

z/OS



# Summary of Message and Interface Changes

*Version 1 Release 12*



z/OS



# Summary of Message and Interface Changes

*Version 1 Release 12*

**Note**

Before using this information and the product it supports, be sure to read the general information under "Notices" on page 327.

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This is a major revision of SA22-7505-15.

This edition applies to Version 1 Release 12 of z/OS (5694-A01) and to all subsequent releases and modifications until otherwise indicated in new editions.

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## About this document

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### Who should use this document

*z/OS Summary of Message and Interface Changes* is for anyone who needs to know which messages and interfaces are new and changed for z/OS® V1R12 and z/OS V1R11.

For purposes of this document, “interfaces” refers to software that allows a user to interact with and perform operations on a system, program, or device.

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### How to use this document

This document is divided into two parts. Part 1 contains a summary of new and changed interfaces for z/OS V1R12 and z/OS V1R11. Part 2 contains a summary of new, changed, and deleted messages for z/OS V1R12 and z/OS V1R11.

Part 1 is divided into chapters where each chapter is devoted to a specific z/OS element or feature. Within each chapter, information is presented in tables grouped by component (where applicable), by type of interface (for example, commands, environment variables), and by the release in which the interface was added or changed.

Part 2 is divided into chapters where each chapter is devoted to a specific release (z/OS V1R12 or z/OS V1R11). Within each chapter, information about new, changed, and deleted messages is grouped by z/OS element and feature.

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### Where to find more information

This document references information in other documents, using shortened versions of the document title. For complete titles and order numbers of the documents for z/OS elements and features, see *z/OS Information Roadmap*.

This document does not contain information about new, changed, or deleted checks for IBM® Health Checker for z/OS. For such information, see *IBM Health Checker for z/OS: User's Guide*. For currently available checks, see [http://www.ibm.com/servers/eserver/zseries/zos/hchecker/check\\_table.html](http://www.ibm.com/servers/eserver/zseries/zos/hchecker/check_table.html).

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### Using LookAt to look up message explanations

LookAt is an online facility that lets you look up explanations for most of the IBM messages you encounter, as well as for some system abends and codes. Using LookAt to find information is faster than a conventional search because in most cases LookAt goes directly to the message explanation.

You can use LookAt from these locations to find IBM message explanations for z/OS elements and features, z/VM®, z/VSE, and Clusters for AIX® and Linux®:

- The Internet. You can access IBM message explanations directly from the LookAt Web site at [www.ibm.com/servers/eserver/zseries/zos/bkserv/lookat/](http://www.ibm.com/servers/eserver/zseries/zos/bkserv/lookat/).
- Your z/OS TSO/E host system. You can install code on your z/OS systems to access IBM message explanations using LookAt from a TSO/E command line (for example: TSO/E prompt, ISPF, or z/OS UNIX® System Services).
- Your Microsoft® Windows® workstation. You can install LookAt directly from the *z/OS and Software Products DVD Collection* (SK3T-4271) and use it from the

resulting Windows graphical user interface (GUI). The command prompt (also known as the DOS > command line) version can still be used from the directory in which you install the Windows version of LookAt.

- Your wireless handheld device. You can use the LookAt Mobile Edition from [www.ibm.com/servers/eserver/zseries/zos/bkserv/lookat/lookatm.html](http://www.ibm.com/servers/eserver/zseries/zos/bkserv/lookat/lookatm.html) with a handheld device that has wireless access and an Internet browser.

You can obtain code to install LookAt on your host system or Microsoft Windows workstation from:

- The *z/OS and Software Products DVD Collection (SK3T-4271)*.
- The LookAt Web site (click **Download** and then select the platform, release, collection, and location that suit your needs). More information is available in the LOOKAT.ME files available during the download process.

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## The z/OS Basic Skills Information Center

The z/OS Basic Skills Information Center is a Web-based information resource intended to help users learn the basic concepts of z/OS, the operating system that runs most of the IBM mainframe computers in use today. The Information Center is designed to introduce a new generation of Information Technology professionals to basic concepts and help them prepare for a career as a z/OS professional, such as a z/OS system programmer.

Specifically, the z/OS Basic Skills Information Center is intended to achieve the following objectives:

- Provide basic education and information about z/OS without charge
- Shorten the time it takes for people to become productive on the mainframe
- Make it easier for new people to learn z/OS.

To access the z/OS Basic Skills Information Center, open your Web browser to the following Web site, which is available to all users (no login required):  
<http://publib.boulder.ibm.com/infocenter/zosInctr/v1r7/index.jsp>



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# Summary of changes

This topic summarizes the changes made to this document.

## **Summary of changes for SA22-7505-16 z/OS Version 1 Release 12**

This document contains information previously presented in SA22-7505-15, which supports z/OS Version 1 Release 11.

### **New information:**

- Interfaces that are new in z/OS V1R12 have been added to the individual element and feature interface tables in Part 1, “Summary of interface changes.” New messages for z/OS V1R12 have been added to Part 2, “Summary of message changes” and are listed under the “New” category.

### **Changed information:**

- Interfaces that have changed in z/OS V1R12 have been added to the individual element and feature interface tables in Part 1, “Summary of interface changes.” Changed and deleted messages for z/OS V1R12 have been added to Part 2, “Summary of message changes” and are listed under the “Changed” and “Deleted” categories.

### **Deleted information:**

- Interfaces and messages that were added or changed in z/OS V1R10 have been removed from this document.

## **Summary of changes for SA22-7505-15 z/OS Version 1 Release 11**

This document contains information previously presented in SA22-7505-14, which supports z/OS Version 1 Release 10.

### **New information:**

- Interfaces that are new in z/OS Release 11 have been added to the individual element and feature interface tables in Part 1, “Summary of interface changes.” New messages for z/OS Release 11 have been added to Part 2, “Summary of message changes” and are listed under the “New” category.

### **Changed information:**

- Interfaces that have changed in z/OS Release 11 have been added to the individual element and feature interface tables in Part 1, “Summary of interface changes.” Changed and deleted messages for Release 11 have been added to Part 2, “Summary of message changes” and are listed under the “Changed” and “Deleted” categories.

### **Deleted information:**

- Interfaces and messages that were added or changed in z/OS V1R9 have been removed from this document.

## **Summary of changes for SA22-7505-14 z/OS Version 1 Release 10**

This document contains information previously presented in SA22-7505-13, which supports z/OS Version 1 Release 10.

**New information:**

- Interfaces that are new in z/OS V1R11 have been added to the individual element and feature interface tables in Part 1, “Summary of interface changes.” New messages for z/OS V1R11 have been added to Part 2, “Summary of message changes” and are listed under the “New” category.

**Changed information:**

- Interfaces that have changed in z/OS V1R11 have been added to the individual element and feature interface tables in Part 1, “Summary of interface changes.” Changed and deleted messages for z/OS V1R11 have been added to Part 2, “Summary of message changes” and are listed under the “Changed” and “Deleted” categories.

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## Part 1. Summary of interface changes



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## Chapter 1. Introduction

Part 1 describes the new and changed interfaces for z/OS V1R12 and z/OS V1R11 elements and features. All interface changes are in element-specific and feature-specific chapters.

Selected system-level data set (SYS1) interfaces have been aggregated in:

- Chapter 2, “Summary of changes to SYS1.MACLIB,” on page 5
- Chapter 3, “Summary of changes to SYS1.PARMLIB,” on page 7
- Chapter 4, “Summary of changes to SYS1.PROCLIB,” on page 11
- Chapter 5, “Summary of changes to SYS1.SAMPLIB,” on page 13



## Chapter 2. Summary of changes to SYS1.MACLIB

Table 1 lists the new and changed members of SYS1.MACLIB.

Table 1. Summary of new and changed members in SYS1.MACLIB

Member	Element or feature	Release	Description	Reason for change
EZASMF77	Communications Server	z/OS V1R12	<b>Changed member:</b> Increased the maximum number of sections for the TCP/IP profile SMF 119 subtype 4 record to include the new IPv6 default address selection policy table information.	Configurable default address selection policy table
		z/OS V1R12	<b>Changed member:</b> Provides programming mappings for the new CSSMTP SMF 119 records (subtypes 48 - 52).	Management data for CSSMTP
		z/OS V1R12	<b>Changed member:</b> Provides programming mappings for the new SMF 119 records (subtypes 32 - 37) for DVIPA events.	SMF event records for sysplex events
		z/OS V1R11	<b>Changed member:</b> Provides program mappings for the new TLSV1.1 SSL protocol level and the new FIPS 140 support.	AT-TLS enhancements
		z/OS V1R11	<b>Changed member:</b> Provides programming mappings for the new SMF 119 TCP/IP profile event record (subtype 4).	Stack configuration data
		z/OS V1R11	<b>Changed member:</b> Provides new information to IPsec SMF record mappings.	IPsec enhancements
IKJTSVT	TSO/E	z/OS V1R11	<b>Changed member:</b> Adds new flag bit for the new TSO/E PARMLIB option LOGONHERE to TSVTFLG1 flag byte.	Release update
INMTEXTU	TSO/E	z/OS V1R11	<b>Changed member:</b> Adds new text unit called INMEATTR.	Release update
IRXPAMB	TSO/E	z/OS V1R11	<b>Changed member:</b> Adds new flag bits ROSTORFL and ROSTORFL_MASK to support the read-only version of the REXX STORAGE function.	Release update





## Chapter 3. Summary of changes to SYS1.PARMLIB

Table 2 lists the new and changed members of SYS1.PARMLIB.

Table 2. Summary of new and changed SYS1.PARMLIB members

Member	Element or feature	Release	Description	Reason for change
ALLOCxx	BCP	z/OS V1R11	<p><b>New Statement:</b> Use the new statement SYSTEM to specify the system defaults.</p> <ul style="list-style-type: none"> <li>Use the new option IEFBR14_DELMIGDS(LEGACYINORECALL) to specify the policy on whether to recall a migrated data set when you use an IEFBR14 JCL program with DD DISP=(x,DELETE) to delete the data set.</li> <li>Use the new option TAPELIB_PREF(EQUALIBYDEVICES) to specify the policy on balancing non-specific tape library requests across multiple tape libraries.</li> <li>Use the new option REMIND_INTV to specify the number of seconds for how often the message IEF882E/IEF883E is displayed, letting an operator know of an outstanding IEF238D/IEF433D/IEF434D.</li> </ul>	Release update
AXRxx	BCP	z/OS V1R11	<p><b>New member:</b> AXRxx is a member of SYS1.SAMPLIB, from where it can be copied to SYS1.PARMLIB when installation changes to default settings are required.</p>	Release update
BLSCUSER	BCP	z/OS V1R11	<p><b>New statement:</b> Use keyword PROCEDURE as an alternative data definition to keyword FORMAT that specifies the designated data type. FORMAT and PROCEDURE are mutually-exclusive keywords.</p>	Release update
BPXPRMxx	z/OS UNIX	z/OS V1R11	<p><b>New statement:</b> The sysplex root file system can be dynamically replaced with the alternate root file system if ALTROOT is specified.</p>	Release enhancement
	z/OS UNIX	z/OS V1R12	<p><b>Updated statement:</b> For AF_UNIX, the value for the MAXSOCKETS keyword does not need to be specified because a maximum value of 10,000 has been set. As a result, MAXSOCKETS will be ignored on a z/OS V1R12 system.</p>	Release update
CEAPRMxx	BCP	z/OS V1R11	<p><b>New member:</b> Use the CEAPRMxx parmlib member to customize common event adapter (CEA) values.</p>	Function enhancement
CLOCKxx	BCP	z/OS V1R11	<p><b>Changed paramter:</b></p> <ul style="list-style-type: none"> <li>Configurations that support ETRMODE NO are XCF-Local mode and Monoplex mode.</li> </ul>	Release update

## SYS1.PARMLIB

Table 2. Summary of new and changed SYS1.PARMLIB members (continued)

Member	Element or feature	Release	Description	Reason for change
COUPLExx	BCP	z/OS V1R11	<p><b>Changed parameter:</b></p> <ul style="list-style-type: none"> <li>The INTERVAL value should be no more than twice the default value (the derived spin failure detection interval) if you specify the INTERVAL value explicitly.</li> <li>The OPNOTIFY value must either be greater than or equal to the specified INTERVAL value for an absolute value, or be the sum of the effective failure detection interval plus the relative OPNOTIFY value for a relative value.</li> </ul>	Release update
DEVSUPxx	BCP	z/OS V1R11	<p><b>New parameter:</b> Use REFVTOC to specify if Device Manager should cause the volume VTOC to be rebuilt when a volume expansion is detected.</p>	Release update
EZAIPCSP	Communications Server	z/OS V1R11	<p><b>Changed member:</b> Formatting support for the EZBTWLM structure is no longer supported.</p>	Removal of support
	Communications Server	z/OS V1R11	<p><b>Changed member:</b> Formatting support added for Resolver Caching control blocks.</p>	Resolver DNS cache
IEAOPTxx	BCP	z/OS V1R12	<p><b>New parameter:</b></p> <p>The new ManageNonEnclaveWork parameter allows you to specify whether non-enclave transaction work of queue servers and enclave servers is to be managed or not. The default is NO.</p>	Release update
IEASYSxx	BCP	z/OS V1R11	<p><b>New parameters:</b></p> <p>Use the ZAAPZIIP parameter to determine whether the system can run zAAP processor eligible work on zIIP processors when no zAAP processors are installed on the system.</p>	Release update
IGDSMSxx	DFSMSdfp	z/OS V1R12	<p><b>New parameter:</b></p> <p>The CA_RECLAIM parameter enables or disables the CA reclaim function for the system. When enabled, CA reclaim causes empty CA space be reclaimed automatically for key-sequenced data sets.<b>Changed parameters:</b></p> <p>New TRACE and VOLSELMSG subparameters of the TYPE, TRACE, and JOBNAME parameters let you specify that the parameters apply to either the VOLSELMSG or SMS TRACE facility, not to both facilities as in previous releases.</p>	Release update
		z/OS V1R11	<p><b>Updated parameter:</b></p> <p>For striping allocations, fast volume selection is automatically activated regardless of the specification of the FAST_VOLSEL parameter.</p>	Release update

Table 2. Summary of new and changed SYS1.PARMLIB members (continued)

Member	Element or feature	Release	Description	Reason for change
IKJTSOxx	TSO/E	z/OS V1R11	<b>New parameter:</b> LOGONHERE(ON) allows users to RECONNECT to their TSO/E session, even when the system does not detect a disconnected state and the user appears to be logged on. The default setting is ON.	Release update
IPCSPRnn	BCP	z/OS V1R11	<b>Changed member:</b> Multiple keywords will be ignored since IPCS problem management is withdrawn.	Release update
ISFPRMxx	SDSF	z/OS V1R11	<b>Changed member:</b> An SYSID3 keyword on the GROUP statement specifies the default system ID (member) to be used for the SYSLOG in a JES3 environment.	Release update
ISFPRMxx or ISFPARMS	SDSF	z/OS V1R12	<b>Changed member:</b> New CKHFLDS and CKHFLD2 parameters of the ISGRP macro or GROUP statement define customized lists of columns on the CK history panel.	Release update
	SDSF	z/OS V1R11	<b>Changed member:</b> The CONFIRM parameter of the ISGRP macro or GROUP statement now accepts ALWAYS, which prevents users from disabling confirmation.	Release update
	SDSF	z/OS V1R11	<b>Changed member:</b> Adds new columns to the variable field lists for several panels. Variable field lists can be customized with the FLD statements or ISFFLD macros of the GROUP statement or ISFGRP macro.	Release update
MSGFLDxx	BCP	z/OS V1R11	<b>Changed member:</b> For the MSGFLDxx parmlib member (message flood automation parameters), you can use national characters to specify the two characters xx.	Release update
SCHEDxx	BCP	z/OS V1R11	<b>Changed member:</b> Updated parameters: <ul style="list-style-type: none"> <li>• CSFINIT</li> <li>• IATINXM</li> </ul>	Release update
SMFPRMxx	BCP	z/OS V1R11	<b>Changed parameter:</b> You can use the MAXDORM parameter to specify the amount of real time that SMF allows data to remain in an SMF buffer before it is written to a recording data set or a log stream.	Release update



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## Chapter 4. Summary of changes to SYS1.PROCLIB

There is no updates for SYS1.PROCLIB in z/OS V1R12 and z/OS V1R11.



## Chapter 5. Summary of changes to SYS1.SAMPLIB

Table 3 lists the new and changed members of SYS1.SAMPLIB.

