z/OS Communications Server

IBM

Improved CSSMTP code page compatibility with target servers for PI73909

Version 2 Release 2

Contents

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Chapter 1. New Function Summary

V2R2 new function summary

Improved CSSMTP code page compatibility with target servers

With APAR PI73909 installed, z/OS V2R2 Communications Server enables the Communications Server SMTP (CSSMTP) application to use a code page other than the standard ISO8859-1 code page to send mail messages to a target server. With this support, CSSMTP can send mail messages with special characters, such as the Euro sign (€), embedded in the body of the mail message in the code page expected by the mail server.

Restriction: The commands and headers of a mail message are first translated to code page IBM-1047 and then to the code page that is configured for the target server. Characters in the headers might not be translated correctly.

To enable improved CSSMTP code page compatibility with target servers, perform the task in Table 1.

Table 1. Improved CSSMTP code page compatibility with target servers

Task/Procedure	Reference
Configure the code page that is used to translate and send mail messages to the target servers.	• Charset parameter on the TargetServer statement in z/OS Communications Server: IP Configuration Reference • Steps for creating mail on the JES spool data set for CSSMTP in z/OS Communications Server: IP Configuration Guide

To find all new and updated topics about improved CSSMTP code page compatibility with target servers, see Table 2.

Table 2. All related topics about improved CSSMTP code page compatibility with target servers

Book name	Topics
z/OS Communications Server: IP Configuration Guide	Steps for creating mail on the JES spool data set for CSSMTP
z/OS Communications Server: IP Configuration Reference	• CSSMTP configuration statements • TargetServer statement • TRANSLATE statement
z/OS Communications Server: IP Diagnosis Guide	Bad character translations
z/OS Communications Server: IP System Administrator's Commands	MODIFY command: Communications Server SMTP application (CSSMTP)

Chapter 2. IP Configuration Guide

Configuring the CSSMTP application

Setting up CSSMTP

Steps for creating mail on the JES spool data set for CSSMTP

This topic provides the minimum information that you need to create mail that can be processed and forwarded by CSSMTP.

Before you begin

You need to know the external writer name of the CSSMTP application that you want to process your mail data set. If the external writer name is not configured for CSSMTP using the ExtWrtName statement, then the default is the job name. For information about configuring the external writer name using the ExtWrtName statement, see z/OS Communications Server: IP Configuration Reference.

For more information about creating mail using CSSMTP commands, see z/OS Communications Server: IP User's Guide and Commands.

Procedure

Perform the following steps to create mail on the JES spool data set for CSSMTP:

1. Set up JES so that CSSMTP can create, read, write, and purge data from the JES spool data set. See Steps for initial setup for CSSMTP.
2. Set up the mail to conform to the standardized syntax for text messages that are sent across networks. Mail messages have an envelope and contents. Envelopes contain all necessary information to accomplish transmission and delivery of the mail message content. The fields in the envelope are in a standard format.
3. Configure code page support.
   - Configure the code page of the input spool files with the TRANSLATE statement. The spool file must be written by using a code page that is supported by z/OS Unicode Services. The default TRANSLATE code page is IBM-1047.
   - Configure the code page used by the mail servers with the Charset parameter defined on the TargetServer statements. The default Charset code page is ISO8859-1.

   The spool file that contains the mail commands and body is recognized and translated by the Language Environment® iconv function to the following code pages:
   - The mail commands and headers are translated to EBCDIC (IBM-1047) for inspection by CSSMTP and then to the Charset code page before sending to the target server.
   - The mail body is translated to the Charset code page before sending to the target server.

   For information about Unicode Services, see z/OS Unicode Services User's Guide and Reference. For information about configuring the code page by

using the Translate statement and the Charset parameter on the TargetServer statement, see z/OS Communications Server: IP Configuration Reference.

4. Set up the mail in one of the following formats:

   - A flat file generated using the sendmail bridge command that writes to the SYSOUT data set

     For information about using the sendmail bridge command, see Sendmail to CSSMTP bridge in z/OS Communications Server: IP User's Guide and Commands.

   - A flat file generated using the IEBGENER utility or batch jobs that write to the SYSOUT data set

     For information about using the IEBGENER utility to copy a mail file to a JES SYSOUT data set, see z/OS Communications Server: IP User's Guide and Commands.

   - Netdata generated from SMTPNOTE or from TSO xmit

     For information about using the SMTPNOTE command to compose a single mail message to one or more recipients and about using the TSO TRANSMIT (XMIT) command to send a mail file, see z/OS Communications Server: IP User's Guide and Commands.

   You must copy and customize the SMTPNOTE CLIST on every system where users can send mail with the SMTPNOTE command. For more information, see Steps for customizing the SMTPNOTE CLIST (optional).

Results

You know you are done when mail is on the JES spool data set ready to be processed by CSSMTP.

Chapter 3. IP Configuration Reference

Communications Server SMTP application

CSSMTP sample started procedure

CSSMTP configuration statements

Table 3 lists CSSMTP configuration file statements.

Table 3. CSSMTP configuration statements

Configuration file statement	Default	Required or optional	Update allowed by modify refresh	Purpose
BadSpoolDisp	Hold	Optional	Yes	Specifies the action to be taken when errors are encountered while the JES spool file is being processed.
ChkPointSizeLimit	64000	Optional	No	Specifies the number of concurrent mail messages for which checkpoint information is saved.
ExtendedRetry	• Age 5 • Interval 30 • MailDirectory /var/cssmtp/ *extwrtname*/mail/	Optional	Yes (except MailDirectory)	Specifies the limits that CSSMTP uses when it attempts to resend mail messages that are not immediately deliverable after RetryLimit processing.
ExtWrtName	task job name	Optional	No	Specifies the external writer name that is used by CSSMTP for selection criteria when interfacing with the JES2 or JES3 subsystems.
Header	• Date Yes • UserInfo Yes	Optional	Yes	Specifies the action to be taken when creating RFC 2822 mail headers.
JESJobSize	0 (unlimited)	Optional	Yes	Specifies the maximum data set size that is accepted from the JES spool file in thousands of bytes.

Table 3. CSSMTP configuration statements (continued)

Configuration file statement	Default	Required or optional	Update allowed by modify refresh	Purpose
JESMsgSize	0 (unlimited)	Optional	Yes	Specifies the maximum mail message size that is accepted from a JES spool file, in thousands of bytes.
JESSyntaxErrLimit	5	Optional	Yes	Specifies the maximum number of syntax errors that are acceptable in a JES spool file before the rest of the JES spool file processing is stopped.
LogLevel	7	Optional	Yes	Specifies the level of logging and tracing.
MailAdministrator	No e-mail address is configured to send a report.	Optional	Yes	Specifies an e-mail address to which CSSMTP delivers reports for certain errors. This statement can be specified up to four times in a configuration file to deliver reports to multiple administrators.
Options	• AtSign @ • DataLineTrunc No • NullTrnc No • TestMode No • TLSEhlo No	Optional	Yes (except TestMode)	CSSMTP options
Report	Sysout	Optional	Yes	Specifies the action to be taken when problems are reported with JES spool files.
RetryLimit	Interval 1 Count 5	Optional	Yes	Specifies the limits that CSSMTP uses when attempting to re-send mail messages that are not immediately deliverable.
SMF119	No SMF recording	Optional	Yes	Specifies the records to be written to SMF.

