cert.label=label2

Result Object and Associated Key Object:

CDSecureCert, CDSecureCertKeys

Delete Certificate

The **delete** s+cert command is used to delete a key or trust certificate by label or by certificate data. If both cert.label and cert.data are specified, then cert.data takes precedence. This command is not valid on Connect:Direct for z/OS. *SPV5: The **delete** s+cert command is only supported on certain versions and platforms of Connect:Direct. See the note in the Secure Plus Commands section of this documentation for more information.

Command	Keyword	Description
delete s+cert	cert.label=	Specifies the label of the key or trusted certificate.
	cert.data=	Specifies the identity and/or assorted CA certificates.
	delete.chain=	Valid values are y or n. The default value is n. Specifies whether to delete CA certificates chained from the first certificate in the cert.data.
	sync.nodes=	Valid values are y or n. The default value is n. Specifies whether to update the label name stored in each Secure Plus node configuration, if the label name is changed.

Example:

delete s+cert cert.label=label1 delete.chain=n sync.nodes=y

Result Object and Associated Key Object:

CDSecureCert, CDSecureCertKeys

Select Cipher Suites

The **select s+ciphersuites** command is used to retrieve the names of supported ciphers.

Command	Keyword	Description
select s+ciphersuites	protocol=	SSL TLS.

Example:

select s+ciphersuites protocol=TLS

Result Object and Associated Key Object:

CDSecureCiphers, CDSecureCiphersKeys

Add Alias Node

The **add s+alias** command is used to add an alias node to the Secure Plus parmfile.

Command	Keyword	Description
add s+alias	nodename=	Specifies the node name.
	basename=	Specifies the base node name that this alias points to.

Example:

add s+alias nodename=abc.server.alias basename=abc.server

Result Object and Associated Key Object:

CDSecureNode, CDSecureNodeKeys

Delete Node

The **delete s+node** command is used to delete a node or alias from the Secure Plus parmfile.

Command	Keyword	Description
delete s+node	nodename=	Specifies the node name or alias name.

Example:

delete s+node nodename=abc.server.alias

Result Object and Associated Key Object:

CDSecureNode, CDSecureNodeKeys

Select Node

The **select s+node** command is used to retrieve a node or alias from the Secure Plus parmfile.

Command	Keyword	Description
select s+node	nodename=	Specifies the node name or alias name.

Example:

select s+node nodename=abc.server.alias

Result Object and Associated Key Object:

CDSecureNode, CDSecureNodeKeys

Rekey Parmfile

The **rekey s+parmfile** command is used to rekey (re-encrypt) the Secure Plus parmfile.

Command	Keyword	Description
rekey s+parmfile	seed.value=	Specifies a seed value to rekey the Secure Plus parmfile. Minimum of 32 characters.

rekey s+parmfile seed.value="this is the seed value needed to rekey the Secure Plus parmfile"

Result Object and Associated Key Object:

CDSecureParmfile, CDSecureParmfileKeys

Synch Parmfile with NETMAP

The **sync s+parmfile** command is used to create an entry in the Secure Plus parmfile for an entry in the NETMAP.

Command	Keyword	Description
synch s+parmfile	nodename=	Specifies the name of the NETMAP entry to be added to the Secure Plus Parmfile.

Example:

synch s+parmfile nodename=netmap.entry

Result Object and Associated Key Object:

CDSecureParmfile, CDSecureParmfileKeys

Validate Parmfile

The validate s+parmfile command is used to validate the Secure Plus parmfile.

Command	Keyword	Description
validate s+parmfile		Request that the Secure Plus Parmfile be validated.

Example:

validate s+parmfile

Result Object and Associated Key Object:

CDSecureParmfile, CDSecureParmfileKeys

Chapter 9. Statistics Commands

For more information about Connect:Direct statistics, see the IBM Sterling Connect:Direct for z/OS User's Guide, IBM Sterling Connect:Direct for Microsoft Windows System Guide or the IBM Sterling Connect:Direct for UNIX System Guide.