Table 3. Summary of new and changed SYS1.SAMPLIB members

Member	Element or feature	Release	Description	Reason for change
IKJTSO00	RACF®	z/OS V1R11	<b>Updated:</b> Added new command, RACMAP, to RACPARM.	Identity Propagation
	TSO/E	z/OS V1R11	<b>Changed member:</b> Adds RACMAP to AUTHCMD.	Release update
			<b>Changed member:</b> Deletes invalid TCP/IP commands from AUTHCMD.	OA24668
IRRADULD	RACF	z/OS V1R12	<b>Updated:</b> Information added for table USER01.RPKIGENC.	Elliptic curve cryptography (ECC) support
	RACF	z/OS V1R11	<ul style="list-style-type: none"> <li><b>Updated:</b> Information added for new event code, 86 (56) R_PgmSignVer.</li> <li><b>Changed member:</b> Updated to define load statement for new AUTOPROF table.</li> <li><b>Changed member:</b> Updated to support PKI key generation.</li> </ul>	<ul style="list-style-type: none"> <li>Program signing and verification support</li> <li>Automatic UID/GID Assignment in Callable Services</li> <li>PKI Key Generation</li> </ul>
IRRADUTB	RACF	z/OS V1R12	<b>Updated:</b> Information added for table USER01.RPKIGENC.	Elliptic curve cryptography (ECC) support
	RACF	z/OS V1R11	<ul style="list-style-type: none"> <li><b>Updated:</b> Information added for new event code, 86 (56) R_PgmSignVer.</li> <li><b>Changed member:</b> Updated to define new AUTOPROF table.</li> <li><b>Changed member:</b> Updated to support PKI key generation.</li> </ul>	<ul style="list-style-type: none"> <li>Program signing and verification support</li> <li>Automatic UID/GID Assignment in Callable Services</li> <li>PKI Key Generation</li> </ul>
IRRSCHM	RACF	z/OS V1R11	<ul style="list-style-type: none"> <li><b>Updated:</b> Information added for the XML schema for the new event code, 86 (56) R_PgmSignVer.</li> <li><b>Updated:</b> Defined new XML tags modService, modClass, modProf, modData.</li> </ul>	<ul style="list-style-type: none"> <li>Program signing and verification support</li> <li>Automatic UID/GID Assignment in Callable Services</li> </ul>
IRXREXX1	TSO/E	z/OS V1R11	<b>Changed member:</b> Adds new flag bits ROSTORFL and ROSTORFL_MASK to support the read-only version of the REXX STORAGE function.	Release update
IRXREXX2	TSO/E	z/OS V1R11	<b>Changed member:</b> Adds new flag bits ROSTORFL and ROSTORFL_MASK to support the read-only version of the REXX STORAGE function.	Release update
IRXREXX3	TSO/E	z/OS V1R11	<b>Changed member:</b> Adds new flag bits ROSTORFL and ROSTORFL_MASK to support the read-only version of the REXX STORAGE function.	Release update
IRXTSMPE	TSO/E	z/OS V1R11	<b>Changed member:</b> Updates comments with right number of default REXX environments, 401 not 40.	Release update

## SYS1.SAMPLIB

Table 3. Summary of new and changed SYS1.SAMPLIB members (continued)

Member	Element or feature	Release	Description	Reason for change
RACDBULB	RACF	z/OS V1R11	<b>Updated:</b> Added information for ICSF segment for general resource profiles.	ICSF segment for general resource profiles support
RACDBULD	RACF	z/OS V1R12	<b>Updated:</b> Added information for ICSF.	ICSF encrypted symmetric keys support
	RACF	z/OS V1R11	<b>Updated:</b> Added information for the new SIGVER segment.	Program signing and verification support
RACDBUTB	RACF	z/OS V1R12	<b>Updated:</b> Added information for ICSF.	ICSF encrypted symmetric keys support
	RACF	z/OS V1R11	<ul style="list-style-type: none"> <li>• <b>Updated:</b> Added information for ICSF segment for general resource profiles.</li> <li>• <b>Updated:</b> Added information for the new SIGVER segment.</li> </ul>	<ul style="list-style-type: none"> <li>• ICSF segment for general resource profiles support</li> <li>• Program signing and verification support</li> </ul>
SPPACK	BCP	Every release	<b>Changed member:</b> Maintenance.	Release update



## Chapter 6. BCP summary of interface changes

In addition to the interface changes included in this topic, updates to the BCP resulted in SYS1.PARMLIB and SYS1.SAMPLIB member changes. See Chapter 3, “Summary of changes to SYS1.PARMLIB,” on page 7 and Chapter 5, “Summary of changes to SYS1.SAMPLIB,” on page 13 for those changes.

The BCP interfaces described in this topic are:

- “Callable services for high-level languages” on page 15
- “Installation exits” on page 16
- “Control blocks” on page 18
- “IPCS Subcommands” on page 19
- “Services and macros” on page 21
- “Messages” on page 20
- “SMF records” on page 30
- “System commands” on page 31

### Callable services for high-level languages

Table 4 lists the new and changed callable services.

There are many different documents in the z/OS library that contain BCP callable services. You can find detailed information for a particular macro in *z/OS MVS Programming: Callable Services for High-Level Languages*.

Table 4. Summary of new and changed BCP callable services

Callable service name	Release	Description	Reason for change
HWICMD	z/OS V1R12	<b>New:</b> Power savings mode	Release update
	z/OS V1R12	<b>Changed:</b> Updated parameters	
	z/OS V1R10	<b>New:</b> Call the HWICMD service to issue a Base Control Program internal interface (BCPii) Hardware Management Command.	
HWICONN	z/OS V1R11	<b>Changed:</b> The HWICONN service is updated to provide the activation profile support.	Release update
	z/OS V1R10	<b>New:</b> Call the HWICONN service to establish a logical connection between the application and a central processor complex (CPC), a CPC image (LPC), or a capacity record.	Release update
HWIDISC	z/OS V1R11	<b>Changed:</b> The HWIDISC service is updated to provide the activation profile support.	Release update
	z/OS V1R10	<b>New:</b> Call the HWIDISC service to release the logical connection between the application and the identified CPC, image, or capacity record.	Release update
HWIEVENT	z/OS V1R12	<b>New:</b> Power savings mode	Release update
	z/OS V1R10	<b>New:</b> Call the HWIEVENT service to register for BCPii events or delete the registration.	

## BCP

Table 4. Summary of new and changed BCP callable services (continued)

Callable service name	Release	Description	Reason for change
HWILIST	z/OS V1R11	<b>Changed:</b> The HWILIST service is updated to provide the activation profile support.	Release update
	z/OS V1R10	<b>New:</b> Call the HWILIST service to retrieve hardware management console (HMC) and BCPii configuration-related information.	Release update
HWIQUERY	z/OS V1R12	<b>New:</b> Power savings mode	Release update
	z/OS V1R11	<b>Changed:</b> The HWIQUERY service is updated to provide the activation profile support.	
	z/OS V1R10	<b>New:</b> Call the HWIQUERY service to retrieve information about objects managed by the support element (SE) or HMC related with CPCs, images, or capacity records.	
HWISET	z/OS V1R11	<b>New:</b> Call the HWISET service to change or set various CPC, image (LPAR), and activation profile attributes.	Release update
HWIBeginEventDelivery	z/OS V1R10	<b>New:</b> Call the HWIBeginEventDelivery service to allow a C application running in the UNIX System Services (USS) environment to begin delivery of event notifications.	Release update
HWIEndEventDelivery	z/OS V1R10	<b>New:</b> Call the HWIEndEventDelivery service to allow a C application running in the UNIX System Services (USS) environment to end delivery of event notifications.	Release update
HWIGetEvent	z/OS V1R10	<b>New:</b> Call the HWIGetEvent service to allow a C application running in the UNIX System Services (USS) environment to retrieve outstanding BCPii event notifications.	Release update
HWIManageEvents	z/OS V1R10	<b>New:</b> Call the HWIManageEvents service to allow a C application running in the UNIX System Services (USS) environment to manage the list of events for which the application is to be notified.	Release update
IRARMCTZ	z/OS V1R12	<b>New:</b> An extension of IRARMCT to accommodate RMF users.	Release update

---

## Installation exits

Table 5 lists the new and changed installation exits. You can find detailed information for a particular installation exit in *z/OS MVS Installation Exits*.

Table 5. Summary of new and changed BCP installation exits

Installation exit	Release	Description	Reason for change
CNZ_MSIEXIT	z/OS V1R12	<b>New:</b> New installation exit	Release update

Table 5. Summary of new and changed BCP installation exits (continued)

Installation exit	Release	Description	Reason for change
CSVLLIX1	z/OS V1R12	<b>Changed:</b> <ul style="list-style-type: none"> <li>Updated to include a description of controlling the exit routine through the dynamic exits facility</li> <li>Added recovery routine</li> </ul>	Release update
	z/OS V1R12	<b>Deleted:</b> Removed information about replacing an exit.	
CSVLLIX2	z/OS V1R12	<b>Changed:</b> <ul style="list-style-type: none"> <li>Updated to include a description of controlling the exit routine through the dynamic exits facility</li> <li>Added recovery routine</li> </ul>	Release update
	z/OS V1R12	<b>Deleted:</b> Removed information about replacing an exit.	
IEALIMIT	z/OS V1R11	<b>Changed:</b> Update the description of the MVS default system behavior for starting jobs when the available region is less than the REGION size requested in the JCL.	Release update
IEAVMXIT	z/OS V1R10	<b>New:</b> Integrate the existing IEAVMXIT with the message flood automation, or invoke the message flood automation from IEAVMXIT.	Release update
IEF_ALLC_EVENT	z/OS V1R12	<b>New:</b> New installation exit	Release update
IEFUJV	z/OS V1R12	<b>Changed:</b> Updated parameter descriptions	Release update
IEFUSI	z/OS V1R12	<b>Changed:</b> Updated parameter descriptions	Release update
ISGCNFXITSYSLEX	z/OS V1R11	<b>Changed:</b> More information about the contention event is provided. For details, see the parameter list in the ISGYCNFP data area.	Release update
ISGCNFXITSYSTEM	z/OS V1R11	<b>Changed:</b> More information about the contention event is provided. For details, see the parameter list in the ISGYCNFP data area.	Release update
ISGENDOFLQCB	z/OS V1R10	<b>Changed:</b> The exit routine environment is changed with an EUT FRR recovery as the only recovery type.	Release update
ISGNQXITBATCH	z/OS V1R10	<b>Changed:</b> The exit routine environment is changed with an EUT FRR recovery as the only recovery type.	Release update
ISGNQXITPREBATCH	z/OS V1R10	<b>Changed:</b> The exit routine environment is changed with an EUT FRR recovery as the recommended recovery type.	Release update
ISGNQXITQUEUED1	z/OS V1R10	<b>Changed:</b> The exit routine environment is changed with an EUT FRR recovery as the only recovery type.	Release update
ISGNQXITQUEUED2	z/OS V1R11	<b>New:</b> Add the new exit which indicates whether any of the ENQs are in contention and whether the ENQs can be used to gather requester context information.	Release update

## Control blocks

There have been no new or changed control blocks.

- For information about new and deleted BCP control blocks, see the Data Areas Web site.

Before using a control block as part of a programming interface, verify that you are using it as intended.

## Possible actions resulting from changed control blocks

If you have a program that is using a mapping macro, a change to the mapping macro might require one of the following actions:

- **Reassemble the program:** To accommodate the change, simply reassemble the program.
- **Rewrite the program:** To accommodate the change, rewrite the program. This can be necessary if fields were moved, or changed their meaning or use.
- **Use a supported service instead of the mapping macro:** Use a supported service (such as a macro or callable service) to obtain the needed information.

Make sure to test your applications in the new release before going to production.

## A method for finding changes to MVS control blocks

When you order z/OS, IBM supplies data sets containing the mapping macros for many control blocks. After SMP/E RECEIVE processing, the new mapping macros are in the SMPTLIB data sets. After SMP/E APPLY processing, the new mapping macros are in the target libraries.

To find mapping macros for MVS™ control blocks, look in the MODGEN, MACLIB, and ATSOMAC libraries. Mapping macros for JES2, VTAM®, and other elements and products might be in the same libraries, or in other libraries specific to the element or product.

You might want to use ISPF's SuperCE (Compare data sets Extended) dialog, which has the following advantages:

- You can concatenate several data sets together for both the old and the new data.
- You can specify a set of SELECT statements that name the mapping macros you are interested in. Make sure to specify the name of the mapping macro. This is not always the same as the control block name. For example, to check for changes to the PSA, compare old and new copies of the IHAPSA mapping macro.

This method works better if the old data has the same level of service as the system from which you are migrating.

## IPCS Subcommands

Table 6 lists the new and updated IPCS subcommands. See *z/OS MVS IPCS Commands* and *z/OS MVS System Commands* for more information.

Table 6. Summary of new and changed MVS IPCS subcommands

IPCS subcommand	Release	Description	Reason for change
CBFORMAT	z/OS V1R11	<b>New option:</b> CBFORMAT subcommand is updated with clarifications of FORMAT and MODEL parameters.	Service aids enhancements
COPYDDIR	z/OS V1R10	<b>New option:</b> COPYDDIR subcommand can import records from or export records to a RECFM=VB data set.	Service aids enhancements
COPYDUMP	z/OS V1R10	<b>New option:</b> COPYDUMP subcommand supports new filtering options: JOBLIST, and EASYCOPY.	Service aids enhancements
GRSDATA	z/OS V1R10	<b>New option:</b> GRSDATA subcommand supports new data selection parameters and additional filtering parameters.	Service aids enhancements
SETDEF	z/OS V1R11	<b>Deleted option:</b> The SETDEF subcommand no longer supports the PROBLEM and NOPROBLEM keywords.	Service aids enhancements
STATUS	z/OS V1R11	<b>New option:</b> A new line about SNAPTRC is added to the STATUS WORKSHEET report.	Service aids enhancements
SYSTRACE	z/OS V1R12	<b>New option:</b> A new set of report type parameters.	Service aids enhancements
VERBEXIT GRSTRACE	z/OS V1R10	<b>New option:</b> VERBEXIT GRSTRACE subcommand is updated to support multiple parameters.	Service aids enhancements
VERBEXIT IEAVTSFS	z/OS V1R12	<b>New option:</b> The COMP parameter is updated.	Service aids enhancements
VERBEXIT LEDATA	z/OS V1R12	<b>New option:</b> There are updates to SVC dump measurements and statistics report.	Service aids enhancements
IPCS problem management subcommands	z/OS V1R11	<b>Deleted command:</b> The IPCS problem management subcommands are removed from z/OS.	Service aids enhancements

## JCL parameters

You can find complete information about JCL in the following publications:

- *z/OS MVS JCL User's Guide*
- *z/OS MVS JCL Reference*

Beginning with z/OS V1R12 the following parameters are updated:

- DISP
- DSNAME
- JESLOG
- KEYLABEL1
- KEYLABEL2
- SYSOUT

Additional topics from *z/OS MVS JCL User's Guide* include:

- A new section describing factors to consider when selecting a tape device.
- Updated instructions explaining how to use SDSF to view the output from a job.

As of z/OS V1R11, you can use the EATTR parameter to indicate whether the data set can support extended attributes (format 8 and 9 DSCBs) or not. You can specify SMSHONOR to ask the system to honor the device number or group-name and allocate to the device number or group-name specified in the case of an SMS tape library request.

As of z/OS V1R10, if you specify the DATACLAS parameter on the JCL DD statement, and the data class explicitly specifies the OVERRIDE SPACE(YES) attribute, the following attributes specified on the data class will overwrite the corresponding parameters in the JCL DD statement:

- LIKE
- RFDD
- SPACE

---

## Messages

Information on new, changed and deleted messages is necessary to migrate automated operations. Information about new, changed, and deleted BCP messages can be found in Part 2, "Summary of message changes," on page 265.

### A method for finding changes to MVS and TSO/E message texts

Automation routines are sensitive to changes to message text between releases. You can find changes to message texts in the following places:

- Part 2, "Summary of message changes," on page 265. This section is useful when you go from one release to the next.
- Data set SYS1.MSGENU. This data set contains information to help you identify changes to message texts more accurately. This method allows you to find message text changes between your current release and whatever release you choose to migrate to. This method is described below.

#### Using SYS1.MSGENU to find message text changes

IBM supplies a data set containing the text of system messages that are translated. This data set, called SYS1.MSGENU, contains the text of system messages in the form of message skeletons. (For more information, see *z/OS MVS Planning: Operations*, SA22-7601.

Note that this method will not show changes to:

- MVS system messages that are not translated, such as IPL and NIP messages (which are issued before the MVS message service is available)
- Other product messages that are not translated, such as DFSMS/MVS messages, and JES3 messages.
- For JES2 messages, use the appropriate SYS1.VnRnMn.SHASMENU data set.

Also, this method works better if the old copy of SYS1.VnRnMn.SHASMENU has the same level of service as the system from which you are migrating.

Once you have installed the OS/390® Release 4 or higher level of the data set you are comparing, you can compare the new data set with the data set on the system from which you are migrating. Depending on how you do the comparison, you can get output like the following.