Table 3. CSSMTP configuration statements (continued)

Configuration file statement	Default	Required or optional	Update allowed by modify refresh	Purpose
TargetServer	• Charset ISO8859-1 • ConnectPort 25 • ConnectLimit 5 • MaxMsgSent 0 • MessageSize 524288 • Secure No You must provide a value for TargetIP, TargetName, or TargetMx.	Required	Yes	Specify one or multiple TargetServer statements to define target servers (resolved or configured IP addresses) and their connection attributes to which CSSMTP connects for sending mail.
Timeout	• AnyCmd 300 • ConnectRetry 120 • DataBlock 180 • DATACmd 120 • DataTerm 600 • InitialMsg 300 • MAILCmd 300 • RCPTCmd 300 • ConnectIdle 0	Optional	Yes	Specifies the timeout values, in seconds, for the interaction between CSSMTP and a target server.
Translate	IBM®-1047	Optional	No	Specifies the translation code page of the records read from the JES spool data set.
Undeliverable	ReturnToMailFrom Yes DeadLetterAction Store DeadLetterDirectory /var/cssmtp/ *extwrtname*/ deadletter/	Optional	Yes	Specifies the method to use for handling undeliverable mail.
UserExit	None	Optional	Yes	Controls whether this CSSMTP calls CSSMTP exit program provided by the customer to examine data being sent to CSSMTP from the JES spool data set.

TargetServer statement:

Use the TargetServer statement to specify one or more target servers (resolved or configured IP addresses) and their connection attributes. CSSMTP establishes connections to the target servers in order to send mail.

Rules:
- If you are configuring the TargetIP parameter, the TargetName parameter, or both, then you can configure multiple TargetServer statements.
- When you issue a MODIFY REFRESH command, if the order of the target servers changes, the configuration is updated.
- Each TargetIP or TargetName must be unique.

Results:
- Only the first four unique TargetIP values, TargetName values, or both values are used. If more than four values are configured, the application issues a console message and logs a warning. The four target servers that are selected are based on the configuration order in which the parameters were configured. CSSMTP only uses the first four IP addresses.
- If duplicate target server IP addresses are resolved from the configured TargetIP or from the TargetName IP addresses, CSSMTP issues a console message and logs a warning.
- If the TCP/IP stack supports only IPv4, any configured IPv6 addresses are ignored and the application issues a console message and logs a warning.

Restrictions:
- You must define at least one TargetServer statement, and it must contain at least one TargetIP, TargetName, or TargetMx parameter.
- Only four TargetServer statements or the first four TargetIP and TargetName parameters with TargetServer statements are used.
- If distinct target servers can be reached by way of a single IP address, the target servers must have the same capabilities. For example, if a dynamic VIPA (DVIPA) address is specified, the mail servers for that DVIPA address must have the same capabilities. In this example, all the servers must be ESMTPs or SMTPs, but not both, that have the same capabilities.
- You can configure only one TargetMx parameter.

Syntax

```
►►──TargetServer──┤ Put Braces and Parameters on Separate Lines ├──────────►◄
```
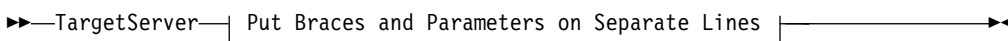
Put Braces and Parameters on Separate Lines:

```
├──┬──{──────────────────────────────────────────────┬──┤
   │    ┌─TargetServer Parameters─┐                   │
   └────┴─────────────────────────┴──}────────────────┘
```

TargetServer Parameters:

```
         ┌──────────────────────────┐                ┌─Charset ISO8859-1─┐
├────────┼──TargetIP addr────────┼──┬──────────────┬──┼───────────────────┼──►
         └──TargetName name──────┘  └─TargetMx mxName─┘  └─Charset code page─┘
```

```
   ┌─ConnectPort 25─┐      ┌─ConnectLimit 5─┐      ┌─MaxMsgSent 0─┐
►──┤                ├──────┤                ├──────┤              ├────────►
   └─ConnectPort port─┘    └─ConnectLimit count─┘  └─MaxMsgSent count─┘


   ┌─MessageSize 524288─┐   ┌─Secure NO─┐
►──┤                    ├───┤           ├─────────────────────────────────►◄
   └─MessageSize size───┘   └─Secure─┬─NO─┬─┘
                                     └─YES─┘
```
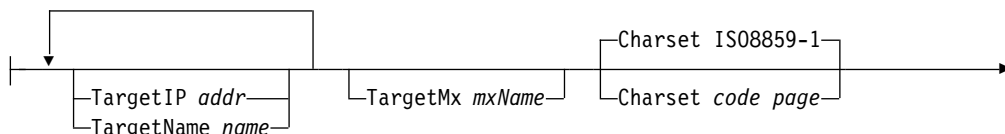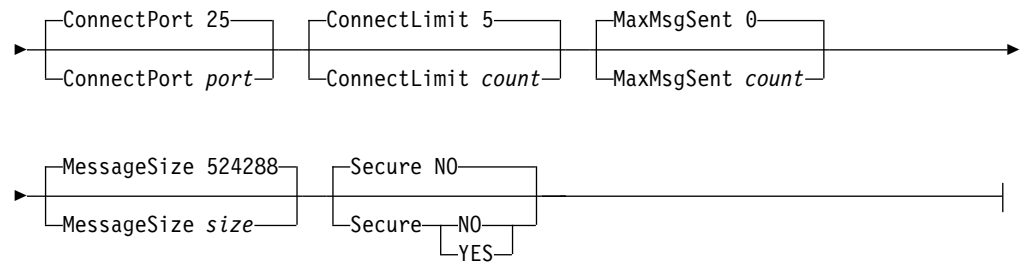
Parameters

`Charset`
Defines the code page that the target server expects to be used for mail messages.

Result: The body of the mail message is translated from the TRANSLATE code page directly to the Charset code page. The headers of the mail message are translated from the IBM-1047 code page to the Charset code page.

Requirements:
- The code page must be defined to Unicode Systems Services.
- There must be a translation to and from the IBM-1047 code page to the Charset code page.
- There must be a translation from the TRANSLATE code page to the Charset code page.

The default code page is ISO8859-1.

`ConnectPort`
Defines the port that CSSMTP uses to connect to a target server.