Select Statistics

The **select proxies** command is used to retrieve the proxy information from the Connect:Direct server.

Command	Keyword	Description	
select statistics	limit=	Specifies the maximum number of statistics records to be returned.	
	pname=	Specifies the Process name (or a list or Process names) for which the statistical information is to be retrieved.	
	pnumber=	Specifies the Process number (or a list or Process numbers) for which the statistical information is to be retrieved.	
	reccat=	Specifies the record categories of the records desired. If more than one record category is specified, the list must be enclosed in parentheses.	
	recids=	Specifies the record ids of the records desired. The record ids should be specified as recids=(value, value) for Microsoft Windows and Unix Connect:Direct platforms, and as recids="value, value" for z/OS Connect:Direct platforms.	
	snode=	Specifies the secondary node of the records desired. If a list is specified, the list must be enclosed in parentheses.	
	startt=	Specifies the start date and time of the records desired. The date portion must be specified in MM/DD/YYYY format. The time portion must be specified in HH:MM:SS format.The start date can be specified as "today" when connected to a IBM Sterling Connect:Direct for Microsoft Windows or IBM Sterling Connect:Direct for UNIX server. Example: startt=(today 00:00:00) or startt=(11/04/2008 10:30:00)	
	stopt=	Specifies the stop date and time of the records desired. The date portion must be specified in MM/DD/YYYY format. The time portion must be specified in HH:MM:SS format.The stop date can be specified as "today" when connected to a IBM Sterling Connect:Direct for Microsoft Windows or IBM Sterling Connect:Direct for UNIX server. Example: stopt=(today 00:00:00) or stopt=(11/04/2008 10:30:00)	
	submitter=	For IBM Sterling Connect:Direct for Microsoft Windows and IBM Sterling Connect:Direct for UNIX, specifies the node and userid of the submitter. The node and userid must be enclosed in parentheses. For IBM Sterling Connect:Direct for z/OS, specifies the userid of the submitter or a list of submitter userids separated by commas. The userid or list of userids should not be enclosed in parentheses.	
	sfile=	Specifies the source file of the statistics records desired. Specify the source file as sfile=("sfile name") for Microsoft Windows and Unix Connect:Direct platforms, and as sfile="sfile name" for z/OS Connect:Direct platforms.	
	dfile=	Specifies the destination file of the statistics records desired. Specify the destination file as dfile=("dfile name") for Microsoft Windows and Unix Connect:Direct platforms, and as dfile="dfile name" for z/OS Connect:Direct platforms.	

Command	Keyword	Description
select statistics	submitter=	For IBM Sterling Connect:Direct for Microsoft Windows and IBM Sterling Connect:Direct for UNIX, specifies the node and userid of the submitter. The node and userid must be enclosed in parentheses. For IBM Sterling Connect:Direct for z/OS, specifies the userid of the submitter or a list of submitter userids separated by commas. The userid or list of userids should not be enclosed in parentheses.
	sfile=	Specifies the source file of the statistics records desired. Specify the source file as sfile=("sfile name") for Microsoft Windows and Unix Connect:Direct platforms, and as sfile="sfile name" for z/OS Connect:Direct platforms.
	dfile=	Specifies the destination file of the statistics records desired. Specify the destination file as dfile=("dfile name") for Microsoft Windows and Unix Connect:Direct platforms, and as dfile="dfile name" for z/OS Connect:Direct platforms.

select statistics pnumber=3

Result Object and Associated Key Object:

CDStatistic, CDStatKeys

Chapter 10. Tracing Commands

For more information on the tracing capabilities, see the appropriate Connect:Direct documentation for the Connect:Direct platform.

Change Tracing

The **change tracing** command is used to change specific tracing parameters within the Connect:Direct server.