For new messages, the output might show an I (for insert) on the left:

```
I - IEA403I VALUE OF RMAX HAS BEEN CHANGED TO 99
```

For messages whose text has changed, the output might show both an I and a D, indicating that a record in the message has been replaced:

```
I - IEE162I 46 &NNN ROLL &A MESSAGES (DEL=R OR RD)
D - IEE162I 46 &NNN ROLL &A MESSAGES (DEL=R, RD)
```

This means that, in message IEE1621, (DEL=R, RD) was replaced by (DEL=R OR RD).

Using this information, you can decide if your automation routines need to be changed.

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## Services and macros

Table 7 lists the new and updated macros. See the following books for more detailed information:

- *z/OS MVS Programming: Authorized Assembler Services Reference ALE-DYN*
- *z/OS MVS Programming: Authorized Assembler Services Reference EDT-IXG*
- *z/OS MVS Programming: Authorized Assembler Services Reference LLA-SDU*
- *z/OS MVS Programming: Authorized Assembler Services Reference SET-WTO*
- *z/OS MVS Programming: Assembler Services Reference ABE-HSP*
- *z/OS MVS Programming: Assembler Services Reference IAR-XCT*
- *z/OS MVS Programming: Sysplex Services Reference*
- *z/OS MVS Programming: Workload Management Services*
- *z/OS MVS Programming: Resource Recovery*

Table 7. Summary of new and changed MVS macros

Macro	Release	Description	Reason for change
ATRSRV	z/OS V1R10	<b>New return and reason codes:</b> <ul style="list-style-type: none"> <li>• 26–ATRSRV_UR_Not_In_Forget</li> <li>• 27–ATRSRV_NOT_server_DSRM</li> </ul>	Release update
ATTACHX	z/OS V1R12	The description of the PARAM and PLIST8ARALETs parameters under the ATTACHX macro is updated.	Release update
AXREXX	z/OS V1R11	<b>New options:</b> <ul style="list-style-type: none"> <li>• REQUEST=GETREXXLIB</li> <li>• REXXLIB</li> <li>• REXXLIBLEN</li> </ul> <b>New reason code:</b> New reason code for return code X'0C'.	Release update
	z/OS V1R10	<b>New reason codes:</b> New reason codes for return code X'08'.	Release update
BCPii	z/OS V1R10	BCPii is a new chapter for the base control program (BCP) internal interface services.	Release update
CNZCONV	z/OS V1R10	<b>New statement:</b> Do not use console names LOGON and LOGOFF for the macro.	Release update

Table 7. Summary of new and changed MVS macros (continued)

Macro	Release	Description	Reason for change
CNZQUERY	z/OS V1R12	<b>Updated reason codes:</b> <ul style="list-style-type: none"> <li>Reason codes 0804</li> <li>Reason codes 0807</li> </ul>	Release update
CONVCON	z/OS V1R10	<b>New statement:</b> Do not use console names LOGON and LOGOFF for the macro.	Release update
CSVLYLPA	z/OS V1R12	<b>New option parameters:</b> <ul style="list-style-type: none"> <li>REQUEST contains new parameters</li> </ul> <b>New reason codes</b> <ul style="list-style-type: none"> <li>0841</li> <li>0842</li> <li>0843</li> <li>0848</li> </ul>	Release update
	z/OS V1R11	<b>New options:</b> <ul style="list-style-type: none"> <li>When REQUEST=ADD, use BYPATH to indicate whether the module was fetched from a z/OS UNIX executable file that is specified as a fully qualified path name.</li> <li>When REQUEST=ADD, use UCBADDR to specify the UCB address for the volume on which the first extent of the data set that contains the module exists.</li> <li>When REQUEST=ADD, use CCHH to specify the CC and HH values associated with the first extent of the data set that contains the module.</li> <li>When REQUEST=ADD, use PATHNAMELEN to specify the length of the path name that the PATHNAME parameter can provide.</li> <li>When REQUEST=ADD, use PATHNAME to indicate the fully qualified path name of the file from which the module was fetched.</li> <li>When REQUEST=DELETE, use TYPE=VALUE to indicate that the processing depends on the value provided by the TYPEVALUE parameter.</li> <li>When REQUEST=DELETE, use TYPEVALUE to indicate the TYPE value.</li> </ul>	Release update



Table 7. Summary of new and changed MVS macros (continued)

Macro	Release	Description	Reason for change
CSVVDYNEX	z/OS V1R12	<b>New options:</b> <ul style="list-style-type: none"> <li>• REPLACE</li> <li>• Dynamic Exits Services <ul style="list-style-type: none"> <li>– Add an Exit Routine to an Exit: MESSAGE=FOUNDBUTERROR, PARAM</li> <li>– Define an Exit: EXITTYPE</li> </ul> </li> </ul> <b>Updated reason codes</b> <ul style="list-style-type: none"> <li>• 0</li> <li>• 0402</li> <li>• 080F</li> <li>• 0819</li> <li>• 081C</li> <li>• 0822</li> <li>• 0823</li> <li>• 0827</li> <li>• 0829</li> <li>• 082A</li> <li>• 082E</li> </ul>	Release update
CSVVDYNL	z/OS V1R12	<b>Updated reason codes</b> <ul style="list-style-type: none"> <li>• 0806</li> <li>• 080D</li> <li>• 0820</li> <li>• 0821</li> <li>• 083B</li> <li>• 0842</li> </ul>	Release update
CSVRTLS	z/OS V1R12	<b>Deleted function:</b> <ul style="list-style-type: none"> <li>• The RTLS function is withdrawn.</li> <li>• References to RTLS and "Using CSVRTLS to Request Run-Time Library Services (RTLS) are deleted.</li> </ul>	Release update
ENFREQ	z/OS V1R10	<b>New keyword:</b> DISABLE	Release update
		<b>New event code:</b> 68	Release update
ESTAEX	z/OS V1R12	<b>New parameter:</b> <ul style="list-style-type: none"> <li>• SPIEOVERRIDE</li> </ul>	Release update
GETMAIN	z/OS V1R10	<b>Changed statements:</b> Generally, if you omit the CONTBDY parameter, there is no containing boundary. However, if the GETMAIN is for SQA or LSQA, and is for less than 4KB, and StartBdy is specified, the default of CONTBDY is set to 12, ensuring that the GETMAIN stays within a 4K page boundary.	Release update
GQSCAN	z/OS V1R12	<b>Performance implications:</b> RNAME gives better performance than using generic prefix.	Release update
IARCP64	z/OS V1R10	<b>New function:</b> The IARCP64 macro allows the user to request 64-bit cell pool services.	Release update

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Table 7. Summary of new and changed MVS macros (continued)

Macro	Release	Description	Reason for change
IARST64	z/OS V1R10	<b>New macro:</b> The IARST64 macro allows the user to request 64-bit storage services.	Release update
IARV64	z/OS V1R10	<b>New options:</b> <ul style="list-style-type: none"> <li>• REQUEST=PROTECT to requests that data within one or more memory objects be made read-only.</li> <li>• REQUEST=UNPROTECT to protect pages or segments within 64-bit private or 64-bit common memory objects.</li> </ul>	Release update
		<b>Updated options:</b> <ul style="list-style-type: none"> <li>• REQUEST=GETSTOR option</li> <li>• REQUEST=PAGEFIX option</li> <li>• REQUEST=CHANGEGUARD option</li> <li>• REQUEST=LIST option</li> <li>• REQUEST=DETACH option</li> <li>• REQUEST=CHANGEACCESS option</li> <li>• REQUEST=GETCOMMON option</li> </ul>	Release update
IARVserv	z/OS V1R12	<b>Updated options:</b> <ul style="list-style-type: none"> <li>• The source area must not contain pages in the nucleus (read-only, extended read-only, read-write and extended read-write areas).</li> </ul>	Release update
IEAMSchD	z/OS V1R10	<b>Deleted parameter:</b> CPUMASK	Release update
IEATEDS	z/OS V1R12	<b>New:</b> Provides Timed Event Data Services.	Release update
IEAVAPE2	z/OS V1R12	<b>New:</b> The support of the Version 2 IEAVAPE callable service.	Release update
IEAVDPE2	z/OS V1R12	<b>New:</b> The support of the Version 2 IEAVDPE callable service.	Release update
IEAVPSE2	z/OS V1R12	<b>New:</b> The support of the Version 2 IEAVPSE callable service.	Release update
IEAVRLS2	z/OS V1R12	<b>New:</b> The support of the Version 2 IEAVRLS callable service.	Release update
IEAVRPI2	z/OS V1R12	<b>New:</b> The support of the Version 2 IEAVRPI callable service.	Release update
IEAVTPE2	z/OS V1R12	<b>New:</b> The support of the Version 2 IEAVTPE callable service.	Release update
IEAVXFR2	z/OS V1R12	<b>New:</b> The support of the Version 2 IEAVXFR callable service.	Release update
IEA4APE	z/OS V1R11	<b>New:</b> The support of the 64-bit AMODE IEAVAPE callable service.	Release update
IEA4APE2	z/OS V1R12	<b>New:</b> The support of the Version 2 IEA4APE callable service.	Release update
IEA4DPE	z/OS V1R11	<b>New:</b> The support of the 64-bit AMODE IEAVDPE callable service.	Release update
IEA4DPE2	z/OS V1R12	<b>New:</b> The support of the Version 2 IEA4DPE callable service.	Release update
IEA4PSE	z/OS V1R11	<b>New:</b> The support of the 64-bit AMODE IEAVPSE callable service.	Release update

Table 7. Summary of new and changed MVS macros (continued)

Macro	Release	Description	Reason for change
IEA4PSE2	z/OS V1R12	<b>New:</b> The support of the Version 2 IEA4PSE callable service.	Release update
IEA4RLS	z/OS V1R11	<b>New:</b> The support of the 64-bit AMODE IEAVRLS callable service.	Release update
IEA4RLS2	z/OS V1R12	<b>New:</b> The support of the Version 2 IEA4RLS callable service.	Release update
IEA4RPI	z/OS V1R11	<b>New:</b> The support of the 64-bit AMODE IEAVRPI callable service.	Release update
IEA4RPI2	z/OS V1R12	<b>New:</b> The support of the Version 2 IEA4RPI callable service.	Release update
IEA4TPE	z/OS V1R11	<b>New:</b> The support of the 64-bit AMODE IEAVTPE callable service.	Release update
IEA4TPE2	z/OS V1R12	<b>New:</b> The support of the Version 2 IEA4TPE callable service.	Release update
IEA4XFR	z/OS V1R11	<b>New:</b> The support of the 64-bit AMODE IEAVXFR callable service.	Release update
IEA4XFR2	z/OS V1R12	<b>New:</b> The support of the Version 2 IEA4XFR callable service.	Release update
IOCINFO	z/OS V1R10	<b>New function:</b> The IOCINFO macro can be used to obtain the information about the I/O facilities that are supported and enabled by the hardware and software.	Release update
IOSCDR	z/OS V1R12	<b>New parameter:</b> <ul style="list-style-type: none"> <li>Worldwide Port Name (WWPN) parameter</li> </ul>	Release update
IOSCHPD	z/OS V1R12	<b>New parameter:</b> <ul style="list-style-type: none"> <li>WWPN parameter</li> </ul>	Release update
IOSFSDSP	z/OS V1R12	<b>New function:</b> Use to obtain information about configuration and device characteristics for storage devices for the HyperSwap configuration.	Release update
IOSSPOF	z/OS V1R11	<b>Changed:</b> The SPOFAREA is obtained by the service and must be released by the caller using the length and subpool specified in the SPOFAREA.	Release update
	z/OS V1R10	<b>New function:</b> The IOSSPOF macro is used to check for I/O configuration redundancy of DASD devices or pairs of DASD devices.	Release update
IOSZHPF	z/OS V1R12	<b>New:</b> Provides information about the zHPF capabilities of a device from the processor and channel subsystem point of view.	Release update
ISGECA	z/OS V1R10	<b>Changed statement:</b> The Programming Requirements for ISGECA macro is updated.	Release update

Table 7. Summary of new and changed MVS macros (continued)

Macro	Release	Description	Reason for change
ISGENQ	z/OS V1R10	<b>New optional parameter:</b> USERDATA - When TEST=NO and REQUEST=OBTAIN are specified, an optional input parameter that contains the userdata to be associated with this request.	Release update
		<b>Changed statements:</b> <ul style="list-style-type: none"> <li>The description of the QNAME</li> <li>The descriptions of the RNAME</li> </ul>	Release update
ISGQUERY	z/OS V1R12	<b>Performance implications:</b> RNAME gives better performance than using generic prefix.	Release update
		<b>Updated parameters:</b> <ul style="list-style-type: none"> <li>ECB@</li> <li>TEST</li> </ul>	
	z/OS V1R10	<b>New parameters:</b> <ul style="list-style-type: none"> <li>ANSDETAIL=FULL3</li> <li>USERDATA</li> <li>USERDATALEN</li> <li>USERDATAMATCH</li> </ul>	
IWMDINST	z/OS V1R10	<b>Changed WLM macro:</b> <ul style="list-style-type: none"> <li>New TYPE=HEXIXML parameter allows to install a service definition which is provided in XML format.</li> </ul>	Release update
IWMDEXTR	z/OS V1R10	<b>Changed WLM macro:</b> <ul style="list-style-type: none"> <li>The new TYPE=HEXIXML parameter allows to install a service definition which is provided in XML format.</li> </ul>	Release update
IWMSRSRS	z/OS V1R11	<b>Changed WLM macro:</b> <ul style="list-style-type: none"> <li>New METHOD=PROPORTIONALIEQUICPU parameter which selects the method for computing the output weights. The default is METHOD=PROPORTIONAL</li> <li>New COST_ZAAP_ON_CP parameter which is used in conjunction with METHOD=EQUICPU. It describes the additional cost of executing zAAP-eligible work on a CPU instead of on a zAAP processor.</li> <li>New COST_ZIIP_ON_CP parameter which is used in conjunction with METHOD=EQUICPU. It describes the additional cost of executing zIIP-eligible work on a CPU instead of on a zIIP processor.</li> <li>New PLISTVER=2 parameter which specifies the version of the macro.</li> </ul>	Release update
IWMWRCAA	z/OS V1R10	<b>Changed WLM macro:</b> The enhancement allows to map the output data area from the IWMRCOLL service.	Release update

Table 7. Summary of new and changed MVS macros (continued)

Macro	Release	Description	Reason for change
IWM4CON	z/OS V1R11	<b>Changed WLM macro:</b> <ul style="list-style-type: none"> <li>New REGION_TOKEN parameter (when SERVER_MANAGER=YES is specified), an optional 16-character output parameter, which contains a region token</li> <li>New PLISTVER=1 parameter which specifies the version of the macro.</li> </ul>	Release update
IWM4ECRE	z/OS V1R11	<b>Changed WLM macro:</b> <ul style="list-style-type: none"> <li>The new TYPE=WORKDEPENDENT keyword defines that SRM considers the enclave to be a continuation of the creating unit of work's (TCB or SRB) transaction.</li> </ul>	APAR OA26104 update
IWM4MCHS	z/OS V1R10	<b>Changed WLM macro:</b> This service is enhanced to accept generic delay types TYPE6-TYPE15.	Release update
IWM4MGDD	z/OS V1R10	<b>New WLM macro:</b> With this service, subsystems can define descriptions for their generic delay states.	Release update
IWM4SRSC	z/OS V1R11	<b>Changed WLM macro:</b> <ul style="list-style-type: none"> <li>New METHOD=PROPORTIONALIEQUICPU parameter which selects the method for computing the output weights. The default is METHOD=PROPORTIONAL</li> <li>New COST_ZAAP_ON_CP parameter which is used in conjunction with METHOD=EQUICPU. It describes the additional cost of executing ZAAP-eligible work on a CPU instead of on a ZAAP processor.</li> <li>New COST_ZIIP_ON_CP parameter which is used in conjunction with METHOD=EQUICPU. It describes the additional cost of executing ZIIP-eligible work on a CPU instead of on a ZIIP processor.</li> <li>New MAXEQUIVUNITS parameter, an optional output parameter, which contains the maximum equivalent service units across all processing resources used to calculate the mixed weight output.</li> <li>New IL_WEIGHTING parameter, an optional input parameter, which controls how WLM evaluates available capacity at importance levels (ILs) lower than the currently selected one.</li> <li>New PLISTVER=4 parameter which specifies the version of the macro.</li> </ul>	Release update
IXCJOIN	z/OS V1R12	<b>New parameters:</b> The IXCJOIN macro supports new parameters: CRITICAL, FUNCTION, LOCALCLEANUP, RECOVERYMANAGER, and TERMLEVEL.	Release update

Table 7. Summary of new and changed MVS macros (continued)