Result: If an update to the port is detected during a dynamic refresh, then CSSMTP must terminate all the active connections to the target servers that are associated with this TargetServer statement in order to use the new port value.

Requirement: This port must match the listening port number used by the target server.

The valid range of port values is 1 - 65535. The default port is 25.

`ConnectLimit`
Limits the number of concurrent socket connections to the target server from CSSMTP. This might be useful if your server has a concurrent connection limit. One of the socket connections is used by CSSMTP to monitor the SMTP server.

The valid values are in the range 2 - 5. The default limit is 5 connections.

Result: If an update to the ConnectLimit value is detected during a dynamic refresh, CSSMTP must terminate all the active connections to the target servers that are associated with this TargetServer statement in order to use the new limit.

`MaxMsgSent`
Specifies the maximum number of mail messages that can be sent on a single connection. When the MaxMsgSent value is exceeded, CSSMTP closes the connection to the target server and reestablishes a new connection to the same target server. Mail messages continue to be sent over the new connection until the MaxMsgSent value is reached again.

The valid range is 0 - 2147483647. The default is 0, which means that an unlimited number of messages can be sent.

MessageSize

Specifies the maximum size of a mail message that can be sent to target servers that do not support ESMTP size extensions.

Valid values are in the range 1000 - 2147483647. The default size is 524288 bytes (512 KB).

Secure

Indicates whether Transport Layer Security (TLS) is required between the client and a target server. TLS provides private, authenticated communication over the internet. See the steps for setting up security for CSSMTP in z/OS Communications Server: IP Configuration Guide.

Result: If an update to the secure value is detected during a dynamic refresh, CSSMTP must terminate all the active connections to the target servers that are associated with this TargetServer statement in order to use the new secure value.

NO TLS is not required between CSSMTP and a target server. However, if the STARTTLS SMTP command is used in the spool file, a TLS connection is attempted with this server.

YES

TLS is required between CSSMTP application and a target server. If a TLS session cannot be established, then the server is not usable.

TargetIP

The IPv4 or IPv6 address of the target server to which CSSMTP connects.

Restrictions:

- IPv4-mapped IPv6 addresses and IPv6 addresses with the reserved prefix ::/96 are not valid.
- The IPv6 unspecified address (::0) and IPv4 unspecified address (0.0.0.0) are not allowed.
- Duplicate IP addresses are not allowed.

TargetName

The host name or fully qualified host name used for a resolver A or AAAA query. Valid values are 1 - 255 characters in length. If the host name is used, the resolver appends the domain information, which is obtained from the TCPIP.DATA data set.

The TargetName value is not case sensitive.

Result: CSSMTP only uses the first four configured or resolved IP addresses to send the mail message. If more than four target servers are found, this application issues a console message and logs a warning.

Restriction: Duplicate host names are not allowed.

TargetMx

The name or a fully-qualified domain name used for a resolver MX query. This name might resolve into multiple MX records that include a preference value. The lower the preference value is, the more likely that the record is used. Valid values are 1 - 255 characters in length.

The lower the value, the higher the preference.

The TargetMx value is not case sensitive.

Results:

- Only the first configured TargetMx value is used. If more than one value is configured, the application issues a console message and logs a warning.
- Only the first four target servers are saved for the configured TargetMx value. If more than four target servers are returned, CSSMTP issues a console message and logs a warning.
- The lower preference is honored by not sending mail messages to those IP addresses unless the higher preference target servers are unavailable.

Restriction: The TargetMx parameter is mutually exclusive with the TargetName parameter and the TargetIP parameter. If you want to use this statement, MX records for this TargetMx value must exist in the DNS database. If no MX records are found then this is handled as an error and console message EZD1815E is generated.
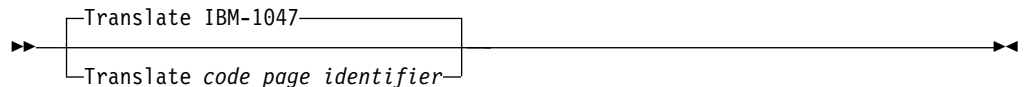
TRANSLATE statement:

Use the TRANSLATE statement to define the supported code page to be used to translate data received from the JES spool data set to ASCII for sending mail messages. See the code set conversions supplied in *z/OS® Support for Unicode: Using Unicode Services* for details about the supported code pages.

Tip: The following POSIX variant characters are converted to ASCII using *iconv* determined by the configured EBCDIC code page. The POSIX variant characters are:

\ [ ] { } ^ ~ ! # | $ @ `

Syntax

```
            ┌─Translate IBM-1047──────────┐
►►──────────┼─────────────────────────────┼──────────────────────────►◄
            └─Translate code_page_identifier─┘
```

Parameters

`Translate`

Specifies the code page to be used for translating the spool file records. If you do not specify this statement, the default code page is IBM-1047. See Code pages known to work with CSSMTP for a list of supported code pages.

Results:

- If an update to the Translate statement is detected during a dynamic refresh, CSSMTP continues to use the old translate value and a warning message is written to the log and the console.

Restrictions: The code page must have the following characteristics:

- Defined to Unicode System Services
- An EBCDIC code page
- A single byte code page (not double byte nor multibyte)
- A translation to and from the ASCII character set specified on the Charset parameter of the target server
- The environment variable _ICONV_TECHNIQUE should be left undefined or have the value of its default LMREC.

See Code pages known to work with CSSMTP for a list of code page identifiers.

Chapter 4. IP Diagnosis Guide

Diagnosing Communications Server SMTP application problems

Resolving mail problems

Mail problems

Bad character translations:
If a mail message is received with characters that are not being translated correctly, for example the Euro sign (€), one of the following code page configuration settings might be incorrect:

- The TRANSLATE code page might be incorrect for the sysout files being read by CSSMTP. If so, configure the TRANSLATE statement with the code page that is used for the sysout files.