Command	Keyword	Description
change tracing	cmgr=	Specify basic, inter or full. If pname=, pnumber= or snode= is specified, cmgr= or comm= must be specified. Otherwise, use the tracing command.
	comm=	Specify basic, inter or full. If pname=, pnumber= or snode= is specified, cmgr= or comm= must be specified. Otherwise, use the tracing command.
	configuration_report=	Specify y or n.
	debug=	Specify the 8-hex character debug settings for the Connect:Direct server.
	filename=	Specify the trace filename.
	max_size=	Specify maximum size of the trace file.
	node_trace_on=	Specify (nodename,debug-bits) to turn on tracing by node for the specified node.
	node_trace_off=	Specify nodename to turn off tracing by node for the specified node.
	pname=	Specify up to 4 Process names to be traced. If multiple Process names are traced, they should be specified as (proc1,proc2,proc3,proc4).
	pnumber=	Specify up to 4 Process numbers to be traced. If multiple Process numbers are traced, they should be specified as (1,2,3,4).
	quiesce_node=	Specify (Q R,nodename) for quiesce by node.
	server=	Specifies the IBM Sterling Conenct:Direct/Plex Server name. If not specified, the change tracing command applies to the IBM Sterling Connect:Direct/Plex Manager.
	session_manager=	Specify pnode, snode or both for tracing of session manager by pnode, snode or both.
	snode=	Specify up to 4 snodes to trace specific snodes. If multiple snodes are specified, specify as (node1,node2,node3,node4).
	wrap=	Specify y or n, if the trace file is to wrap.

Example:

change tracing debug=8c00000a

Result Object and Associated Key Object:

CDTrac, CDTracKeys

Select Tracing

The **select tracing** command is used to retrieve the current trace settings from the Connect:Direct server.

Command	Keyword	Description
select tracing	server=	Specifies the IBM Sterling Connect:Direct/Plex server name. If not specified, the command applies to the IBM Sterling Connect:Direct/Plex Manager.

Example:

select tracing

Result Object and Associated Key Object:

CDTrac, CDTracKeys

Tracing Command

The **tracing** command is used to turn on and off the various levels of tracing.

tracing off tracing basic tracing inter tracing full	cmgr=	Client connections and the console. Specify y or n.
	comm=	Communication responses. Specify y or n.
	main=	Initialization and termination. Specify y or n.
	pmgr=	Process changes. Specify y or n.
	session_manager=	Specify pnode, snode or both for session manager traces.
	smgr=	Process execution/communication actions. Specify y or n.
	stat=	Statistics activity. Specify y or n.

Example:

tracing off cmgr=y comm=y main=y
tracing full pmgr=y

Result Object and Associated Key Object:

CDTrac, CDTracKeys

Chapter 11. Translation Table Commands

Change Translation Table

The **change transtable** command is used to alter a translation table used to translate data sent or received by Connect:Direct.

Command	Keyword	Description
change transtable	name=	Specifies the name of the translation table to be changed.
	data=	Specifies the complete translation table as 512-byte hex characters. Value must be enclosed in double quotes.

Example:

change transtable name=xlatercv.cdx data="000102039C09867F97..."

Result Object and Associated Key Object:

CDX1at, CDX1atKeys

Select Translation Table

The **select transtable** command is used to retrieve the specified translation table.

Command	Keyword	Description
select transtable	name=	Specifies the name of the translation table to retrieve.

Example:

select transtable name=xlatesnd.cdx

Result Object and Associated Key Object:

CDX1at, CDX1atKeys

Chapter 12. User Authority Commands

For more information on Connect:Direct user authorities, see the IBM Sterling Connect:Direct for Microsoft Windows System Guide or the IBM Sterling Connect:Direct for z/OS Administration Guide.

Add or Change User Auth

The **add userauth** command is used to add a user to the Connect:Direct server and set access rights for the user.

The **change userauth** command is used to change a user in the Connect:Direct server and set access rights for the user.

Attribute values for any keywords not specified by either the **add userauth** or **change userauth** commands are set to their default value.