Macro	Release	Description	Reason for change
IXCMMSGIX	z/OS V1R12	<b>New macro:</b> The IXCMMSGIX macro is the successor of IXCMMSGI.	Release update
IXCMMSGOX	z/OS V1R12	<b>New macro:</b> The IXCMMSGOX macro is the successor of IXCMMSGO.	Release update
IXCQUERY	z/OS V1R11	<b>New parameter:</b> The new IPLTOKEN= <i>ipltoken</i> parameter to specify a storage area to contain the IPL token of the MVS system where the IXCQUERY macro was issued.	Release update
IXGBRWSE	z/OS V1R11	<b>New option:</b> VIEW=NO_VIEW for the parameter VIEW in REQUEST=START.	Release update
IXGINVNT	z/OS V1R12	<b>New option:</b> When updating an existing log stream configuration, the GROUP attribute must be taken into account.	Release update
	z/OS V1R10	<b>Changed parameter:</b> Updates have been made to the following keywords and parameter combinations when DASDONLY=YES is specified: <ul style="list-style-type: none"> <li>• STG_DUPLEX(YES)</li> <li>• DUPLEXMODE(UNCOND)</li> <li>• LOGGERDUPLEX(UNCOND)</li> </ul>	
IXGWRITE	z/OS V1R12	<b>Updated reason code:</b> <ul style="list-style-type: none"> <li>• 0867 for return code X'08'</li> </ul>	Release update
IXLCONN	z/OS V1R12	<b>New parameters:</b> The IXLCONN macro supports new parameters: CRITICAL, FUNCTION, and TERMLEVEL.	Release update
	z/OS V1R11	<b>Changed reason code:</b> Updates have been made to the reason code X'xxxx088E' for return code X'8'.	
IXLCSP	z/OS V1R12	<b>Changed:</b> For the IXLCSP service, neither ELEMENTRATIO nor ELEMENTCOUNT can be specified as zero with LISTCNTLTYPE=ELEMENT.	Release update
	z/OS V1R11	<b>Changed reason code:</b> Updates have been made to reason code X'xxxx088E' for return code X'8'.	
IXLREBLD	z/OS V1R12	<b>Changed:</b> The documentation for the behavior related to DUPLEX(ENABLED) is updated.	Release update
	z/OS V1R11	<b>New reason code:</b> New reason code X'xxxx0C88' for return code X'C'.	
IXLSYNCH	z/OS V1R10	<b>New parameter:</b> The new parameter MODEVAL specifies how the request should be processed if it cannot be serviced immediately.	Release update

Table 7. Summary of new and changed MVS macros (continued)

Macro	Release	Description	Reason for change
LOAD	z/OS V1R12	<b>Update:</b> Register information is updated	Release update
	z/OS V1R11	<b>New parameters:</b> ADDR64, ADRNAPF6, and PLISTVER	
	z/OS V1R10	<b>Changed statements:</b> For the GLOBAL parameter, when the module is to be loaded into CSA, the module must not have been previously loaded with different attributes by the same job step, the module must also be reentrant and must reside in an APF-authorized library.	Release update
MCSOPER	z/OS V1R12	<b>Updated parameter:</b> • REQUEST	Release update
NIL	z/OS V1R10	<b>Changed statements:</b> ASC mode for NIL is now primary or access register (AR).	Release update
NMLDEF	z/OS V1R11	<b>New statement:</b> The naming convention for CEST name.	Release update
OIL	z/OS V1R10	<b>Changed statements:</b> ASC mode for OIL is now primary or access register (AR).	Release update
SDUMP and SDUMPX	z/OS V1R12	<b>Updated parameter:</b> • PSWREGS	Release update
	z/OS V1R11	<b>New return code:</b> 46 for the reason code 08  <b>Changed:</b> The Q=YESINO setting for the CHNGDUMP command overrides the QUIESCE parameter in SDUMP and SDUMPX services.	Release update
STIMERM	z/OS V1R10	<b>Changed statements:</b> Up to 128 STIMERMs is supported from an authorized caller.	Release update
STORAGE	z/OS V1R10	<b>Changed statements:</b> APF-authorization for is allowed for STORAGE OBTAIN and STORAGE RELEASE.	Release update
SYSEVENT	z/OS V1R12	<b>Updated parameter:</b> • TYPE	Release update
	z/OS V1R12	<b>Changed statements:</b> • SYSEVENT Mnemonics	
TIMEUSED	z/OS V1R12	<b>Performance implications:</b> Guidance for using TIMEUSED LINKAGE=SYSTEM without the CPU and VECTOR parameters.	Release update
UCBLOOK	z/OS V1R10	<b>New parameters:</b> New SPECIAL keyword that specifies whether the UCB can be found (SPECIAL=YES) or cannot (SPECIAL=NO).	Release update

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Table 7. Summary of new and changed MVS macros (continued)

Macro	Release	Description	Reason for change
UCBSCAN	z/OS V1R10	<b>New parameters:</b> New SPECIAL keyword that specifies whether the UCB can be found (SPECIAL=YES) or cannot (SPECIAL=NO). SPECIAL=ONLY is only used to scan for special devices.	Release update
		<b>Changed statements:</b> <ul style="list-style-type: none"> <li>UCBPAREA is required if SUBCHANNELSET=ALL is specified.</li> <li>If you specify DEVCID, only UCBs of the particular device class specified will be presented, and the DEVCLASS parameter is ignored.</li> </ul>	Release update
WTO	z/OS V1R10	<b>Changed statements:</b> The maximum lines of a multi-line message is 65533, if you attempt to send more than 65533 total lines, an ABEND X'D23' , reason code X'0051' occurs.	Release update

## SMF records

Table 8 lists the new and updated SMF records. See *z/OS MVS System Management Facilities (SMF)* for more detailed information.

Table 8. Summary of new and changed BCP SMF records

SMF record	Release	Description	Reason for change
Type 0	z/OS V1R11	<b>New field:</b> SMF0TZ	Release update
Type 7	z/OS V1R12	<b>Multiple updates</b>	Release update
Type 14	z/OS V1R11	<b>Multiple updates</b>	Release update
	z/OS V1R10	<b>New flags:</b> The new SMF14/15 flags that aid in finding programs that issue a Non-EXCP OPEN and issue EXCP or XDAP.	Release update
Type 18	z/OS V1R10	<b>Multiple updates</b>	Release update
Type 19	z/OS V1R10	<b>Multiple updates</b>	Release update
Type 21	z/OS V1R10	<b>New fields:</b> SMF21DBR and SMF21DBW in the Header/Self-defining Section.	Release update
Type 23	z/OS V1R11	<b>New fields</b> in SMF Statistics Section.	
	z/OS V1R10	<b>Multiple updates</b>	Release update
Type 30 (Common Address Space Work)	z/OS V1R12	<b>Multiple updates</b>	Release update
	z/OS V1R11	<b>Multiple updates</b>	
	z/OS V1R10	<b>Multiple updates</b>	
Type 38	z/OS V1R10	Update and clarify the subtype descriptions for record type 38.	Release update



Table 8. Summary of new and changed BCP SMF records (continued)

SMF record	Release	Description	Reason for change
Type 42	z/OS V1R12	<b>Multiple updates</b>	Release update
	z/OS V1R10	<b>New subtypes:</b> <ul style="list-style-type: none"> <li>• Subtype 22</li> <li>• Subtype 23</li> <li>• Subtype 24</li> <li>• Subtype 25</li> </ul>	
		<b>Updated:</b> Subtypes 15 and 16	Release update
Type 64	z/OS V1R12	<b>Multiple updates</b>	Release update
Type 70	z/OS V1R12	<b>Multiple updates</b>	Release update
	z/OS V1R10	<b>Multiple updates</b>	
Type 72	z/OS V1R12	<b>Multiple updates</b>	Release update
Type 73	z/OS V1R10	<b>Multiple updates</b>	Release update
Type 79	z/OS V1R10	<b>Multiple updates</b>	Release update
Type 82	z/OS V1R12	<b>Multiple updates</b>	Release update
Type 84	z/OS V1R11	<b>Multiple updates</b>	Release update
Type 89	z/OS V1R12	<b>Multiple updates</b>	Release update
Type 90	z/OS V1R12	<b>New subtypes:</b> 33 and 34	Release update
Type 92	z/OS V1R11	<b>New subtype:</b> 15	Release update
Type 99 (System Resource Manager Decisions)	z/OS V1R12	<b>New offsets:</b> Period data section 1A0 - 1B0 of subtype 2	Release update
	z/OS V1R11	<b>New subtypes:</b> 13 and 14.	
	z/OS V1R10	<b>Multiple updates</b>	
Type 113	z/OS V1R10	<b>New record type:</b> The system uses type 113 to record hardware capacity, reporting, and statistics for IBM System z10® or later machines.	Release update

## System commands

Table 9 lists the new and updated MVS system commands. See *z/OS MVS System Commands* for more detailed information.

Table 9. Summary of new and changed MVS System Commands

System Command	Release	Description	Reason for change
CHNGDUMP	z/OS V1R12	<b>New option:</b> DEFERTND	Release update
	z/OS V1R11	<b>New option:</b> CHNGDUMP subcommand supports new parameters: SDUMP,MAXSNDSP and SDUMP,AUXMGMT.	
CMDS	z/OS V1R12	<b>Guidance:</b> Use extra caution when using CMDS ABEND because early abnormal termination of an executing command can potentially cause the need for a system or sysplex-wide re-IPL.	Release update
	z/OS V1R10	<b>New option:</b> CMDS DUMP command schedules a dump for Master's and Console's address space.	

Table 9. Summary of new and changed MVS System Commands (continued)

System Command	Release	Description	Reason for change
DEVSERV	z/OS V1R12	<b>New option:</b> DDR	Release update
	z/OS V1R10	<ul style="list-style-type: none"> <li>• <b>New option:</b> DEVSERV QLIB command supports a new parameter CATS.</li> <li>• <b>New option:</b> DEVSERV QDASD command supports a new parameter ATTRIBUTE.</li> </ul>	
DISPLAY	z/OS V1R12	<p><b>New options:</b></p> <ul style="list-style-type: none"> <li>• DISPLAY AUTOR command displays the current auto-reply policy and the current WTORs being monitored by auto-reply processing.</li> <li>• DISPLAY IOS,CUGRP command displays information about IOS control unit groups.</li> <li>• DISPLAY IPLINFO command supports new options: <ul style="list-style-type: none"> <li>– D IPLINFO,sysparm displays the value specified or defaulted for any system parameter within IEASYSxx.</li> <li>– D IPLINFO,sysparm,STATE displays the state associated with a system parameter. This command is only supported for ZIIPZAAP or its alias ZZ.</li> </ul> </li> <li>• DISPLAY PROG,DEFAULTS command displays default settings applied to the PROGxx LNKLST and LPA statement, to the SETPROG LNKLST and SETPROG LPA commands, and to the DISPLAY PROG,EXIT command.</li> <li>• DISPLAY PROG,EXIT command supports new options: INSTALLATION, PROGRAM, and NOTPROGRAM.</li> <li>• DISPLAY RRS command supports new options: <ul style="list-style-type: none"> <li>– D RRS,URSTATUS displays unit of recovery information statistics.</li> <li>– D RRS,UREXCEPTION display unit of recovery information for URs that are in exceptions.</li> <li>– D RRS,UR,FAMILY displays the units of recovery in the cascaded transaction specified.</li> </ul> </li> <li>• DISPLAY SYMBOLS,SUMMARY command displays summary information about the static system symbols currently in use with message IEA994I.</li> <li>• DISPLAY XCF,REALLOCATE,REPORT   TEST command displays information about the REALLOCATE process.</li> </ul>	Release update

Table 9. Summary of new and changed MVS System Commands (continued)

System Command	Release	Description	Reason for change
DISPLAY	z/OS V1R11	<ul style="list-style-type: none"> <li>• <b>New option:</b> DISPLAY ALLOC, GRPLOCKS command displays information about the current Device Allocation group locks that are being held.</li> <li>• <b>New option:</b> DISPLAY ALLOC, OPTIONS command displays the current MVS Device Allocation settings that are in use or the system defaults.</li> <li>• <b>New option:</b> DISPLAY GRS, ANALYZE, LATCH displays information about GRS latch contention.</li> <li>• <b>New option:</b> DISPLAY IKJTSO command supports a new parameter LOGON.</li> </ul>	Release update
DISPLAY	z/OS V1R10	<ul style="list-style-type: none"> <li>• <b>New option:</b> DISPLAY OPDATA,MODE command displays the status of migration.</li> <li>• <b>New option:</b> DISPLAY SMS,CFLS command supports two new options: ALL or lockstructurename.</li> <li>• <b>New option:</b> DISPLAY SMS,{PDSE I PDSE1},HSPSTATS command displays PDSE cache information.</li> <li>• <b>New option:</b> DISPLAY U,[TAPE],UNAVAILABLE[,devno] command displays the unavailable devices.</li> <li>• <b>New option:</b> DISPLAY HIS command displays the hardware event data collection status for the hardware instrumentation services (HIS)</li> </ul>	Release update
MODIFY	z/OS V1R12	<ul style="list-style-type: none"> <li>• <b>New option:</b> MODIFY WLM,ZGPA command can be used to start, stop and modify options of the Guest Performance Agent manually.</li> <li>• <b>New option:</b> MODIFY hisproc,STATECHANGE command can be used to take specific action when a significant change to the system is detected.</li> </ul>	Release update
MODIFY	z/OS V1R11	<ul style="list-style-type: none"> <li>• <b>New option:</b> MODIFY OMVS command supports a new parameter COND=FORCE.</li> <li>• <b>New option:</b> MODIFY AXR command supports a new parameter REXXLIB.</li> <li>• <b>New command:</b> MODIFY CEA,CEA= command is supported to redrive the CEAPRMxx parmlib member for various parameter changes and corrections without taking down CEA.</li> <li>• <b>New command:</b> MODIFY CEA,DIAG,COMPTABLE command is supported to refresh the CEA component table as part of correcting an internal problem.</li> <li>• <b>New command:</b> MODIFY CEA,DIAG,REXXDEBUG= command is supported to manage CEA REXX exec tracing.</li> <li>• <b>New command:</b> F CEA,DROIPCS command is supported to forcibly disconnect the CEA instrumentation from the IPCS sysplex dump directory data set.</li> </ul>	Release update

## BCP

Table 9. Summary of new and changed MVS System Commands (continued)

System Command	Release	Description	Reason for change
MODIFY	z/OS V1R10	<ul style="list-style-type: none"> <li><b>New option:</b> MODIFY CEA,CEA= command redrives the CEAPRMxx parmlib member processing without taking down CEA.</li> <li><b>New option:</b> MODIFY CEA,DIAG,COMPTABLE command refreshes the CEA component table information.</li> <li><b>New option:</b> MODIFY CEA,DIAG,REXXDEBUG= command manages CEA REXX exec tracing.</li> <li><b>New option:</b> MODIFY OMVS,NEWROOT= command replaces the sysplex root file system in the shared file system configuration.</li> <li><b>New option:</b> MODIFY <i>hisproc</i> command starts, configures, and stops the event data collection.</li> </ul>	Release update
SET	z/OS V1R12	<p><b>New option:</b> AUTOrxx</p> <p><b>New option:</b> CLEAR</p>	Release update
SETALLOC	z/OS V1R12	<p><b>New options:</b></p> <ul style="list-style-type: none"> <li>TEMPDSFORM=UNIQUE   INCLUDELABEL</li> <li>VERIFY_UNCAT=FAIL   TRACK   MSGTRACK</li> <li>MEMDSENQMGMT=ENABLE   DISABLE</li> </ul>	Release update
	z/OS V1R11	<b>New command:</b> SETALLOC command dynamically modifies Device Allocation settings.	
SETAUTOR	z/OS V1R12	<b>New command:</b> Use this command to deactivate auto-reply processing or to stop monitoring a current outstanding WTOR.	Release update
SETCEE	z/OS V1R12	<b>New option:</b> CLEAR clears all the system level default run-time options and keywords set by the SETCEE or SET CEE commands.	Release update
SETCON	z/OS V1R10	<b>New command:</b> SETCON MODE command dynamically migrates from the shared mode and distributed mode of console service.	Release update
SETHS	z/OS V1R11	<b>New option:</b> SETHS command supports a new RESUMEIO parameter to resume normal I/O activity to all DASD devices.	Release update
SETMF	z/OS V1R11	<b>Deleted option:</b> The Message Flood Automation SETMF FREE command is removed because the function is no longer necessary.	Release update
SETPROG	z/OS V1R12	<p><b>New options:</b></p> <ul style="list-style-type: none"> <li>EXIT,REPLACE</li> <li>EXIT,ADD,PARAM</li> <li>SVCNUMDEC</li> <li>ADDALIAS   NOADDALIAS</li> </ul>	Release update
SETRRS	z/OS V1R10	<b>New command:</b> SETRRS ARCHIVELOGGING command allows to disable and enable RRS archive logging on a given system.	Release update
SETSMF	z/OS V1R12	<b>New option:</b> FLOOD option can enable or disable the SMF record flood automation facility.	Release update

Table 9. Summary of new and changed MVS System Commands (continued)

System Command	Release	Description	Reason for change
SETSMS	z/OS V1R12	<ul style="list-style-type: none"> <li>• <b>New option:</b> use CA_RECLAIM to override the specifications of the keyword CA_RECLAIM in IGDSMSxx and data classes.</li> <li>• <b>New option:</b> ASID, JOBNAME and TYPE can specify different settings using optional sub-parameters for TRACE and VOLSELMSG facilities.</li> </ul>	Release update
SETXCF	z/OS V1R12	<b>New option:</b> Use ALTER,STRNAME=stname,SIZE=size[u] to specify the unit for the structure size.	Release update
	z/OS V1R11	<b>New option:</b> SETXCF FUNCTIONS command enables or disables optional functions provided by the XCF and XES components of z/OS.	
	z/OS V1R10	<b>New option:</b> SETXCF FUNCTIONS command enables or disables optional functions provided by the XCF and XES components of z/OS.	APAR OA25130
START	z/OS V1R10	<ul style="list-style-type: none"> <li>• <b>New option:</b> START <i>hisproc</i> command starts the hardware instrumentation services (HIS).</li> <li>• <b>New option:</b> START HWISTART command restarts the base control program internal interface (BCPii) address space.</li> </ul>	Release update
STOP	z/OS V1R10	<ul style="list-style-type: none"> <li>• <b>New option:</b> STOP <i>hisproc</i> command stops the hardware instrumentation services (HIS).</li> <li>• <b>New option:</b> STOP HWIBCPii command shuts down the Base Control Program internal interface (BCPii) address space.</li> </ul>	Release update
VARY	z/OS V1R10	<ul style="list-style-type: none"> <li>• <b>New option:</b> VARY devspec,AVALIABLEIUNAVAILABLE command marks the specified device as available or unavailable for allocation.</li> <li>• <b>New option:</b> VARY SMS,CFLS(lockstructurename),QUIESEIENABLE command allows to quiesce or enable usage of a VSAM RLS secondary lock structures.</li> <li>• <b>New option:</b> VARY XCF command supports two new options: REIPL and SADMP.</li> </ul>	Release update



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## Chapter 7. CIM summary of interface changes

This chapter describes the Common Information Model (CIM) interface changes.