- The Charset code page might not be compatible with the target server. Some mail servers might use ISO8859-15 or 1252 instead of the default ISO8859-1. Configure the Charset parameter on the TargetServer statement.
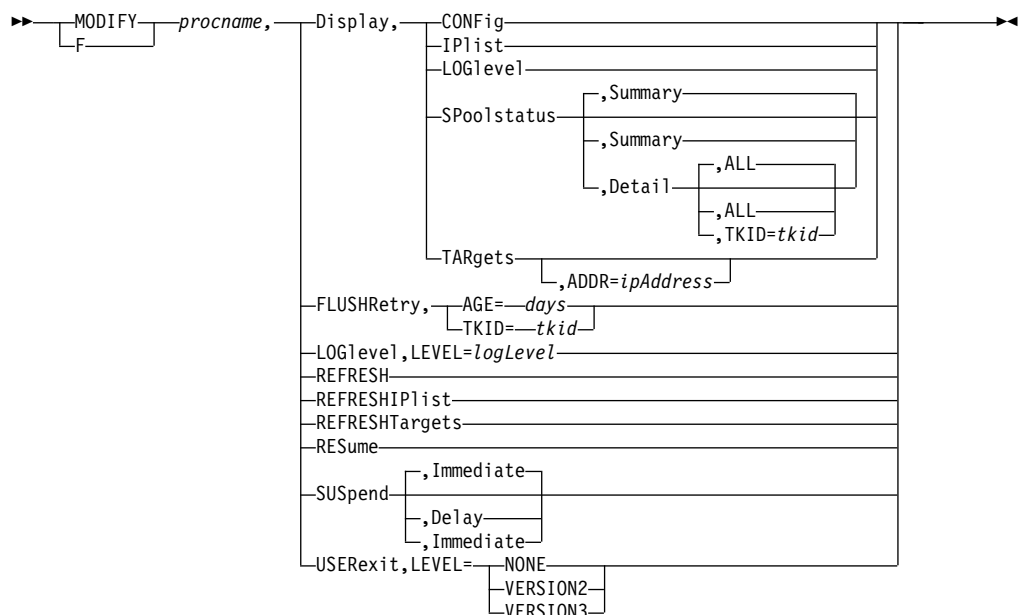
Chapter 5. IP System Administrator's Commands

Operator commands and system administration

MODIFY command

MODIFY command: Communications Server SMTP application (CSSMTP)

Use the MODIFY command to control the Communications Server SMTP (CSSMTP) application from the operator console. For descriptions of terms that are used in this section, see the CSSMTP information in z/OS Communications Server: IP Configuration Guide.

Format

```
►►──┬─MODIFY─┬──procname,──┬─Display,──┬─CONFig───────────────────────┬──────►◄
    └─F──────┘             │           ├─IPlist───────────────────────┤
                          │           ├─LOGlevel─────────────────────┤
                          │           │            ┌─,Summary─┐       │
                          │           ├─SPoolstatus─┼─,Summary─┤      │
                          │           │            └─,Detail─┬─,ALL──────┐ │
                          │           │                      ├─,ALL──────┤ │
                          │           │                      └─,TKID=tkid─┘ │
                          │           └─TARgets──┬──────────────────┤
                          │                      └─,ADDR=ipAddress─┘ │
                          ├─FLUSHRetry,──┬─AGE=──days─────┤
                          │              └─TKID=──tkid──┘
                          ├─LOGlevel,LEVEL=logLevel───────┤
                          ├─REFRESH───────────────────────┤
                          ├─REFRESHIPlist─────────────────┤
                          ├─REFRESHTargets────────────────┤
                          ├─RESume────────────────────────┤
                          │           ┌─,Immediate─┐
                          ├─SUSpend──┼─,Delay──────┤
                          │           └─,Immediate─┘
                          └─USERexit,LEVEL=──┬─NONE──────┐
                                             ├─VERSION2─┤
                                             └─VERSION3─┘
```

Parameters

procname
> The member name of the cataloged procedure that is used to start the CSSMTP application.

`Display,CONFig`
> Display the CSSMTP application configuration and global values that are used for processing mail.

`Display,IPlist`
> Display all target server IP addresses and their preferences that are used by CSSMTP. A target server is the resolved or configured IP addresses from TargetServer statements. See the TargetServer statement information in z/OS Communications Server: IP Configuration Reference for details about how the target server addresses are obtained.

DISplay,LOGlevel
> Display CSSMTP active log levels.

Display,SPoolstatusDisplay,SPoolstatus,Summary
> Display summary information for all tasks that are processing spool files for CSSMTP. You can use this display to determine the number of mail messages that are pending or you can use it on the long-retry queue for each spool file that is being processed. The summary option is the default for the MODIFY DISPLAY,SPOOLSTATUS command.
>
> **Tip:** Use this command to obtain the task ID to use on other modify commands that use task ID values as options.

Display,SPoolstatus,DetailDisplay,SPoolstatus,Detail,ALL
> Display detailed information for all tasks that are not idle. The ALL option is the default for the MODIFY DISPLAY,SPOOLSTATUS,DETAIL command.

Display,SPoolstatus,Detail,TKID=*tkid*
> Display detailed information for this specific task that processes spool files for CSSMTP.
>
> **Tip:** You can use the MODIFY DISPLAY,SPOOLSTATUS command to obtain a valid TKID value.

Display,TARgets[,ADDR=*ipAddress***]**
> Display global and specific information about target servers. If the ADDR parameter is not specified, all configured target servers are displayed. If the ADDR parameter is specified, then the IP address value must match the IP address of an existing target server that is in use by CSSMTP.
>
> **Tip:** You can use the MODIFY DISPLAY IPLIST command to obtain IP addresses for the list of target servers that are being used by CSSMTP.

FLUSHRetry,TKID=*tkid*
> Initiate a request for the CSSMTP application to remove mail messages from the long retry queue, and send those mail messages to the list of target servers. If CSSMTP cannot send a mail message, that mail message becomes subject to long-term retry processing; if any mail message is not defined, it becomes an undeliverable mail message. For more information about undeliverable mail, see z/OS Communications Server: IP Configuration Guide.
>
> A nonzero TKID (task ID) value requests that only the mail messages for the specified TKID value is flushed. A TKID value 0 requests that all mail messages in the long-retry queue be flushed.
>
> **Tip:** You can use the MODIFY DISPLAY,SPOOLSTATUS command to obtain a valid TKID value.

FLUSHRetry,AGE=*days*
> Initiate a request for the CSSMTP application to remove the mail messages that are older than *days* days from the extended retry queue, and send those mail messages to the list of target servers. If CSSMTP cannot send a mail message, that message becomes an undeliverable mail message. To make this command effective, the target servers must be available. For details, see the information about extended retry mail in z/OS Communications Server: IP Configuration Reference and the information about undeliverable mail in z/OS Communications Server: IP Configuration Guide.
>
> A days value of 0 specifies that all messages in the extended retry list are to be processed.

Tip: You can use the command to monitor the number of the mail messages in the extended retry list and the state of the target servers used by CSSMTP.

LOGlevel,LEVEL=*logLevel*

Change the CSSMTP application log level. The *logLevel* value specifies the log level. If a *logLevel* value is not specified, then the current log level remains in effect. See the LogLevel statement information in z/OS Communications Server: IP Configuration Reference for details about defining the CSSMTP application log level.

REFRESH

Initiate a dynamic reconfiguration using the configuration file that is defined at initialization. If a configuration error is detected during a dynamic refresh, the entire refresh is rejected, the error message is written to the log and console, and the CSSMTP application continues to run with the old configuration values.