Command	Keyword	Description
add userauth change userauth	userid=	Identifies the user or (node, userid) to be deleted. Do not specify with domain= or group=.
	domain=	Specify Microsoft Windows domain name. Use *local for groups from the local machine. IBM Sterling Connect:Direct for Microsoft Windows only. Do not specify with userid=. Specify with group= and order=.
	group=	Specify Microsoft Windows group name. IBM Sterling Connect:Direct for Microsoft Windows only. Do not specify with userid=. Specify with domain= and order=.
	order=	Specify order for the Microsoft Windows Domain Group as a numeric value greater than zero. IBM Sterling Connect:Direct for Microsoft Windows only. Do not specify with userid=. Specify with domain= and group=.
	acl_update=	Specify y or n. User is authorized to update acl records.
	add_type=	Specify y or n. User is authorized to add TYPE records.
	add_user=	Specify y or n. User is authorized to add USER records.
	admin=	Specify y or n. User is authorized to issue all commands. IBM Sterling Connect:Direct for UNIX only.
	alter_type=	Specify y or n. User is authorized to alter TYPE records.
	alter_user=	Specify y or n. User is authorized to alter USER records.
	apkey=	Specify y or n. User can issue apkey commands. IBM Sterling Connect:Direct for z/OS only.
	case=	Specify y or n. The values in this command are case sensitive. IBM Sterling Connect:Direct for z/OS only.
	cdel=	Specify y or n. Delete confirmation is requested. IBM Sterling Connect:Direct for z/OS only.
	cdeloff=	Specify y or n. Delete confirmation can be turned off. IBM Sterling Connect:Direct for z/OS only.
	change=	Specify y or n. User is authorized to change Processes.

Command	Keyword	Description
add userauth change userauth	certificate_authentication_client_acess=	Specify y or n. User is authorized for certificate authentication.
	client_source_ip=	Specify ip address or dns name or comma separated list (in double quotes) of ip addresses or dns names. If specified, the client request must come from one of the addresses specified.
	contact_name=	Specify contact name for user.
	contact_phone=	Specify contact phone number for user.
	copy=	Specify y or n. User is authorized to perform copy functions.
	copy_receive=	Specify y or n. User is authorized to perform copy functions to receive files.
	copy_send=	Specify y or n. User is authorized to perform copy functions to send files.
	copy_ulimit=	Valid values are y, n, nnnnnK, nnnnM, or nnnnG. Specifies that the user is limited to the init parms ulimit, or sets the ulimit for this user. IBM Sterling Connect:Direct for UNIX only.
	crc=	Specify y or n. Specifies that the user is allowed to specify CRC= in process statement.
	delete=	Specify y, n, or all. User is authorized to delete his or her own Processes or all Processes.
	description=	A description of this user entry. The value should be coded in double quotes.
	dir_download=	Specify directory for downloads.
	dir_process=	Specify directory for Processes.
	dir_program=	Specify directory for loading programs.
	dir_upload=	Specify directory for sending.
	event=	Specify y or n. User is authorized to issue Event Services Support commands.
	execprty=	Specify y, n, or all. User is authorized to change execution priorities of Processes.
	file_attributes=	Specify y or n. User is authorized to change file attributes when doing a copy.
	flush=	Specify y, n, or all. User is authorized to flush Processes.
	maxsa=	Specify maximum signon attempts.

Command	Keyword	Description
add userauth change userauth	modals=	Specify y or n. User is authorized to use IF and ELSE in Processes.
	netmap=	Specify y or n. User is authorized to update netmap.
	pass=	Specify user password.
	pticdata=	Specify passticket data as (APPL profile name, secure signon key)
	read_type=	Specify y or n. User is authorized to read TYPE records.
	read_user=	Specify y or n. User is authorized to read USER records.
	refresh=	Specify y or n. User is authorized to refresh initparms.
	remove_type=	Specify y or n. User is authorized to remove TYPE records.
	remove_user=	Specify y or n. User is authorized to remove USER records.
	<pre>remove_node_id=</pre>	Specify the remote node for the user.
	resetsa=	Specify y or n. Resets user sign-on attempts. Only valid for change userauth .
	runjob=	Specify y or n. User is authorized to perform runjob functions within Processes.
	runtask=	Specify y or n. User is authorized to perform runtask functions within Processes.
	security=	Specify security id and security password. The values must be enclosed in parentheses.
	secure_admin=	Specify y or n. Specifies user is a Secure Plus admin. IBM Sterling Connect:Direct for z/OS only.
	selmsg=	Specify y or n. User is authorized to perform select message functions.
	selnet=	Specify y or n. User is authorized to perform select netmap functions.
	selpr=	Specify y, n, or all. User is authorized to perform select process commands.
	selstat=	Specify y, n, or all. User is authorized to perform select statistics commands.
	statcmd=	Specify y or n. User is authorized to perform statistics commands.
	stop=	Specify y or n. User is authorized to perform stop commands.