For more detailed information, see *z/OS Common Information Model User's Guide*.

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### Tracing modifications

With z/OS 1.11, the CIM server allows tracing to memory. The tracing memory buffer is included in memory dumps and allows efficient troubleshooting in case of errors. Tracing to memory is the new default.

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### Configuration properties

Table 10 lists the new and changed CIM configuration properties.

*Table 10. Summary of new and changed configuration properties*

Property	Release	Description	Reason for change
slp	V1R11	The new default for <b>slp</b> is <code>false</code> . If the SLP service is required for CIM, you now have to turn it on explicitly by setting this configuration property to <code>true</code> .	Release update
traceFacility	V1R11	Specifies the destination of tracing messages	Release update
traceMemoryBufferKbytes	V1R11	Specifies the size of the memory area which is reserved for tracing messages	Release update
traceFilePath	V1R11	Specifies the fully qualified file which saves the trace data	Release update

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### Command-line utilities

Table 11 lists the new CIM command-line utilities that you can use to control or change the CIM server environment.

*Table 11. Summary of new CIM command-line utilities*

Command name	Release	Description	Reason for change
MODIFY	V1R10	<b>New console command:</b> Lets you manage the CIM server configuration from the console like with the <code>cimconfig</code> command-line utility.	Release update

## CIM

Table 11. Summary of new CIM command-line utilities (continued)

Command name	Release	Description	Reason for change
cimcli	V1R12	<b>Modification:</b> <ul style="list-style-type: none"><li>• The new function <i>modifyInstance</i> allows the modification of an instance residing in the repository.</li><li>• The new function <i>testInstance</i> allows value testing of an instance.</li><li>• The function <i>createInstance</i> now allows to specify array values.</li><li>• A new syntax for instance names for <i>enumerateInstances</i> allows the specification of array values.</li><li>• New options have been implemented:<ul style="list-style-type: none"><li>-ic sets the includeClassOrigin parameter to true</li><li>-sort sorts the output</li></ul></li><li>• The option -ip for the function invokeMethod has become obsolete.</li></ul>	Release update

## Supported profiles

Table 12 lists the new profiles supported by CIM.

Table 12. Summary of new CIM-supported profiles

Property	Release	Description	Reason for change
Host Discovered Resources (HDR) profile	V1R12	The SMI-S profile Host Discovered Resources (HDR) defines the model for the storage devices presented to z/OS.	Release update
Storage Host Bus Adapter (HBA) profile	V1R12	The SMI-S profile Storage Host-Bus-Adapter (HBA) represents the manageable elements of an HBA and optionally, the storage connected to it.	Release update

## CIM classes

Table 13 lists the new CIM classes.

Table 13. Summary of new CIM classes

Property	Release	Description	Reason for change
IBMzOS_FCPort	V1R12	Defines the capabilities and management of a Fiber Channel Port device on z/OS.	Release update
IBMzOS_FCPortStatistics	V1R12	Defines the statistics for the FCPort on z/OS.	Release update
IBMzOS_PortController	V1R12	Represents a logical device corresponding to a hardware network port controller on z/OS.	Release update
IBMzOS_Product	V1R12	Aggregates PhysicalElements, software, services or other products on z/OS.	Release update
IBMzOS_SBProtocolEndpoint	V1R12	Represents initiator and target protocol endpoints.	Release update
IBMzOS_SoftwareIdentity	V1R12	Provides descriptive information about a software component.	Release update



Table 13. Summary of new CIM classes (continued)

Property	Release	Description	Reason for change
Association IBMzOS_ControlledBy	V1R12	Indicates which devices such as IBMzOS_FCPort are controlled by a CIM_Controller such as IBMzOS_PortController on z/OS.	Release update
Association IBMzOS_CSFCPort	V1R12	Associates an <b>IBMzOS_ComputerSystem</b> with an <b>IBMzOS_FCPort</b> .	Release update
Association IBMzOS_ CSFCPortController	V1R12	Associates an <b>IBMzOS_ComputerSystem</b> with an <b>IBMzOS_FCPort</b> .	Release update
Association IBMzOS_ ElementSoftwareIdentity	V1R12	Allows a Managed Element such as an IBMzOS_PortController to report its software related asset information on z/OS.	Release update
Association IBMzOS_ FCPortStatisticalData	V1R12	Associates an <b>IBMzOS_FCPort</b> with <b>IBMzOS_FCPortStatistics</b> .	Release update
Association IBMzOS_ InstalledSoftwareIdentity	V1R12	Identifies the system on which a SoftwareIdentity is installed.	Release update
Association IBMzOS_ ProductElement Component	V1R12	Associates an <b>IBMzOS_Product</b> with <b>IBMzOS_PortController</b> .	Release update
Association IBMzOS_ SBDeviceSAP Implementation	V1R12	Describes an association between a ServiceAccessPoint (SAP) and how it is implemented.	Release update
Association IBMzOS_ SBHostedAccessPoint	V1R12	Associates a Service Access Point and the System on which it is provided.	Release update
Association IBMzOS_ SBInitiatorTarget LogicalUnitPath	V1R12	Models a host driver path to a logical unit on z/OS. Associates a logical disk with the protocol endpoints on a storage controller and zCEC.	Release update



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## Chapter 8. Communications Server summary of interface changes

In addition to the interface changes included in this chapter, updates to Communications Server resulted in SYS1.PARMLIB and to SYS1.MACLIB member changes. Refer to *z/OS Communications Server: IP Configuration Reference* for more detailed information.

The Communications Server interface changes described in this chapter are:

- “Communications Server IP summary of interface changes”
- “Communications Server SNA summary of interface changes” on page 104

The tables in this chapter contain a "Reason for change" column that provides the name of the topic in *z/OS Communications Server: New Function Summary* that describes the related functional enhancement.

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### Communications Server IP summary of interface changes

This section describes the updates to the following Communications Server IP interfaces:

- “Configuration files” on page 42 (other than PROFILE.TCPIP)
  - “General updates for the non-PROFILE.TCPIP IP configuration files” on page 42
  - “FTP server configuration statements” on page 49
  - “FTP client configuration statements” on page 49
  - “TN3270E Telnet server PROFILE configuration file” on page 49
    - “TELNETGLOBALS information block” on page 50
    - “TELNETPARMS information block” on page 50
    - “BEGINVTAM information block” on page 50
- “PROFILE.TCPIP configuration file” on page 50
  - “PROFILE.TCPIP statement and parameter changes” on page 51
- “Operator commands” on page 53
  - “General updates of IP operator commands” on page 54
  - “Netstat operator commands (DISPLAY TCPIP,,NETSTAT)” on page 55
  - “TN3270E Telnet server operator commands” on page 60
- “TSO commands” on page 60
  - “General updates of TSO commands” on page 60
  - “NETSTAT TSO commands” on page 61
  - “FTP TSO and UNIX commands” on page 65
    - “FTP subcommands” on page 65
- “UNIX commands” on page 67
  - “General updates of IP UNIX commands” on page 67
  - “netstat UNIX commands” on page 72
- “Environment variables” on page 77
- “Applications” on page 77
- “APIs” on page 78
  - “Local IPsec NMI” on page 78
  - “Network security services (NSS) NMI” on page 81
  - “Real-time network monitoring TCP/IP NMI” on page 84
  - “Packet and data trace formatting NMI” on page 87
  - “TCP/IP callable NMI (EZBNMIFR)” on page 87
  - “FTP client API” on page 89
- “Socket APIs” on page 90
  - “General updates of socket APIs” on page 90

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- “User exits” on page 92
- “Application data” on page 92
- “IPCS subcommands” on page 93
  - “General updates to IPCS subcommands” on page 93
  - “CTRACE COMP(SYSTCPIP) subcommand” on page 93
  - “CTRACE COMP(SYSTCPIS) subcommand” on page 93
  - “TCPIPCS subcommand” on page 94
- “SNMP MIB modules” on page 95
- “SMF record type 109 enhancements” on page 96
- “SMF record type 119 enhancements” on page 97
  - “FTP records” on page 97
  - “IPSec records” on page 98
  - “TCP connection records” on page 100
  - “TCP/IP stack records” on page 100
- “CICS socket configuration and operator transactions” on page 103
- “RACF interfaces” on page 103

## Configuration files

Table 14 lists the general updates for the Communications Server IP configuration files. This section also contains the following:

- Table 15 on page 49, “FTP server configuration statements”
- Table 16 on page 49, “FTP client configuration statements”
- “TN3270E Telnet server PROFILE configuration file” on page 49

The Communications Server IP PROFILE.TCPIP configuration file updates are in a separate section; see “PROFILE.TCPIP configuration file” on page 50.

See *z/OS Communications Server: IP Configuration Reference* for more detailed information about all of the Communications Server IP configuration files and statements.

### General updates for the non-PROFILE.TCPIP IP configuration files

Table 14 lists the general updates for the Communications Server IP configuration files.

Table 14. Summary of new and changed non-PROFILE.TCPIP configuration files

File	Statement	Release	Description	Reason for change
BINLSD configuration file	N/A	V1R11	Configuration file that can be deleted. It was used by the BINLSD application, which is no longer supported. The default file name is /etc/binlsd.cfg.	Removal of support
certificate bundle specification file	CertBundleOptions	V1R12	New file to identify the location of certificates and certificate revocation that is to be included in a certificate bundle.	<ul style="list-style-type: none"> <li>• IPSec support for certificate trust chains and certificate revocation lists</li> <li>• IKE version 2 support</li> </ul>
Communications Server SMTP (CSSMTP) configuration file	SMF119	V1R12	New statement to activate the creation of new SMF 119 records, as shown by the ezam1cnf.sample.	Management data for CSSMTP
	N/A	V1R11	Configuration file for the new Communications Server SMTP application.	New SMTP client for sending Internet mail
dhcpsd configuration file	N/A	V1R11	Configuration file that can be deleted. It was used by the dhcpsd application, which is no longer supported. The default file name is /etc/dhcpsd.cfg.	Removal of support

Table 14. Summary of new and changed non-PROFILE.TCPIP configuration files (continued)

File	Statement	Release	Description	Reason for change
IKED configuration file	DataRetries	V1R11	Now ignored.	IPSec enhancements
	DataWait	V1R11	Now ignored.	IPSec enhancements
	IkeConfig	V1R12	New FIPS140 parameter.	IPSec support for FIPS 140 cryptographic mode
	IkeInItWait	V1R11	New parameter that indicates how long to wait before the first retransmission of any given IKE message.	IPSec enhancements
	IkeRetries	V1R11	New parameter that indicates how many times a given IKE message is to be retransmitted before considering the exchange failed.	IPSec enhancements
	KeyRetries	V1R11	Now ignored.	IPSec enhancements
	KeyWait	V1R11	Now ignored.	IPSec enhancements
inetd configuration file (/etc/inetd.conf file)	N/A	V1R11	When you log onto the z/OS UNIX Telnet server (otelnets), a new banner page is added called /etc/otelnets.banner. If this banner file exists and -h is not set in the /etc/inetd.conf file, the banner page will be displayed prior to the login prompt when you connect to the server.	Customizable pre-logout banner for otelnets
named4 configuration files	N/A	V1R11	Configuration files that can be deleted. They were used by the name4 application, which is no longer supported. The default file names are: <ul style="list-style-type: none"> <li>• /etc/caching.boot</li> <li>• /etc/named.boot</li> <li>• /etc/slave.boot</li> </ul>	Removal of support
Network security services (NSS) server configuration file /etc/security/nssd	IPSecDisciplineConfig	V1R12	New statement used to specify parameters for the IPSec Discipline.	<ul style="list-style-type: none"> <li>• IPSec support for certificate trust chains and certificate revocation lists</li> <li>• IKE version 2 support</li> <li>• IPSec support for FIPS 140 cryptographic mode</li> </ul>

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Table 14. Summary of new and changed non-PROFILE.TCPIP configuration files (continued)

File	Statement	Release	Description	Reason for change
Policy Agent configuration files	File used to configure the Policy Agent.			
	IpFilterPolicy	V1R12	The RFC4301Compliance parameter is deprecated for V1R12 and later releases.	Release update
	AutoMonitorApps	V1R11	New statement used to specify a set of applications to be automatically started, stopped, and monitored by the Policy Agent.	Policy infrastructure management enhancements
	AutoMonitorParms	V1R11	New statement used to specify parameters that control how the Policy Agent monitors applications for automatic starting and stopping.	Policy infrastructure management enhancements
	Codepage	V1R11	New statement used to specify the EBCDIC codepage to be used for all configuration files and policy definition files.	Policy infrastructure management enhancements
	IPDataOffer	V1R12	The following parameters are changed: <ul style="list-style-type: none"> <li>• HowToEncap - no longer a required parameter. Default is Tunnel.</li> <li>• HowToEncrypt - changed to include new values of AES_CBC and AES_GCM_16. Value of AES is deprecated and treated as a synonym for AES_CBC KeyLength 128.</li> <li>• HowToAuth - changed to include new values of Null, AES128_XCBC_96, AES_GMAC_128, AES_GMAC_256, HMAC_SHA1, HMAC_SHA2_256_128, HMAC_SHA2_384_192, and HMAC_SHA2_512_256. HMAC_SHA is deprecated and treated as a synonym for HMAC_SHA1.</li> </ul>	<ul style="list-style-type: none"> <li>• IKE version 2 support</li> <li>• IPSec support for cryptographic currency</li> </ul>
	IpDynVpnAction	V1R12	The HowToEncapIKEv2 parameter is new.  The following parameters are changed to allow groups of 19, 20, 21, and 24: <ul style="list-style-type: none"> <li>• InitiateWithPfs</li> <li>• AcceptablePfs</li> </ul>	IKE version 2 support
IpFilterPolicy	V1R12	The FIPS140 parameter is new.	IPSec support for FIPS 140 cryptographic mode	

Table 14. Summary of new and changed non-PROFILE.TCPIP configuration files (continued)