Results:

- While the new configuration file is being processed, the existing log level is used, regardless of how it was set (using the last configuration file or with the MODIFY LOGLEVEL command). After the new configuration file has been successfully processed, the value that is specified on the LogLevel statement of the new configuration file takes effect. If the LogLevel statement is not specified in the new configuration file, the log level defaults to level 7 (ERROR, WARNING, and EVENT). If the new configuration file contains errors that cause it to be rejected, the log level that was in effect prior to the dynamic reconfiguration is used.

- If an update to the ExtWrtName statement is detected during a dynamic refresh, then the CSSMTP application continues to run with the old external writer name and a warning message is written to the log and console.

- If an update to the Translate statement is detected during a dynamic refresh, then the CSSMTP application continues to run with the old *translate* value and a warning message is written to the log and console.

- If an update to the ChkPointSizeLimit statement is detected during a dynamic refresh, then the CSSMTP application continues to run with the old ChkPointSizeLimit value and a warning message is written to the log and console.

- While the new configuration file is being processed, the existing UserExit value is used, regardless of how it was set (using the last configuration file or with the MODIFY USEREXIT command). After the new configuration file has been successfully processed, the value that is specified on the UserExit statement of the new configuration file takes effect when the next JES spool file is opened. If the new configuration file contains errors that cause it to be rejected, the UserExit value that was in effect prior to the dynamic reconfiguration is used.

- An update to the TargetServer statement can force CSSMTP to stop and restart connections on the affected IP addresses. If CSSMTP is in the process of sending a mail message on the affected IP address, the mail message is retried at another IP address or placed in the long retry queue. For more information about the TargetServer statement, see the TargetServer statement information in z/OS Communications Server: IP Configuration Reference.

REFRESHIPlist

Initiates a dynamic DNS refresh of the target that is identified by the configured TargetName or TargetMx parameter value. This parameter does not cause the configuration file to be reprocessed.

> **Result:** If a TargetServer statement has TargetName or TargetMx parameters configured, new IP addresses might be resolved. If the IP address list is changed, CSSMTP might be forced to stop and restart connections on the affected IP addresses. If CSSMTP is in the process of sending a mail message on the affected IP address, the mail message is retried at another IP address or placed in the long retry queue.

REFRESHTargets
> Reinitiates a connection to all target servers. The CSSMTP application can learn about any capability changes from the target servers.
>
> **Tip:** This command causes all active connections to all target servers to be stopped and restarted; therefore, use this command only when there is a change in the network topology and no work is being done by the CSSMTP application because the command interrupts all active connections.
>
> **Result:** If you issue this command while CSSMTP is in the process of sending a mail message on the connection, the mail message is retried at another IP address or placed in the long retry queue.

RESume
> Resumes processing of any JES spool files whose processing was suspended with the MODIFY SUSPEND operator command.

SUSpendSUSpend,Immediate
> Suspends the reading of mail messages immediately for all active spool files. To resume this processing, issue the MODIFY RESUME operator command. The IMMediate option is the default for the MODIFY SUSPEND command.

SUSpend,Delay
> Suspends the reading of any new spool files immediately but completes reading any spool files that are already in process. To resume reading of spool files, issue the MODIFY RESUME operator command.

USERexit,LEVEL=*userExitValue*
> Change the CSSMTP application user exit value. The USERexit keyword can be set to NONE, VERSION2, or VERSION3. If a *userExitValue* parameter value is not specified, then the current user exit value remains in effect. See the USEREXIT statement information in z/OS Communications Server: IP Configuration Reference for details about how to define the CSSMTP application user exit value.
>
> **Result:** The user exit value does not change until the next JES spool file is opened.

Examples

Example 1: The MODIFY DISPLAY,LOGLEVEL command displays the current logging level that is being used by CSSMTP.

```
F CSSMTP,DISPLAY,LOGLEVEL
   EZD1828I CSSMTP DISPLAY LOGLEVEL = 15
```

Example 2: The MODIFY DISPLAY,CONFIG command displays the current configuration that is being used by CSSMTP.

```
F CSSMTP,DISPLAY,CONFIG
   EZD1829I CSSMTP CONFIGURATION: 730
   CONFIGFILENAME      : //'USER1.CSSMTP.CNTL(CSSMTP)'
   LOGFILENAME         : /tmp/cssmtp.log
   CHKPOINTFILENAME    : 'USER1.CSSMTP.CHKPOINT'
   PID                 : 67108878
```

```
         LOGLEVEL               : 7            USEREXIT        : VERSION3
         CHKPOINTSIZELIMIT      : 64000        CHKPOINT        : WARM
         CONFIG CODEPAGE        : IBM-1047
         TRANSLATE              : ibm-1047
         START OPTION TCPNAME   : N/A          IPV6 ENABLED    : YES
         EXTWRTNAME             : CSSMTP       HOST NAME       : SY1
         DOMAIN NAME            : example.com
         HEADER:
          DATE                  : YES
          USERINFO              : YES
         JESJOBSIZE             : 0            JESMSGSIZE      : 0
         JESSYNTAXERRLIMIT      : 6
         BADSPOOLDISP           : HOLD         REPORT          : ADMIN
         OPTIONS:
          NULLTRNC              : YES          DATALINETRUNC   : NO
          TESTMODE              : NO           ATSIGN          : 7C
          TLSEHLO               : NO
         UNDELIVERABLE:
          RETURNTOMAILFROM      : YES          DEADLETTERACTION: STORE
          DEADLETTERDIRECTORY   : /var/cssmtp/deadletter/
         SMF119:
          CONFIG                : YES          CONNECT         : YES
          MAIL                  : YES          SPOOL           : YES
          STATS                 : YES
         RETRYLIMIT:
          COUNT                 : 5            INTERVAL        : 1
         EXTENDEDRETRY: ACTIVE
          AGE                   : 5            INTERVAL        : 30
          MAILDIRECTORY         : /var/cssmtp/mail/
         TARGETSERVER:
          TARGETNAME            : mail.example.com
           CONNECTPORT          : 25           CONNECTLIMIT    : 5
           MAXMSGSENT           : 0            MESSAGESIZE     : 524288
|          SECURE               : NO           CHARSET         : ISO8859-1
|         TARGETIP              : 9.17.195.167
|          CONNECTPORT          : 25           CONNECTLIMIT    : 5
|          MAXMSGSENT           : 0            MESSAGESIZE     : 524288
|          SECURE               : NO           CHARSET         : ISO8859-1
         TIMEOUT:
          ANYCMD                : 300          CONNECTRETRY    : 120
          DATABLOCK             : 180          DATACMD         : 120
          DATATERM              : 600          INITIALMSG      : 300
          MAILCMD               : 300          RCPTCMD         : 300
          CONNECTIDLE           : 60
         MAILADMINISTRATOR      : postmaster@example.com
                                  user1@example.com
                                  user2@example.com
```

For definitions of statements and parameters that are obtained from configuration file, see the CSSMTP information in z/OS Communications Server: IP Configuration Reference.