Command	Keyword	Description
add userauth change userauth	submit=	Specify y or n. User is authorized to submit Processes.
	submit_in_process=	Specify y or n. User is authorized to perform submits within a Process.
	trace=	Specify y or n. User is authorized to perform trace commands.
	translation_table=	Specify y or n. User is authorized to perform translation table commands.
	update_initparms=	Specify y or n. User is authorized to update the initparms. IBM Sterling Connect:Direct for z/OS only.
	update_netmap=	Specify y or n. User is authorized to update the netmap.
	update_proxies=	Specify y or n. User is authorized to update user proxies.
	update_user=	Specify y or n. User is authorized to perform update USER records.
	view_process=	Specify y, n, or all. User is authorized to use the view process command; all specifies that the user is permitted to use the view process command to view processes regardless of who submitted them.

add userauth userid=(CD.NODE,USER1) copy=y submit=y
add userauth group=Mygroup domain=*local order=2 copy=y submit=y

Result Object and Associated Key Object:

CDAuth, CDAuthKeys

Delete User Auth

The **delete userauth** command is used to delete a user from the Connect:Direct authorization facility.

Command	Keyword	Description
delete userauth	userid=	Specify the user or (node ,userid) to be deleted. Do not specify with domain= or group=.
	domain=	Specify Microsoft Windows domain name. Use *local for groups from the local machine. IBM Sterling Connect:Direct for Microsoft Windows only. Do not specify with userid=. Specify with group=.
	group=	Specify Microsoft Windows group name. IBM Sterling Connect:Direct for Microsoft Windows only. Do not specify with userid=. Specify with domain=.

Example:

delete userauth userid=(node1, user2)
delete userauth group=Mygroup domain=*local

Result Object and Associated Key Object:

CDAuth, CDAuthKeys

Select User Auth

The **select userauth** command is used to return the authority information for a specific user or all users from the Connect:Direct authority system.

Command	Keyword	Description
delete userauth	userid=	Specify the user name or (node name, userid) to be select. To select all records, use *all. Do not specify with domain= or group=.
	domain=	Specify Microsoft Windows domain name. Use *local for groups from the local machine. IBM Sterling Connect:Direct for Microsoft Windows only. Do not specify with userid=. Specify with group=.
	group=	Specify Microsoft Windows group name. IBM Sterling Connect:Direct for Microsoft Windows only. Do not specify with userid=. Specify with domain=.

Example:

select userauth userid=*all
select userauth group=Mygroup domain=*local

Result Object and Associated Key Object:

CDAuth, CDAuthKeys

Notices

This information was developed for products and services offered in the US. This material might be available from IBM in other languages. However, you may be required to own a copy of the product or product version in that language in order to access it.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not grant you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing IBM Corporation North Castle Drive, MD-NC119 Armonk, NY 10504-1785 US

For license inquiries regarding double-byte character set (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

Intellectual Property Licensing Legal and Intellectual Property Law IBM Japan Ltd. 19-21, Nihonbashi-Hakozakicho, Chuo-ku Tokyo 103-8510, Japan

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM websites are provided for convenience only and do not in any manner serve as an endorsement of those websites. The materials at those websites are not part of the materials for this IBM product and use of those websites is at your own risk.