File	Statement	Release	Description	Reason for change
Policy Agent configuration files continued	IpLocalStartAction	V1R12	The following parameters are new: <ul style="list-style-type: none"> <li>• ICMPCodeGranularity</li> <li>• ICMPTypeGranularity</li> <li>• ICMPv6CodeGranularity</li> <li>• ICMPv6TypeGranularity</li> <li>• MIPv6TypeGranularity</li> </ul>	IKE version 2 support
	IpManVpnAction	V1R12	<ul style="list-style-type: none"> <li>• AuthInboundSa and AuthOutboundSa parameters are changed in that new values are required for the key length for the new algorithms added to the HowToAuth parameter.</li> <li>• EncryptInboundSa and EncryptOutboundSa parameters are changed in that new values are required for the key length for the new algorithms added to the HowToEncrypt parameter.</li> <li>• HowToAuth parameter is changed to include values of AES128_XCBC_96, HMAC_SHA1, HMAC_SHA2_256_128, HMAC_SHA2_384_192, and HMAC_SHA2_512_256. HMAC_SHA is deprecated and treated as a synonym for HMAC_SHA1.</li> <li>• HowToEncrypt parameter is changed to include a new value of AES_CBC. AES is deprecated and treated as a synonym for AES_CBC KeyLength 128.</li> </ul>	<ul style="list-style-type: none"> <li>• IKE version 2 support</li> <li>• IPSec support for cryptographic currency</li> </ul>
	KeyExchangeAction	V1R12	<p>The following parameters are new:</p> <ul style="list-style-type: none"> <li>• BypassIpValidation</li> <li>• CertificateURLLookupPreference</li> <li>• HowToAuthMe</li> <li>• HowToRespondIKEv1 - introduced as a synonym for the deprecated HowToRespond parameter.</li> <li>• ReauthInterval</li> <li>• RevocationChecking</li> </ul> <p>The HowToInitiate parameter is changed. It has a new value of IKEv2.</p> <p>The HowToInitiate parameter is also changed in that the default value is obtained from the HowToInitiate parameter on the KeyExchangePolicy statement.</p>	<ul style="list-style-type: none"> <li>• IKE version 2 support</li> <li>• IPSec support for cryptographic currency</li> </ul>
	KeyExchangePolicy	V1R12	<p>The following parameters are new:</p> <ul style="list-style-type: none"> <li>• ByPassIpValidation</li> <li>• CertificateURLLookupPreference</li> <li>• HowToInitiate</li> <li>• LivenessInterval</li> <li>• RevocationChecking</li> </ul> <p>The following parameters are changed:</p> <ul style="list-style-type: none"> <li>• DHGroup - allows new groups of 19, 20, 21, and 24</li> <li>• HowToAuthMsgs - has new values of SHA2_256, SHA2_384, and SHA2_512</li> <li>• HowToEncrypt - has new value of AES_CBC. AES is deprecated and treated as a synonym for AES_CBC KeyLength 128.</li> </ul>	<ul style="list-style-type: none"> <li>• IKE version 2 support</li> <li>• IPSec support for certificate trust chains and certificate revocation lists</li> </ul>

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Table 14. Summary of new and changed non-PROFILE.TCPIP configuration files (continued)

File	Statement	Release	Description	Reason for change
Policy Agent configuration files continued	KeyExchangeOffer	V1R12	<p>The following parameters are new:</p> <ul style="list-style-type: none"> <li>• HowToVerifyMsgs</li> <li>• PseudoRandomFunction</li> </ul> <p>The following parameters are changed:</p> <ul style="list-style-type: none"> <li>• DHGroup - allows new groups of 19, 20, 21, and 24</li> <li>• HowToAuthMsgs - has new values of SHA2_256, SHA2_384, and SHA2_512</li> <li>• HowToEncrypt - has new value of AES_CBC. AES is deprecated and treated as a synonym for AES_CBC KeyLength 128.</li> </ul>	<ul style="list-style-type: none"> <li>• IKE version 2 support</li> <li>• IPSec support for cryptographic currency</li> </ul>
	LocalSecurityEndpoint	V1R12	The Identity parameter has a new value of KeyID.	IKE version 2 support
	RemoteIdentity	V1R12	The Identity parameter has a new value of KeyID.	IKE version 2 support
	RemoteSecurityEndpoint	V1R12	The Identity parameter has a new value of KeyID.	IKE version 2 support
Policy Agent configuration files continued	TTLSTransportAdvancedParms	V1R11	<p>The following new parameters can be specified to configure additional System SSL functions:</p> <ul style="list-style-type: none"> <li>• TLSTransportV1.1 - Specifies the desired state of TLSTransportV1.1.</li> <li>• TruncatedHMAC - Specifies whether 80-bit truncated HMACs can be negotiated.</li> <li>• ClientMaxSSLFragment - Specifies whether maximum SSL fragment size can be negotiated by the TLS client.</li> <li>• ClientMaxSSLFragmentLength - Specifies the SSL fragment size to be used.</li> <li>• ServerMaxSSLFragment - Specifies whether the maximum SSL fragment size can be negotiated by the TLS server.</li> <li>• ClientHandshakeSNI - Specifies whether a client can specify a list of server names and whether the server will choose a certificate based on that server name list for this connection.</li> <li>• ClientHandshakeSNIMatch - Specifies whether the client name provided must match a server name in the server list of server name and certificate label pairs.</li> <li>• ClientHandshakeSNIList - Specifies a server name for the client to send.</li> <li>• ServerHandshakeSNI - Specifies whether a client can specify a list of server names and whether the server will choose a certificate based on that server name list for this connection.</li> <li>• ServerHandshakeSNIMatch - Specifies whether the client name provided must match a server name in the server list of server name and certificate label pairs.</li> <li>• ServerHandshakeSNIList - Specifies a server name and certificate label pair to be used by the server.</li> </ul>	AT-TLS enhancements



Table 14. Summary of new and changed non-PROFILE.TCPIP configuration files (continued)

File	Statement	Release	Description	Reason for change
Policy Agent configuration files continued	TTLSEnvironmentAdvancedParms	V1R11	The following new parameters can be specified to configure additional System SSL functions: <ul style="list-style-type: none"> <li>• TLSV1.1 - Specifies the desired state of TLSV1.1.</li> <li>• TruncatedHMAC - Specifies whether 80-bit truncated HMACs can be negotiated.</li> <li>• ClientMaxSSLFragment - Specifies whether the maximum SSL fragment size can be negotiated by the TLS client.</li> <li>• ClientMaxSSLFragmentLength - Specifies the SSL fragment size to be used.</li> <li>• ServerMaxSSLFragment - Specifies whether the maximum SSL fragment size can be negotiated by the TLS server.</li> <li>• ClientHandshakeSNI - Specifies whether a client can specify a list of server names and whether the server will choose a certificate based on that server name list for this connection.</li> <li>• ClientHandshakeSNIMatch - Specifies whether the client name provided must match a server name in the server list of server name and certificate label pairs.</li> <li>• ClientHandshakeSNIList - Specifies a server name for the client to send.</li> <li>• ServerHandshakeSNI - Specifies whether a client can specify a list of server names and whether the server will choose a certificate based on that server name list for this connection.</li> <li>• ServerHandshakeSNIMatch - Specifies whether the client name provided must match a server name in the server list of server name and certificate label pairs.</li> <li>• ServerHandshakeSNIList - Specifies a server name and certificate label pair to be used by the server.</li> <li>• CertValidationMode - Any/RFC2459/RFC3280 - Specifies the method of certificate validation.</li> </ul>	AT-TLS enhancements
	TTLSTGroupAction	V1R11	New parameter FIPS140 specifies if FIPS 140 support is enabled for this group.	AT-TLS enhancements
	TTLSTGskLdapParms	V1R11	New parameter GSK_CRL_SECURITY_LEVEL specifies the level of security to be used when contacting an LDAP server.	AT-TLS enhancements

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Table 14. Summary of new and changed non-PROFILE.TCPIP configuration files (continued)

File	Statement	Release	Description	Reason for change
Resolver Setup File SEZAINST(RESETUP)	CACHE	V1R11	New configuration statement indicating that system-wide resolver caching is to be used. This is the default.	Resolver DNS cache
	CACHESIZE	V1R11	New configuration statement setting the maximum amount of storage that can be used for resolver cache entries.	Resolver DNS cache
	NOCACHE	V1R11	New configuration statement indicating that system-wide resolver caching is not to be used.	Resolver DNS cache
	MAXTTL	V1R11	New configuration statement specifying the maximum amount of time, in seconds, to use as the time-to-live (TTL) value for resolver cache entries.	Resolver DNS cache
	UNRESPONSIVETHRESHOLD	V1R12	New statement specifies the threshold value for when resolver should declare a name server to be unresponsive.	Improved resolver reaction to unresponsive DNS name servers
SNMP Manager API configuration file	SNMP Configuration Entry	V1R12	A new configuration parameter, authEngineID, is added to the end of the existing SNMPv3 configuration entry parameter list. This new parameter specifies the authoritative engine ID to use when sending an SNMPv2 trap with USM security.	Enhancements to SNMP manager API
syslogd configuration file	ArchiveCheckInterval	V1R11	New statement used to specify the interval for checking z/OS UNIX file system utilization for automatic file system threshold archival.	syslogd enhancements
	ArchiveThreshold	V1R11	New statement used to specify the z/OS UNIX file system threshold percentage for automatic file system threshold archival.	syslogd enhancements
	ArchiveTimeOfDay	V1R11	New statement used to specify a specific local time of day to archive z/OS UNIX file system files.	syslogd enhancements
	BeginArchiveParms	V1R11	New statement used to specify the prefix used along with the -N parameter on a syslogd rule destination to form a base archive destination data set name, as well as allocation information needed to perform an archive.	syslogd enhancements
	syslogd rule destination	V1R11	There are two new parameters: <ul style="list-style-type: none"> <li>The new -N parameter can be used in conjunction with the new BeginArchiveParms statement, to configure the archive destination data set name.</li> <li>The new -X parameter can be used to cause the contents of the destination file to be deleted when an archive event occurs.</li> </ul>	syslogd enhancements
TCPIP.DATA	NAMESERVER/NSINTERADDR	V1R12	Statement to define the IP address of a name server. Changed so that the IP address can be either IPv4 or IPv6.	Resolver support for IPv6 connections to DNS name servers
	NOCACHE	V1R11	New configuration statement indicating that system-wide resolver cache functions are not to be utilized on resolver invocations associated with this configuration file.	Resolver DNS cache
	RESOLVERTIMEOUT	V1R12	Statement to define the amount of time resolver waits for a response from a name server. The default is changed from 30 seconds to 5 seconds.	Improved resolver reaction to unresponsive DNS name servers

### FTP server configuration statements

Table 15 lists the new and updated FTP server configuration statements. See *z/OS Communications Server: IP Configuration Reference* for more detailed information.

Table 15. Summary of new and changed Communications Server FTP server configuration statements

Statement	Release	Description	Reason for change
FIFOIOTIME	V1R11	Specifies the amount of time the FTP server will wait for I/O to a named pipe in its z/OS UNIX file system to complete.	FTP access to UNIX named pipes
FIFOOPENTIME	V1R11	Specifies the amount of time the FTP server will wait to open a named pipe in its z/OS UNIX file system.	FTP access to UNIX named pipes
UNIXFILETYPE	V1R11	Specifies whether the FTP server will treat files in its z/OS UNIX file system as regular files, or as named pipes.	FTP access to UNIX named pipes
WLMCLUSTERNAME	V1R11	This statement is no longer supported	Removal of support for DNS/WLM connection optimization

### FTP client configuration statements

Table 16 lists the new and updated FTP client configuration statements. See *z/OS Communications Server: IP Configuration Reference* for more detailed information.

Table 16. Summary of new and changed Communications Server FTP client configuration statements

Statement	Release	Description	Reason for change
FIFOIOTIME	V1R11	Specifies the amount of time the FTP client will wait for I/O to a named pipe in its z/OS UNIX file system to complete.	FTP access to UNIX named pipes
FIFOOPENTIME	V1R11	Specifies the amount of time the FTP client will wait to open a named pipe in its z/OS UNIX file system.	FTP access to UNIX named pipes
PASSIVEIGNOREADDR	V1R11	Indicates whether the FTP client should ignore the IP address in the FTP server passive PASV reply for the data connection and use the IP address that was used to log into the FTP server.	FTP passive mode enhancements
UNIXFILETYPE	V1R11	Specifies whether the FTP client will treat files in its z/OS UNIX file system as regular files, or as named pipes.	FTP access to UNIX named pipes

### TN3270E Telnet server PROFILE configuration file

During initialization of the TN3270E Telnet server (Telnet) address space, configuration parameters are read from a configuration PROFILE data set. The PROFILE data set is used to configure Telnet to accept or reject connection requests. You can update the PROFILE data set to change or add statements to support new functions, or to change or add usage rules.

This section includes tables with the descriptions of the new and changed Telnet PROFILE configuration statements. Refer to *z/OS Communications Server: IP Configuration Reference* for complete information on configuration statements and the PROFILE statement.

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**TELNETGLOBALS information block:** The TELNETGLOBALS information block is a Telnet configuration block used to provide definitions that apply to all Telnet ports.

Table 17. Summary of new and changed Communications Server Telnet configuration file - TELNETGLOBALS block

Statement	Release	Description	Reason for change
NOSHAREACB/SHAREACB	V1R12	New parameter statement to enable ACB sharing for Telnet LUs. You can use ACB sharing to reduce ECSA storage usage for Telnet server configurations that are using model application program definitions to represent Telnet LUs. The default setting is NOSHAREACB.	Common storage reduction for TN3270E server
TKOSPECLURECON and TKOGENLURECON	V1R12	SAMECONNTYPE is a new parameter that is used to ensure that the taker has the same basic or secure connection type as the target.	Enhancements to the TN3270E server

### **TELNETPARMS information block:**

Table 18. Summary of new and changed Communications Server Telnet configuration file - TELNETPARMS block

Statement	Release	Description	Reason for change
TKOSPECLURECON and TKOGENLURECON	V1R12	SAMECONNTYPE is a new parameter that is used to ensure that the taker has the same basic or secure connection type as the target.	Enhancements to the TN3270E server
WLMCLUSTERNAME	V1R11	This statement is no longer supported and should be removed.	Removal of support for DNS/WLM connection optimization

**BEGINVTAM information block:** Table 19 includes the PROFILE.TCPIP statements for the BEGINVTAM information block.

Table 19. Summary of new and changed Communications Server Telnet configuration file - BEGINVTAM block

Statement	Release	Description	Reason for change
TKOSPECLURECON or TKOGENLURECON statement in the PARMSGROUP block	V1R12	SAMECONNTYPE is a new parameter that is used to ensure that the taker has the same basic or secure connection type as the target.	Enhancements to the TN3270E server

## PROFILE.TCPIP configuration file

This section contains the PROFILE.TCPIP statement and parameter changes. The TN3270E Telnet server profile statements are accepted but ignored by the TCP/IP stack. The statements must be specified in a data set configured to the TN3270E Telnet server running in its own address space. Therefore, the Telnet configuration

statements are moved from this PROFILE.TCPIP configuration file section to a general IP configuration file section; see “TN3270E Telnet server PROFILE configuration file” on page 49.

**PROFILE.TCPIP statement and parameter changes**

Table 20 lists the new and updated Communications Server PROFILE.TCPIP configuration statements and parameters. See *z/OS Communications Server: IP Configuration Reference* for more detailed information.