CONFIGFILENAME

>   The configuration name from the CONFIG DD statement in the started procedure.

LOGFILENAME

>   The configured log file name from LOGFILE DD statement in the started procedure.

PID

>   The process ID.

LOGLEVEL

>   The logging level.

CHKPOINT
Indicates whether checkpointing is active.

WARM
Checkpointing was initiated using the CHKPOINT DD statement.

COLD
Checkpointing was initiated using the **-f** start option.

NONE
There was no CHKPOINT DD statement.

CONFIG CODEPAGE
The code page value specified on the CSSMTP_CODEPAGE_CONFIG statement or the default value.

TRANSLATE
The code page value that is configured on the Translate statement.

CHKPOINT FILENAME
The name of the configured checkpoint file, if a CHKPOINT DD statement is configured in the started procedure.

START OPTION TCPNAME
The TCP name that is passed on the **-p** start option or the value N/A if the **-p** start option is not used.

IPV6 ENABLED
Indicates whether IPV6 is supported.

EXTENDEDRETRY
Indicates whether extended retry processing is ACTIVE or INACTIVE.

ATSIGN
The hex value of the configured AtSign symbol.

Result: Code page IBM-1047 is always used for the CSSMTP display. The CSSMTP_CODEPAGE_CONFIG environment variable is not used for the display. The value displayed is the hex value that is defined in the IBM-1047 code page for the configured symbol.

The remaining values that are displayed are the values for the matching statement or parameter from the configuration file.

Example 3: The MODIFY DISPLAY,IPLIST command displays the IP address of the configured target servers from the TargetServer statement and TargetIp parameter, or it displays the resolved target server addresses from the TargetServer statement and TargetName parameter, that are being used by CSSMTP.

```
F CSSMTP,DISPLAY,IPLIST
EZD1830I CSSMTP IPLIST:
    TARGETIP           : 9.100.1.5
    CONNECTPORT        : 25            CONNECTLIMIT   : 5
    MAXMSGSENT         : 1000          MESSAGESIZE    : 524288
    SECURE             : NO            CHARSET        : ISO8859-1
    TARGETIP           : 9.56.231.69
    CONFIG TARGETNAME  : RALVMS
    CONNECTPORT        : 25            CONNECTLIMIT   : 2
    MAXMSGSENT         : 2000          MESSAGESIZE    : 524288
    SECURE             : YES           CHARSET        : ISO8859-1
    TARGETIP           : 9.200.1.6
    CONNECTPORT        : 25            CONNECTLIMIT   : 5
    MAXMSGSENT         : 1000          MESSAGESIZE    : 524288
    SECURE             : NO            CHARSET        : ISO8859-1
```

For the definitions of statements and parameters that are obtained from the configuration file, see the CSSMTP information in z/OS Communications Server: IP Configuration Reference.

TARGETIP
> The IP address of the target server.

CONFIG TARGETNAME
> The name that is used to resolve this target server address for a resolver A or AAAA query.

The remaining values that are displayed are the same values that are specified on the matching statement or parameter in the configuration file.

Example 4: The MODIFY DISPLAY,IPLIST command displays the resolved target servers from the TargetServer statement and TargetMx parameter that are being used by CSSMTP.

```
F CSSMTP,DISPLAY,IPLIST
EZD1830I USER1408 IPLIST:
   TARGETIP           : 9.56.231.69
   CONFIG TARGETMX    : mxName
   PREFERENCE         : 1
   CONNECTPORT        : 25          CONNECTLIMIT  : 2
   MAXMSGSENT         : 2000        MESSAGESIZE   : 524288
   SECURE             : YES         CHARSET       : ISO8859-1
   TARGETIP           : 9.56.200.55
   CONFIG TARGETMX    : mxName
   PREFERENCE         : 1
   CONNECTPORT        : 25          CONNECTLIMIT  : 2
   MAXMSGSENT         : 2000        MESSAGESIZE   : 524288
   SECURE             : NO          CHARSET       : ISO8859-1
```

For the definition of statements and parameters that are obtained from configuration file, see the CSSMTP information in z/OS Communications Server: IP Configuration Reference.

TARGETIP
> This is the IP address of the target server.

CONFIG TARGETMX
> The name that is used to resolve this target server address for resolver MX query.

The remaining values that are displayed are the values for the matching statement or parameter from the configuration file.

Example 5: The MODIFY DISPLAY,SPOOLSTATUS command displays the summary information for all tasks that are processing JES spool files.

```
F CSSMTP,DISPLAY,SPOOLSTATUS
  EZD1832I CSSMTP SPOOLSTATUS:
 TKID JOBNAME  STATE PEND  LRT    TKID JOBNAME  STATE PEND  LRT
W 002 JOBNM25  ACTVE   15    5  D 003 JOBNM132 READ     5    0
W 004 JOBNM45  ACTVE   10   10  D 005 JOBNM232 READ    10    0
W 006 JOBNM48  ACTVE   20    0  D 007 JOBNM332 IDLE     0    0
W 008 JOBNM50  ACTVE   20    5  D 009 JOBNM432 IDLE     0    0
W 010 JOBNM60  ACTVE   10    0  D 011 JOBNM532 IDLE     0    0
W 012 JOBNM80  ACTVE    0    0  D 013 JOB00632 IDLE     0    0
W 014 JOBNM90  ACTVE   10   10  D 015 JOB00732 IDLE     0    0
W 016 JOBNM190 ACTVE   20    0  D 017 JOB00832 IDLE     0    0
W 018 JOBNM150 ACTVE   20    5  D 019 JOB00932 IDLE     0    0
W 020 JOBNM160 ACTVE   10    0  D 021 JOB01132 IDLE     0    0
```

For definitions of terms that relate to this information, see the CSSMTP common terms information in z/OS Communications Server: IP Configuration Guide.

W A writer JES task, if the JES spool file was generated by the IEBGENER utility.

D A dest JES task, if the JES spool file was generated by the SMTPNOTE command or by the TSO Transmit (XMIT) command.

TKID
> The task ID, which can be used to identify a specific task.
>
> **Tip:** You can use the task ID in the MODIFY FLUSHRetry command and the MODIFY DISPLAY,SPOOLSTATUS,DETAIL,TKID=*tkid* command.

JOBNAME
> The JES job name for this task. If the task is in the IDLE state, this is the name of the previous job.

STATE
> This parameter can have one of the following values:
>
> **WAITS**
> > The task is waiting because virtual storage is constrained.
>
> **READ**
> > The task is reading a spool file.
>
> **IDLE**
> > The task is waiting for a JES spool file to process.
>
> **ACTVE**
> > The task is actively waiting for all mail in the spool file to be processed.
>
> **WAIT**
> > The task is waiting because no target server is active to receive mail.
>
> **SUPND**
> > The task was suspended by the MODIFY SUSPEND command.