IBM may use or distribute any of the information you provide in any way it believes appropriate without incurring any obligation to you.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

IBM Director of Licensing IBM Corporation North Castle Drive, MD-NC119 Armonk, NY 10504-1785 US

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The licensed program described in this document and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement or any equivalent agreement between us.

The performance data and client examples cited are presented for illustrative purposes only. Actual performance results may vary depending on specific configurations and operating conditions.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBMproducts. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

Statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

All IBM prices shown are IBM's suggested retail prices, are current and are subject to change without notice. Dealer prices may vary.

This information is for planning purposes only. The information herein is subject to change before the products described become available.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to actual people or business enterprises is entirely coincidental.

COPYRIGHT LICENSE:

This information contains sample application programs in source language, which illustrate programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to

IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs. The sample programs are provided "AS IS", without warranty of any kind. IBM shall not be liable for any damages arising out of your use of the sample programs.

Each copy or any portion of these sample programs or any derivative work must include a copyright notice as shown in the next column.

© IBM[®] 2015. Portions of this code are derived from IBM Corp. Sample Programs. © Copyright IBM Corp. 2015.

Trademarks

IBM, the IBM logo, and ibm.com are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the web at "Copyright and trademark information" at www.ibm.com/legal/copytrade.shtml.

Adobe, the Adobe logo, PostScript, and the PostScript logo are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States, and/or other countries.

IT Infrastructure Library is a registered trademark of the Central Computer and Telecommunications Agency which is now part of the Office of Government Commerce.

Intel, Intel Iogo, Intel Inside, Intel Inside Iogo, Intel Centrino, Intel Centrino Iogo, Celeron, Intel Xeon, Intel SpeedStep, Itanium, and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.

ITIL is a registered trademark, and a registered community trademark of the Office of Government Commerce, and is registered in the U.S. Patent and Trademark Office.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Java^m and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.

Cell Broadband Engine is a trademark of Sony Computer Entertainment, Inc. in the United States, other countries, or both and is used under license therefrom.

Linear Tape-Open, LTO, the LTO Logo, Ultrium and the Ultrium Logo are trademarks of HP, IBM Corp. and Quantum in the U.S. and other countries.

Connect Control Center[®], Connect:Direct[®], Connect:Enterprise[®], Gentran[®], Gentran[®]:Basic[®], Gentran:Control[®], Gentran:Director[®], Gentran:Plus[®], Gentran:Realtime[®], Gentran:Server[®], Gentran:Viewpoint[®], Sterling Commerce[™], Sterling Information Broker[®], and Sterling Integrator[®] are trademarks or registered trademarks of Sterling Commerce[®], Inc., an IBM Company.

Other company, product, and service names may be trademarks or service marks of others.

Terms and conditions for product documentation

Permissions for the use of these publications are granted subject to the following terms and conditions.

Applicability

These terms and conditions are in addition to any terms of use for the IBM website.

Personal use

You may reproduce these publications for your personal, noncommercial use provided that all proprietary notices are preserved. You may not distribute, display or make derivative work of these publications, or any portion thereof, without the express consent of IBM.

Commercial use

You may reproduce, distribute and display these publications solely within your enterprise provided that all proprietary notices are preserved. You may not make derivative works of these publications, or reproduce, distribute or display these publications or any portion thereof outside your enterprise, without the express consent of IBM.

Rights

Except as expressly granted in this permission, no other permissions, licenses or rights are granted, either express or implied, to the publications or any information, data, software or other intellectual property contained therein.

IBM reserves the right to withdraw the permissions granted herein whenever, in its discretion, the use of the publications is detrimental to its interest or, as determined by IBM, the above instructions are not being properly followed.

You may not download, export or re-export this information except in full compliance with all applicable laws and regulations, including all United States export laws and regulations.

IBM MAKES NO GUARANTEE ABOUT THE CONTENT OF THESE PUBLICATIONS. THE PUBLICATIONS ARE PROVIDED "AS-IS" AND WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT, AND FITNESS FOR A PARTICULAR PURPOSE.

IBM.®

Printed in USA