*Table 20. Summary of new and changed Communications Server PROFILE.TCPIP configuration statements and parameters*

Statement	Release	Description	Reason for change
DEFADDRTABLE	V1R12	New profile statement used to configure the default address selection policy table.	Configurable default address selection policy table
GLOBALCONFIG	V1R12	A new NOJOIN subparameter is added on the SYSPLEXMONITOR parameter. If NOJOIN is configured in the initial profile, the TCP/IP stack does not join the sysplex group when the stack is started.	Control joining the sysplex XCF group
	V1R11	NOWLMPRIORITYQ and WLMPRIORITYQ are new parameters to enable and disable the mapping of the WorkLoad Manager Service Class priority values to an OSA-Express write priority.	QDIO enhancements for WLM IO priority
INTERFACE	V1R12	For IPAQENET and IPAQENET6 interface types, added new WORKLOADQ and NOWORKLOADQ subparameters to the INBPERF parameter value DYNAMIC to enable or disable the QDIO inbound workload queueing function.	Performance improvements for sysplex distributor connection routing
INTERFACE	V1R12	For IPAQENET and IPAQENET6 interface types, added CHPIDTYPE and CHPID parameters to define interfaces onto the intraensemble data network.	z/OS Communications Server in an ensemble
INTERFACE	V1R11	New NOOLM and OLM parameters added for IPAQENET and IPAQENET6 interface types to disable and enable OSA-Express3 optimized latency mode.	OSA-Express3 optimized latency mode
	V1R11	New NOISOLATE and ISOLATE parameters added for IPAQENET and IPAQENET6 OSA-Express QDIO interfaces to disable and enable connection isolation.	QDIO support for OSA interface isolation
	V1R11	New parameter TEMPPREFIX added for the IPAQENET6 interface to define the prefixes for which IPv6 temporary addresses will be generated when the prefix is learned through router advertisements.  New parameters ADDTEMPPREFIX and DELTEMPPREFIX added for the IPAQENET6 interface to add and delete prefixes from the list of prefixes for which IPv6 temporary addresses can be generated.	IPv6 stateless address autoconfiguration enhancements
IPCONFIG	V1R11	New QDIOACCELERATOR parameter added to enable QDIO accelerator.	QDIO routing accelerator

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Table 20. Summary of new and changed Communications Server PROFILE.TCPIP configuration statements and parameters (continued)

Statement	Release	Description	Reason for change
IPCONFIG6	V1R12	Added OSMSECCLASS parameter to define a security class for IP filtering for OSM interfaces.	z/OS Communications Server in an ensemble
IPCONFIG6	V1R11	A new parameter, TEMPADDRS   NOTEMPADDRS, is provided to enable or disable the generation of IPv6 temporary addresses.	IPv6 stateless address autoconfiguration enhancements
NETMONITOR	V1R12	New CSMAIL, NOCSMAIL, CSSMTP and NOCSSMTP subparameters added for the SMFSERVICE parameter to enable applications to receive the new SMF 119 subtype 48, 49, 50, 51, and 52 records for CSSMTP events.	Management data for CSSMTP
	V1R12	New DVIPA and NODVIPA subparameters added for the SMFSERVICE parameter to enable applications to receive the new SMF 119 records (subtypes 32 - 37) for DVIPA events.	SMF event records for sysplex events
	V1R11	New PROFILE and NOPROFILE subparameters for the SMFSERVICE parameter added to enable applications to receive the new SMF 119 subtype 4 event records.	Stack configuration data
	V1R11	NONTATRCSERVICE and NTATRCSERVICE are new parameters. They are used to control the new SYSTCPOT real-time TCP/IP network management interface (NMI) which provides OSAENTA trace information.	OSA network traffic analyzer data
SMFCONFIG	V1R12	New DVIPA and NODVIPA parameters added to create new SMF 119 records (subtypes 32 - 37) for DVIPA events.	SMF event records for sysplex events
	V1R11	New PROFILE and NOPROFILE parameters added to create new SMF 119 subtype 4 event records containing TCP/IP stack profile information.	Stack configuration data
SRCIP	V1R12	The source for a JOBNAME entry can be configured as PUBLICADDRS to control the use of IPv6 public addresses.	Configurable default address selection policy table
	V1R11	The source for a JOBNAME entry can be configured as TEMPADDRS to control the use of IPv6 temporary addresses.	IPv6 stateless address autoconfiguration enhancements
VIPABACKUP	V1R12	A new prefix length value is added that can be specified with an IPv6 address to enable the definition of an IPv6 subnet.	Extend sysplex distributor support for DataPower for IPv6
VIPABACKUP	V1R11	The following new keywords are added: <ul style="list-style-type: none"> <li>• TIER1</li> <li>• TIER2</li> <li>• CPCSCOPE</li> </ul>	<ul style="list-style-type: none"> <li>• Sysplex distributor optimization for multi-tier z/OS workloads</li> <li>• Sysplex distributor support for DataPower®</li> </ul>

Table 20. Summary of new and changed Communications Server PROFILE.TCPIP configuration statements and parameters (continued)

Statement	Release	Description	Reason for change
VIPADEFINE	V1R12	A new prefix length value is added that can be specified with an IPv6 address to enable the definition of an IPv6 subnet.	Extend sysplex distributor support for DataPower for IPv6
VIPADEFINE	V1R11	The following new keywords are added: <ul style="list-style-type: none"> <li>• TIER1</li> <li>• TIER2</li> <li>• CPCSCOPE</li> </ul>	<ul style="list-style-type: none"> <li>• Sysplex distributor optimization for multi-tier z/OS workloads</li> <li>• Sysplex distributor support for DataPower</li> </ul>
VIPADISTRIBUTE	V1R12	The following new keywords are added to support the new HotStandby distribution method: <ul style="list-style-type: none"> <li>• HOTSTANDBY option on the DISTMETHOD parameter. It indicates the hot standby distribution method.</li> <li>• PREFERRED or BACKUP option on the DESTIP parameter. It indicates the server type and a rank value after BACKUP, which shows the rank of a backup target.</li> <li>• AUTOSWITCHBACK and NOAUTOSWITCHBACK options for HOTSTANDBY on the DISTMETHOD parameter. They indicate whether the distributor should switch back to the preferred target when it becomes available.</li> <li>• HEALTHSWITCH and NOHEALTHSWITCH options for HOTSTANDBY on the DISTMETHOD parameter. They indicate whether the distributor should switch to a backup target when the active target has health problems.</li> </ul>	Sysplex distributor support for hot-standby server
VIPADISTRIBUTE	V1R12	A new keyword ENCAP is added to support distribution to non-z/OS IPv6 targets.	Extend sysplex distributor support for DataPower for IPv6
VIPADISTRIBUTE	V1R11	The following new keywords are added to support distribution to Tier 1 and Tier 2 targets: <ul style="list-style-type: none"> <li>• TIER1 or TIER2</li> <li>• TIER1 and TIER2 group names</li> <li>• GRE</li> <li>• TARGCONTROLLED</li> <li>• CONTROLPORT</li> </ul>	<ul style="list-style-type: none"> <li>• Sysplex distributor optimization for multi-tier z/OS workloads</li> <li>• Sysplex distributor support for DataPower</li> </ul>
	V1R11	New keywords PROCXCOST and ILWEIGHTING are added to influence WLM server-specific recommendations.	Support for enhanced WLM routing algorithms

## Operator commands

This section includes all the Communications Server IP operator commands. See *z/OS Communications Server: IP System Administrator's Commands* for more detailed information.

### General updates of IP operator commands

Table 21 lists the new and updated Communications Server IP operator commands, **except** the Netstat operator command DISPLAY TCPIP,,NETSTAT and the Telnet operator commands. See the following tables for those commands:

- Table 22 on page 56, IP Netstat operator commands (DISPLAY TCPIP,,NETSTAT)
- Table 23 on page 60, Telnet operator commands

Table 21. General summary of new and changed Communications Server operator commands

Command	Parameters	Release	Description	Reason for change
DISPLAY TCPIP,,HELP	DEFADDRT	V1R12	The syntax of the new DISPLAY TCPIP,,NETSTAT,DEFADDRT command is displayed.	Configurable default address selection policy table
	N/A	V1R12	The new OSAINFO command is displayed as one of the supported DISPLAY TCPIP commands.	Operator command to query and display OSA information
	OSAINFO	V1R12	The syntax of the new OSAINFO command is displayed.	Operator command to query and display OSA information
	ROUTE	V1R12	The displayed syntax of the DISPLAY TCPIP,,NETSTAT,ROUTE command includes the new RADV command modifier.	Enhancements to IPv6 router advertisement
	RESCache	V1R11	The report is enhanced to display the new RESCACHE report option.	Resolver DNS cache
DISPLAY TCPIP,,OMPROUTE	RT6TABLE	V1R12	Default routes learned from IPv6 router advertisements are displayed with a metric of 1 when the router advertisement indicated a preference of high, 2 when the router advertisement indicated a preference of medium, or 3 when the router advertisement indicated a preference of low. In past releases, these routes were always displayed with a metric of 0.	Configurable default address selection policy table
DISPLAY TCPIP,,OSAINFO	N/A	V1R12	New command that displays OSA-Express QDIO datapath device information, including registered addresses and routing variables.	Operator command to query and display OSA information
DISPLAY TCPIP,,STOR	N/A	V1R12	Dynamic LPA module storage removed from ECSA storage usage and placed in new CSA MODULES storage usage.	Enhancements to the TCP/IP storage display
EZACMD	N/A	V1R11	New REXX command that can be used from the MVS console, TSO, and IBM Tivoli® NetView® for z/OS to invoke select TCP/IP commands.	MVS console support for select TCP/IP commands
MODIFY CSSMTP	DISPLAY,CONFIG	V1R12	Command to display the SMF119 configuration parameters.	Management data for CSSMTP
	N/A	V1R11	New command to control the new CSSMTP application.	New SMTP client for sending Internet mail
MODIFY DCAS	N/A	V1R12	New command which provides the modification of DCAS debug level after the DCAS server has been started.	Digital certificate access server (DCAS) MODIFY command for debug level



Table 21. General summary of new and changed Communications Server operator commands (continued)

Command	Parameters	Release	Description	Reason for change
MODIFY IKED	DISPLAY	V1R12	Report includes the following new field: FIPS140	IPSec support for FIPS 140 cryptographic mode
		V1R11	Report output includes the following new fields: <ul style="list-style-type: none"> <li>IkeInitWait</li> <li>IkeRetries</li> </ul> <p>In addition, the following fields are no longer displayed:</p> <ul style="list-style-type: none"> <li>DataRetries</li> <li>DataWait</li> <li>KeyRetries</li> <li>KeyWait</li> </ul>	IPSec enhancements
MODIFY NSSD	DISPLAY	V1R12	Report includes the following new fields: <ul style="list-style-type: none"> <li>FIPS140</li> <li>URLCacheInterval</li> <li>CertificateURL</li> <li>CertificateBundleURL</li> </ul>	<ul style="list-style-type: none"> <li>IPSec support for certificate trust chains and certificate revocation lists</li> <li>IPSec support for FIPS 140 cryptographic mode</li> </ul>
	REFRESH	V1R12	Updated to indicate whether cached certificate URL data should be flushed.	<ul style="list-style-type: none"> <li>IPSec support for certificate trust chains and certificate revocation lists</li> <li>IKE version 2 support</li> </ul>
MODIFY PAGENT	MON	V1R11	Displays or manages a specified application, or all applications that are configured for starting and stopping using the AutoMonitorApps statement.	Policy infrastructure management enhancements
MODIFY RESOLVER	FLUSH	V1R11	The new FLUSH parameter is used to clear the contents of the resolver cache.	Resolver DNS cache
MODIFY SYSLOGD	ARCHIVE	V1R11	New command to initiate a manual archive of the syslogd UNIX file system files.	syslogd enhancements
	DISPLAY	V1R11	New command to display UNIX file system utilization data for syslogd UNIX file system files.	syslogd enhancements
	RESTART	V1R11	New command to restart the syslog daemon.	syslogd enhancements
VARY TCPIP,, DATTRACE	N/A	V1R12	Data trace will automatically create new start and end records for TCP and UDP sockets.	Data trace records for socket data flow start and end
VARY TCPIP,, DROP	PORT=, JOBNAME=, ASID=	V1R12	The command is enhanced to drop all TCP connections associated with server applications. The new parameters are used as filters to identify the server or servers whose TCP connections should be dropped	Command to drop all connections for a server

**Netstat operator commands (DISPLAY TCPIP,,NETSTAT)**

Table 22 on page 56 lists the new and updated Communications Server IP Netstat operator command DISPLAY TCPIP,,NETSTAT. See Table 21 on page 54 for the other Communications Server IP operator command entries.

See *z/OS Communications Server: IP System Administrator's Commands* for more detailed information about the Communications Server IP operator commands.

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All parameters in the following table are for the DISPLAY TCPIP,,NETSTAT operator command.

Table 22. Summary of new and changed Communications Server Netstat operator commands (DISPLAY TCPIP,,NETSTAT)

Parameters	Release	Description	Reason for change
ALL	V1R12	Added new fields ReceivingInterface and ReceivingQueue for TCP connections that are using the QDIO inbound workload queueing function.	Performance improvements for streaming bulk data
ALL	V1R12	Displays the new TCP trusted connection flag (TcpTrustedPartner), which indicates that the partner security credentials of a partner within a sysplex or subplex have been retrieved using the SIOCGPARTNERINFO ioctl, or that the SIOCSPARTNERINFO ioctl has been successfully issued or inherited from the listener socket.	Trusted TCP connections
ALL	V1R11	The report displays an indicator as to whether the stack is automatically tuning the advertised receive window for this connection.	TCP throughput improvements for high-latency networks
	V1R11	The report displays a TCP connection in SynRcvd state.	Release update
	V1R11	The report has the following new fields: <ul style="list-style-type: none"> <li>ServerBacklog - Displays the number of connections currently in the backlog queue that are established but are not yet accepted.</li> <li>FRCABacklog - Displays the number of connections currently in the backlog queue that are established FRCA connections and that do not require an accept from the server application.</li> </ul>	Sysplex autonomies improvements for FRCA
	V1R11	The following values, which are used by WLM when determining a server-specific recommendation, are displayed if the socket is in a listening state and port sharing is being used: <ul style="list-style-type: none"> <li>The weighting factor that WLM uses when comparing displaceable capacity at different importance levels.</li> <li>The crossover costs that are applied to a zAAP- or zIIP-targeted workload that is processed on the conventional processor.</li> </ul>	Support for enhanced WLM routing algorithms
ALLConn	V1R11	The report displays a TCP connection in SynRcvd state.	Release update
BYTEinfo	V1R11	The report displays a TCP connection in SynRcvd state.	Release update
CONFIG	V1R12	New OSMSecClass field added to the IPv6 Configuration section to display the setting of the OSMSECCLASS parameter from the IPCONFIG6 profile statement.	z/OS Communications Server in an ensemble

Table 22. Summary of new and changed Communications Server Netstat operator commands (DISPLAY TCPIP,,NETSTAT) (continued)

Parameters	Release	Description	Reason for change
CONFIG	V1R12	Displays the setting of the NOJOIN subparameter from the GLOBALCONFIG SYSPLEXMONITOR profile statement, which indicates whether the TCP/IP stack joins the sysplex group during stack initialization.	Control joining the sysplex XCF group
	V1R12	<ul style="list-style-type: none"> <li>The SMF parameters section displays the setting of the new DVIPA and NODVIPA parameters.</li> <li>The Network Monitor Configuration Information section displays the setting of the new DVIPA and NODVIPA subparameters for the SMFSERVICE parameter.</li> </ul>	SMF event records for sysplex events
	V1R12	The Network Monitor Configuration Information section displays the setting of the new CSMail, NOCSMAIL, CSSMTP and NOCSSMTP subparameters for the SMFSERVICE parameter.	Management data for CSSMTP
	V1R11	Displays the setting of the NOWLMPRIORITYQ and the WLMRIORITYQ parameters from the GLOBALCONFIG profile statement.	QDIO enhancements for WLM IO priority
	V1R11	<ul style="list-style-type: none"> <li>The SMF Parameters section displays the setting of the new PROFILE and NOPROFILE parameters.</li> <li>The Network Monitor Configuration Information section displays the setting of the new PROFILE and NOPROFILE subparameters for the SMFSERVICE parameter.</li> </ul>	Stack configuration data
	V1R11	The Network Monitor Configuration Information section displays the setting of the new NTATRCSERVICE and NONTATRCSERVICE parameters.	OSA network traffic analyzer data
	V1R11	Displays whether IPv6 temporary addresses are enabled and if enabled, the preferred and valid lifetime values for temporary addresses.	IPv6 stateless address autoconfiguration enhancements
	V1R11	Displays an indicator as to whether QDIO accelerator support is enabled.	QDIO routing accelerator
COonn	V1R11	The report displays a TCP connection in SynRcvd state.	Release update
DEFADDRT	V1R12	New report to display default address selection policy table.	Configurable default address selection policy table
DEvlinks	V1R12	<ul style="list-style-type: none"> <li>Added a ChpidType field for IPAQENET and IPAQENET6 interfaces.</li> <li>Displays information about intraensemble data network and intranode management network interfaces.</li> </ul>	z/OS Communications Server in an ensemble
DEvlinks	V1R12	<ul style="list-style-type: none"> <li>Moved the InbPerf field from the right column to the left column on a new line.</li> <li>Added the WorkloadQueueing field to indicate whether inbound workload queueing is enabled for IPAQENET or IPAQENET6 interfaces. This field is only displayed when InbPerf is Dynamic.</li> </ul>	Performance improvements for sysplex distributor connection routing

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Table 22. Summary of new and changed Communications Server Netstat operator commands (DISPLAY TCPIP,,NETSTAT) (continued)