PEND
> The number of mail messages that are waiting to be sent to target server.

LRT
> The number of mail messages that are currently queued in the long-retry queue.

The MODIFY DISPLAY SPOOLSTATUS,DETAIL command displays detailed information for all tasks that are not in the IDLE state that are processing JES spool files.

```
F CSSMTP,DISPLAY,SPOOLSTATUS,DETAIL
EZD1833I CSSMTP SPOOLSTATUS:
 TASK ACTVE          : WRITER    TKID         : 2
  JOBNAME            : JOBNM25   JOBID        : STC00055
  PEND               : 15        LRT          : 5
  MAIL READ          : 0         UNDELIVERABLE: 0
 TASK ACTVE          : WRITER    TKID         : 4
  JOBNAME            : JOBNM45   JOBID        : STC00060
  PEND               : 10        LRT          : 10
  MAIL READ          : 10        UNDELIVERABLE: 0

... <active task TKID=006,008,010,012,014,016,018,020 not shown>
 TASK READ           : DEST      TKID         : 3
  JOBNAME            : JOBNM132  JOBID        : STC00055
  PEND               : 5         LRT          : 0
  MAIL READ          : 5         UNDELIVERABLE: 20
```

```
TASK READ              : DEST       TKID         : 5
  JOBNAME              : JOBNM232   JOBID        : STC00255
  PEND                 : 10        LRT          : 0
  MAIL READ            : 5         UNDELIVERABLE: 20
```

The MODIFY DISPLAY SPOOLSTATUS,DETAIL command displays detailed information for all tasks that are not in the IDLE state that are processing JES spool files; in this example all state tasks are idle.

```
F CSSMTP,Display,Spoolstatus,detail
EZD1833I CSSMTP SPOOLSTATUS:
No non-idle TKIDs to display
```

The MODIFY DISPLAY SPOOLSTATUS,DETAIL,TKID=11 command displays detailed information for a specific TKID 11 task that is processing a spool file for the CSSMTP application.

```
F CSSMTP,DISPLAY,SPOOLSTATUS,DETAIL,TKID=11
EZD1833I CSSMTP SPOOLSTATUS:
 TASK ACTVE            : WRITER     TKID         : 11
  JOBNAME              : JOBNM532   JOBID        : STC00532
  PEND                 : 0         LRT          : 0
  MAIL READ            : 25        UNDELIVERABLE: 0
```

The MODIFY DISPLAY SPOOLSTATUS,DETAIL,TKID=3 command displays detailed information for a specific TKID 3 task that is currently idle.

```
F CSSMTP,DISPLAY,SPOOLSTATUS,DETAIL,TKID=2
EZD1833I CSSMTP SPOOLSTATUS:
 TASK IDLE             : WRITER     TKID         : 2
  JOBNAME              : JOB00032   JOBID        : STC00055
  PEND                 : 0         LRT          : 0
  MAIL READ            : 2         UNDELIVERABLE : 1
```

TASK

The TASK parameter has the following fields:

state

Possible values are:

WAITS

The task is waiting because virtual storage is constrained.

READ

The task is reading a spool file.

IDLE

The task is waiting for a JES spool file to process.

ACTVE

The task is actively waiting for all mail in the spool file to be processed.

WAIT

The task is waiting because no target server is active to receive mail.

SUPND

The task was suspended by the MODIFY SUSPEND command.

type task

Possible **type task** values are:

WRITER

This is a writer JES task if the JES spool file was generated by the IEBGENER utility.

DEST

This is a DEST JES task if the JES spool file was generated by the SMTPNOTE command or by the TSO Transmit (XMIT) command.

TKID

The task ID, which can be used to identify a specific task.

Tips:

- You can use the task ID in the MODIFY FLUSHRetry command and the MODIFY DISPLAY,SPOOLSTATUS,DETAIL,TKID=*tkid* command.
- You can use the task ID to identify log information that is in the log file. If the *tkid* value is 2, that TKID value is represented in the following example by the value :002.

```
08/01 07:10:20 CSSMTP DEBUG  :002:mlJESThread:Message(0): ...
```

JOBNAME

The JES job name for this task. If the task is in the IDLE state, then this is the previous job name.

JOBID

This is the JES job ID for this task. If the task is in the IDLE state, then this is the previous job ID.

PEND

The number of mail messages that are waiting to be sent to a target server. If the task is in the IDLE state, then this value is always 0.

LRT

The number of mail messages that are currently in the long-retry queue. If the task is in the IDLE state, then this value is always 0.

MAIL READ

The total number of mail messages that have been read for the job. If the task is in the IDLE state, then this is the mail for the previous job.

UNDELIVERABLE

The total number of undeliverable mail messages for this job name. If the task is in IDLE state, then this value is the undeliverable count of the previous job.

Example 6: The MODIFY DISPLAY,TARGETS command displays the global and specific information that is related to sending email to target servers. For definitions of statements and parameters that are obtained from the configuration file, see the CSSMTP information in z/OS Communications Server: IP Configuration Reference.

```
F CSSMTP,DIS,TARGETS
 EZD1831I CSSMTP TARGETS:
  GLOBAL INFORMATION:
   MAIL SENT : 0                    TOTAL RETRY  : 0
   DEADLETTER: 0                    CURRENT RETRY: 0
   UNDELIVER : 0
  EXTENDED RETRY:
   CURRENT   : 0                    TOTAL        : 0
  TARGET SERVER 1.1.1.1
   STATE     : ACTIVE
   ESMTP     : YES                  MESSAGE SIZE : 20000000
   STARTTLS  : NO                   MAIL ATTEMPTS: 24
   MAIL SENT : 24                   CONNECT FAIL : 0
  TARGET SERVER ::6
   STATE     : ACTIVE
   ESMTP     : YES                  MESSAGE SIZE : 20000000
   STARTTLS  : YES                  MAIL ATTEMPTS: 30
   MAIL SENT : 30                   CONNECT FAIL : 0
```

The following global target server information for this application is displayed:

MAIL SENT
Count of all mail messages that were processed successfully after all mail messages were sent.

TOTAL RETRY
Cumulative count of mail messages that have been in the long-retry state.

DEADLETTER
Cumulative count of all mail messages that were classified as dead letters.

CURRENT RETRY
Count of mail messages that are currently in the long-retry queue.

UNDELIVER
Count of all mail messages that were undeliverable.

EXTENDED RETRY

>**CURRENT**
>Count of mail messages currently in the extended retry directory while extended retry is active.

>**TOTAL**
>Cumulative count of mail messages that have been in the extended retry directory.

The following fields are displayed for each target server:

STATE
State of the target server.

>**ACTIVE**
>The target server is active.

>**NOT USABLE**
>This target server is not usable. For example, CSSMTP has lost connectivity to this target server.

>**UNKNOWN**
>This target server is new and its capabilities have not been learned at this time.

ESMTP
Type of target server. If the ESMTP value is YES, the target server type is ESMTP. If the ESMTP value is NO, the target server type is SMTP.

MESSAGE SIZE
The actual message size.
- For ESMTP this value was obtained from the SIZE extension when the connection was made. The value 0 indicates that there is no predefined message size limit.
- For SMTP, this value is the value that is configured for the MessageSize parameter of the TargetServer statement. For details, see the TargetServer statement information in z/OS Communications Server: IP Configuration Reference

STARTTLS
Indicates that the target server has acknowledged that it is capable of establishing secure connections.
- For ESMTP see the information that describes using Transport Layer Security TLS in z/OS Communications Server: IP Configuration Guide for details.

- For SMTP this is always set to NO.

MAIL ATTEMPTS
> The total number of mail messages that CSSMTP has sent or has attempted to send to the target server.

> **Tip:** A single mail message operation can be attempted on multiple target servers.

MAIL SENT
> The number of mail messages that were sent successfully for this target server.

> **Tip:** A single mail message that contains multiple recipients can be sent successfully on multiple target servers.

CONNECT FAIL
> Count of the number of SMTP connections that the application was unable to establish when it attempted to send mail to a target server.

Example 7: The MODIFY DISPLAY,TARGETS,ADDR=*x.x.x.x* command displays the global and specific information related to sending e-mail to a specific target server.

```
F CSSMTP,DIS,TARGETS,ADDR=1.1.1.1
  EZD1831I CSSMTP TARGETS:
   GLOBAL INFORMATION:
    MAIL SENT : 24                    LONG RETRY   : 0
    DEADLETTER: 0                     UNDELIVERABLE: 0
   TARGET SERVER 1.1.1.1
    STATE     : ACTIVE
    ESMTP     : YES                   MESSAGE SIZE : 20000000
    STARTTLS  : NO                    MAIL ATTEMPTS: 24
    MAIL SENT : 24                    CONNECT FAIL : 0
```

Example 8: The MODIFY LOGLEVEL,LEVEL=15 command requests the CSSMTP application to change the logging level to 15. The EZD1809I message indicates that the logging level was updated successfully.

```
F CSSMTP,LOGLEVEL,LEVEL=15
  EZD1809I CSSMTP1 MODIFY LOGLEVEL COMMAND COMPLETED : UPDATED
```

Example 9: The MODIFY REFRESH command requests that the CSSMTP application reprocess the configuration file. The following messages indicate that the configuration was updated successfully with no errors.

```
F CSSMTP,REFRESH
  EZD1834I CSSMTP MODIFY COMMAND ACCEPTED
  EZD1840I CSSMTP UPDATED CONFIGURATION
  EZD1846I CSSMTP UPDATED TARGET SERVERS
  EZD1848I CSSMTP MODIFY REFRESH COMMAND COMPLETED
```

Result: If an update to the TestMode value is detected during a dynamic refresh, the CSSMTP application continues to run with the old TestMode value and a warning message is written to the log and console.

Example 10: The MODIFY REFRESHIPLIST command requests that the CSSMTP application perform a dynamic DNS refresh of the TargetName or TargetMx field. The following messages indicate that the target server addresses were successfully updated.

```
F CSSMTP,REFRESHIPLIST
  EZD1834I CSSMTP MODIFY COMMAND ACCEPTED
  EZD1845I CSSMTP UPDATED TARGET SERVERS
  EZD1842I CSSMTP MODIFY REFRESHIPLIST COMMAND COMPLETED
```

Example 11: The MODIFY FLUSHRETRY,TKID=0 command initiates a request to move all mail that is in the long-retry queue to the send queue.

The following messages indicate that all mail messages have been moved from the long-retry queue to the send queue.

```
F CSSMTP,FLUSHRETRY,TKID=0
   EZD1834I CSSMTP MODIFY COMMAND ACCEPTED
   EZD1810I CSSMTP MODIFY FLUSHRETRY,TKID=0 COMMAND COMPLETED
```

Example 12: The MODIFY FLUSHRETRY command initiates a request to move all mail for TKID 2 from the long-retry queue to the send queue.

The following messages indicate that all mail messages for TKID 2 have been moved from the long-retry queue to the send queue.

```
F CSSMTP,FLUSHRETRY,TKID=2
   EZD1834I CSSMTP MODIFY COMMAND ACCEPTED
   EZD1810I CSSMTP MODIFY FLUSHRETRY,TKID=2 COMMAND COMPLETED
```

Example 13: The MODIFY REFRESHTARGETS command reinitiates a connection to all target servers.

The following messages indicate that the CSSMTP application completed this request.

```
F CSSMTP,REFRESHTARGETS
   EZD1834I CSSMTP MODIFY COMMAND ACCEPTED
   EZD1821I CSSMTP ABLE TO USE TARGET SERVER 9.1.1.1
```

Example 14: The MODIFY RESUME command resumes processing of any JES spool files when processing was suspended using the MODIFY SUSPEND operator command.

The following messages indicate that the CSSMTP application will start processing any JES spool files.

```
F CSSMTP,RESUME
   EZD1834I CSSMTP MODIFY COMMAND ACCEPTED
   EZD1814I CSSMTP MODIFY RESUME COMMAND COMPLETED
```

Example 15: The MODIFY SUSPEND command suspends the reading of mail messages immediately for all JES spool files.

The following messages indicate that the CSSMTP application has suspended the processing of mail messages for all JES spool files.

```
F CSSMTP,SUSPEND
   EZD1834I CSSMTP MODIFY COMMAND ACCEPTED
   EZD1822I CSSMTP MODIFY SUSPEND IMMEDIATE COMMAND COMPLETED
```

Example 16: The MODIFY FLUSHRETRY,AGE=0 command initiates a request to move all the mails that are in the extended retry queue to the send queue.

The following messages indicate that all mail messages have been moved from the extended retry queue to the send queue.

```
F CSSMTP,FLUSHRETRY,AGE=0
   EZD1834I CSSMTP MODIFY COMMAND ACCEPTED
   EZD1823I CSSMTP MODIFY FLUSHRETRY,AGE=0 COMMAND COMPLETED
```

Example 17: The MODIFY FLUSHRETRY,AGE=2 command initiates a request to move all mail messages that have been in the extended retry queue for more than two days from the extended retry queue to the send queue.

The following messages indicate that all the extended retry mail messages that are older than two days have been moved from the extended retry queue to the send queue.

```
F CSSMTP,FLUSHRETRY,AGE=2
   EZD1834I CSSMTP MODIFY COMMAND ACCEPTED
   EZD1823I CSSMTP MODIFY FLUSHRETRY,AGE=2 COMMAND COMPLETED
```

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