Parameters	Release	Description	Reason for change
DEvlinks	V1R11	Displays whether OSA-Express3 optimized latency mode is enabled for IPAQENET (defined using the INTERFACE statement) and IPAQENET6 interfaces configured with an INTERFACE statement.	OSA-Express3 optimized latency mode
	V1R11	Displays the setting of the NOISOLATE and the ISOLATE parameters from the INTERFACE profile statement for IPAQENET (defined using the INTERFACE statement) and IPAQENET6.	QDIO support for OSA interface isolation
	V1R11	Displays the temporary prefix list for the IPAQENET6 interface.	IPv6 stateless address autoconfiguration enhancements
DRop	V1R11	A TCP connection in SynRcvd state can now be dropped.	Release update
HOMe	V1R11	The report is changed to add a flag value of TEMPORARY which is displayed for an IPv6 temporary address. Also, for a temporary address the valid lifetime expiration is displayed.	IPv6 stateless address autoconfiguration enhancements
RESCache	V1R11	New report option that displays the resolver cache information.	Resolver DNS cache
ROUTE	V1R12	<ul style="list-style-type: none"> <li>Support is added for a new modifier, RADV, to display all of the IPv6 routes created based on information received in router advertisement messages.</li> <li>Default routes learned from IPv6 router advertisements are displayed with a metric of 1 when the router advertisement indicated a preference of high, 2 when the router advertisement indicated a preference of medium, or 3 when the router advertisement indicated a preference of low. In past releases, these routes were always displayed with a metric of 1.</li> </ul>	Enhancements to IPv6 router advertisement
	V1R11	The report is enhanced to display routes from the QDIO accelerator routing table. The IQDIO and QDIOACCEL parameters are mutually exclusive with DETAIL.	QDIO routing accelerator
SOCKets	V1R11	The report displays a TCP connection in SynRcvd state.	Release update
SRCIP	V1R12	The report is changed to display JOBNAME entries with a source of PUBLICADDRS.	Configurable default address selection policy table
	V1R11	Report is enhanced to display JOBNAME entries with a source of TEMPADDRS.	IPv6 stateless address autoconfiguration enhancements
STATS	V1R12	Added new field, Segments Received on OSA Bulk Queues, which indicates the total number of segments received for all TCP connections using the bulk data ancillary input queue of the QDIO inbound workload queueing function.	Performance improvements for streaming bulk data
TTLS	V1R11	When the CONn and DETAIL modifiers are specified, this report displays the attributes specified from the new parameters on the AT-TLS configuration statements.	AT-TLS enhancements
VCRT	V1R11	When the DETAIL modifier is specified, displays an indicator as to whether a sysplex distributor connection is eligible for acceleration.	QDIO routing accelerator
VDPT	V1R12	The section of the report containing the Dynamic VIPA Destination Port Table for non-z/OS targets can now show IPv6 non-z/OS distribution targets.	Extend sysplex distributor support for DataPower for IPv6

Table 22. Summary of new and changed Communications Server Netstat operator commands (DISPLAY TCPIP,,NETSTAT) (continued)

Parameters	Release	Description	Reason for change
VDPT	V1R12	<p>In the display for a distributed DVIPA, the distribution method is no longer displayed in the Flg field. The distribution method is now displayed in a new DistMethod field. The DistMethod field is not included in the short format display unless the DETAIL parameter is used.</p> <p>The Flg field can now indicate the HotStandby target state, active (V or Active) or backup (K or Backup) depending on whether the Short or Long format display is used.</p> <p>If the new distribution method HotStandby is displayed, a new SrvType field indicates the server type (Preferred or Backup).</p>	Sysplex distributor support for hot-standby server
VDPT	V1R11	<p>The TIER1 VIPADISTRIBUTE information displays the following:</p> <ul style="list-style-type: none"> <li>• A new flag if the TARGCONTROLLED distribution method is configured.</li> <li>• A composite weight field</li> <li>• TIER1</li> <li>• TIER2</li> <li>• CPCSCOPE</li> </ul> <p>If the VDPT parameter is used with DETAIL, the TIER1 VIPADISTRIBUTE information also contains the Tier 1 weight recommendation received from each target. This field is non-zero if TARGCONTROLLED distribution is being used.</p>	<ul style="list-style-type: none"> <li>• Sysplex distributor optimization for multi-tier z/OS workloads</li> <li>• Sysplex distributor support for DataPower</li> </ul>
VIPADCFG	V1R12	<p>The new IPv6 prefix length field is shown if it was configured. If used with DETAIL, a new value ENCAP can be displayed in the routing type (RtgType) field. ENCAP indicates that IPv6 routing encapsulation is used to forward requests.</p>	Extend sysplex distributor support for DataPower for IPv6
VIPADCFG	V1R12	<p>In the display for a distributed DVIPA, the distribution method is no longer displayed in the Flg field. The distribution method is now displayed in a new DistMethod field. The DistMethod field is not included in the short format display unless the DETAIL parameter is used.</p> <p>If the new distribution method HotStandby is displayed, a new SrvType field indicates the server type, Preferred or Backup. If the server type is Backup, the Rank of the backup is also displayed.</p> <p>If the distribution method is the new HOTSTANDBY distribution method and the DETAIL parameter is specified, the settings for AUTOSWITCHBACK and HEALTHSWITCH are also displayed.</p>	Sysplex distributor support for hot-standby server

## Communications Server

Table 22. Summary of new and changed Communications Server Netstat operator commands (DISPLAY TCPIP,,NETSTAT) (continued)

Parameters	Release	Description	Reason for change
VIPADCFG	V1R11	When the DETAIL parameter is specified, the configured PROCXCOST and ILWEIGHTING values, or the default values, are displayed for the SERVERWLM distribution method.	Support for enhanced WLM routing algorithms
	V1R11	<p>A new flag is displayed in the following circumstances:</p> <ul style="list-style-type: none"> <li>• If the VIPADEFINE, VIPABACKUP or VIPADISTRIBUTE is for a TIER1, TIER2, or CPCSCOPE DVIPA.</li> <li>• If the VIPADISTRIBUTE distribution method being used is coded with the TARGCONTROLLED keyword.</li> </ul> <p>If the VIPADCFG parameter is used with the DETAIL parameter, the following is true:</p> <ul style="list-style-type: none"> <li>• The TIER1 or TIER2 group name is displayed for a TIER1 or TIER2 VIPADISTRIBUTE statement.</li> <li>• For a TIER1 VIPADISTRIBUTE statement, the following are also displayed: <ul style="list-style-type: none"> <li>– A flag indicating the routing type GRE when this parameter is configured</li> <li>– A flag indicating the CONTROLPORT, followed by a port, if GRE routing or TARGCONTROLLED distribution is being used</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Sysplex distributor optimization for multi-tier z/OS workloads</li> <li>• Sysplex distributor support for DataPower</li> </ul>

### TN3270E Telnet server operator commands

Table 23 includes the descriptions of the new and changed TN3270E Telnet server operator commands. Refer to *z/OS Communications Server: IP System Administrator's Commands* for complete information on Telnet operator commands.

Table 23. Summary of new and changed Communications Server TN3270E Telnet server operator commands

Command	Release	Description	Reason for change
DISPLAY TCPIP, <i>tnproc</i> <,Telnet>, PROFILE	Changes each release	Displays information about what profile-wide parameters are in effect for each profile, which profiles are still being used, and how many users are on each profile. Summary and Detail displays are updated with the latest parameters. See message EZZ6060I for details.	N/A
DISPLAY TCPIP, <i>tnproc</i> ,TELNET,WLM	V1R11	Command is no longer supported.	Removal of support.

## TSO commands

See *z/OS Communications Server: IP System Administrator's Commands* for more detailed information about the Communications Server TSO commands.

### General updates of TSO commands

Table 24 on page 61 lists the new and updated Communications Server TSO commands, **except** the Netstat TSO commands and the FTP UNIX and TSO commands. See the following tables for those commands:

- Table 25 on page 61, IP Netstat TSO commands
- Table 26 on page 65, FTP UNIX and TSO commands

Table 24. Summary of new and changed Communications Server TSO commands

Command	Parameter	Release	Description	Reason for change
EZABROWS	N/A	V1R11	New syslog daemon browser.	syslogd browser and search facilities
ndbcInt	N/A	V1R11	Command is no longer supported.	Removal of support.
PING	Verbose	V1R11	New Verbose parameter specifies that the Ping command should display detailed information about received echo replies and a statistics summary.	Verbose Ping

### NETSTAT TSO commands

Table 25 lists the new and updated Communications Server NETSTAT TSO command. See Table 24 for the other Communications Server IP TSO command entries.

See *z/OS Communications Server: IP System Administrator's Commands* for more detailed information about the Communications Server TSO commands.

Table 25. Summary of new and changed Communications Server NETSTAT TSO commands

Parameter	Release	Description	Reason for change
ALL	V1R12	Added new fields ReceivingInterface and ReceivingQueue for TCP connections that are using the QDIO inbound workload queueing function.	Performance improvements for streaming bulk data
ALL	V1R12	Displays the new TCP trusted connection flag (TcpTrustedPartner), which indicates that the partner security credentials of a partner within a sysplex or subplex have been retrieved using the SIOCGPARTNERINFO ioctl, or that the SIOCSPARTNERINFO ioctl has been successfully issued or inherited from the listener socket.	Trusted TCP connections
	V1R11	The report displays an indicator as to whether the stack is automatically tuning the advertised receive window for this connection.	TCP throughput improvements for high-latency networks
	V1R11	The report displays a TCP connection in SynRcvd state.	Release update
	V1R11	The report has the following new fields: <ul style="list-style-type: none"> <li>• ServerBacklog - Displays the number of connections currently in the backlog queue that are established but are not yet accepted.</li> <li>• FRCABacklog - Displays the number of connections currently in the backlog queue that are established FRCA connections and that do not require an accept from the server application.</li> </ul>	Sysplex autonomies improvements for FRCA
	V1R11	The following values, which are used by WLM when determining a server-specific recommendation, are displayed if the socket is in a listening state and port sharing is being used: <ul style="list-style-type: none"> <li>• The weighting factor that WLM uses when comparing displaceable capacity at different importance levels.</li> <li>• The crossover costs that are applied to a zAAP- or zIIP-targeted workload that is processed on the conventional processor.</li> </ul>	Support for enhanced WLM routing algorithms
ALLConn	V1R11	The report displays a TCP connection in SynRcvd state.	Release update

## Communications Server

Table 25. Summary of new and changed Communications Server NETSTAT TSO commands (continued)

Parameter	Release	Description	Reason for change
BYTEinfo	V1R11	The report displays a TCP connection in SynRcvd state.	Release update
CLient	V1R11	The report displays a TCP connection in SynRcvd state.	Release update
CONFIG	V1R12	New OSMSecClass field added to the IPv6 Configuration section to display the setting of the OSMSECCLASS parameter from the IPCONFIG6 profile statement.	z/OS Communications Server in an ensemble
CONFIG	V1R12	Displays the setting of the NOJOIN subparameter from the GLOBALCONFIG SYSPLEXMONITOR profile statement, which indicates whether the TCP/IP stack joins the sysplex group during stack initialization.	Control joining the sysplex XCF group
	V1R12	<ul style="list-style-type: none"> <li>The SMF parameters section displays the setting of the new DVIPA and NODVIPA parameters.</li> <li>The Network Monitor Configuration Information section displays the setting of the new DVIPA and NODVIPA subparameters for the SMFSERVICE parameter.</li> </ul>	SMF event records for sysplex events
	V1R12	The Network Monitor Configuration Information section displays the setting of the new CSMail, NOCSMAIL, CSSMTP and NOCSSMTP subparameters for the SMFSERVICE parameter.	Management data for CSSMTP
	V1R11	Displays the setting of the NOWLMPRIORITYQ and the WLMRIORITYQ parameters from the GLOBALCONFIG profile statement.	QDIO enhancements for WLM IO priority
	V1R11	<ul style="list-style-type: none"> <li>The SMF parameters section displays the setting of the new PROFILE and NOPROFILE parameters.</li> <li>The Network Monitor Configuration Information section displays the setting of the new PROFILE and NOPROFILE subparameters for the SMFSERVICE parameter.</li> </ul>	Stack configuration data
	V1R11	The Network Monitor Configuration Information section displays the setting of the new NTATRCSERVICE and NONTATRCSERVICE parameters.	OSA network traffic analyzer data
	V1R11	Displays whether temporary addresses are enabled and if enabled, the preferred and valid lifetime values for temporary addresses.	IPv6 stateless address autoconfiguration enhancements
	V1R11	Displays an indicator as to whether QDIO accelerator support is enabled.	QDIO routing accelerator
COnn	V1R11	The report displays a TCP connection in SynRcvd state.	Release update
DEFADDRT	V1R12	New report to display default address selection policy table.	Configurable default address selection policy table
DEvlinks	V1R12	<ul style="list-style-type: none"> <li>Added a ChpidType field for IPAQENET and IPAQENET6 interfaces.</li> <li>Displays information about intraensemble data network and intranode management network interfaces.</li> </ul>	z/OS Communications Server in an ensemble
DEvlinks	V1R12	<ul style="list-style-type: none"> <li>Moved the InbPerf field from the right column to the left column on a new line.</li> <li>Added the WorkloadQueueing field to indicate whether inbound workload queueing is enabled for IPAQENET or IPAQENET6 interfaces. This field is only displayed when InbPerf is Dynamic.</li> </ul>	Performance improvements for sysplex distributor connection routing



Table 25. Summary of new and changed Communications Server NETSTAT TSO commands (continued)

Parameter	Release	Description	Reason for change
DEvlinks	V1R11	Displays whether OSA-Express3 optimized latency mode is enabled for IPAQENET (defined using the INTERFACE statement) and IPAQENET6 interfaces configured with an INTERFACE statement.	OSA-Express3 optimized latency mode
	V1R11	Displays the setting of the NOISOLATE and the ISOLATE parameters from the INTERFACE profile statement for IPAQENET (defined using the INTERFACE statement) and IPAQENET6.	QDIO support for OSA interface isolation
	V1R11	Displays the temporary prefix list for an IPAQENET6 interface.	IPv6 stateless address autoconfiguration enhancements
DRop	V1R11	A TCP connection in SynRcvd state can be dropped.	Release update
HOMe	V1R11	The report is changed to add a flag value of TEMPORARY which will be displayed for an IPv6 temporary address. Also, for a temporary address the valid lifetime expiration is displayed.	IPv6 stateless address autoconfiguration enhancements
RESCache	V1R11	New report option that displays the resolver cache information.	Resolver DNS cache
ROUTE	V1R12	<ul style="list-style-type: none"> <li>Support is added for a new modifier, RADV, to display all of the IPv6 routes created based on information received in router advertisement messages.</li> <li>Default routes learned from IPv6 router advertisements are displayed with a metric of 1 when the router advertisement indicated a preference of high, 2 when the router advertisement indicated a preference of medium, or 3 when the router advertisement indicated a preference of low. In past releases, these routes were always displayed with a metric of 1.</li> </ul>	Configurable default address selection policy table
	V1R11	Displays routes from the QDIO accelerator routing table. The IQDIO and QDIOACCEL parameters are mutually exclusive with DETAIL.	QDIO routing accelerator
SOCKets	V1R11	The report displays a TCP connection in SynRcvd state.	Release update
SRCIP	V1R12	The report is changed to display JOBNAME entries with a source of PUBLICADDRS.	Configurable default address selection policy table
	V1R11	Displays JOBNAME entries with a source of TEMPADDRS.	IPv6 stateless address autoconfiguration enhancements
STATS	V1R12	Added new field, Segments Received on OSA Bulk Queues, which indicates the total number of segments received for all TCP connections using the bulk data ancillary input queue of the QDIO inbound workload queueing function.	Performance improvements for streaming bulk data
TELnet	V1R11	The report displays a TCP connection in SynRcvd state.	Release update
TTLS	V1R11	When the COnn and DETAIL modifiers are specified, the report displays the attributes specified from the new parameters on the AT-TLS configuration statements.	AT-TLS enhancements
VCRT	V1R11	When the DETAIL modifier is specified, displays an indicator as to whether a sysplex distributor connection is eligible for acceleration.	QDIO routing accelerator

## Communications Server

Table 25. Summary of new and changed Communications Server NETSTAT TSO commands (continued)

Parameter	Release	Description	Reason for change
VDPT	V1R12	The section of the report containing the Dynamic VIPA Destination Port Table for non-z/OS targets can now show IPv6 non-z/OS distribution targets.	Extend sysplex distributor support for DataPower for IPv6
VDPT	V1R12	In the display for a distributed DVIPA, the distribution method is no longer displayed in the Flg field. The distribution method is now displayed in a new DistMethod field. The DistMethod field is not included in the short format display unless the DETAIL parameter is used.  The Flg field can now indicate the HotStandby target state, active (V or Active) or backup (K or Backup) depending on whether the Short or Long format display is used.  If the new distribution method HotStandby is displayed, a new SrvType field indicates the server type (Preferred or Backup).	Sysplex distributor support for hot-standby server
VDPT	V1R11	The TIER1 VIPADISTRIBUTE information displays the following: <ul style="list-style-type: none"> <li>• A new flag if the TARGCONTROLLED distribution method is configured.</li> <li>• A composite weight field</li> <li>• TIER1</li> <li>• TIER2</li> <li>• CPCSCOPE</li> </ul> If the VDPT parameter is used with DETAIL, the TIER1 VIPADISTRIBUTE information also contains the Tier 1 weight recommendation received from each target. This field is non-zero if TARGCONTROLLED distribution is being used.	<ul style="list-style-type: none"> <li>• Sysplex distributor optimization for multi-tier z/OS workloads</li> <li>• Sysplex distributor support for DataPower</li> </ul>
VIPADCFG	V1R12	The new IPv6 prefix length field is shown if it was configured. If used with DETAIL, a new value ENCAP can be displayed in the routing type (RtgType) field. ENCAP indicates that IPv6 routing encapsulation is used to forward requests.	Extend sysplex distributor support for DataPower for IPv6
VIPADCFG	V1R12	In the display for a distributed DVIPA, the distribution method is no longer displayed in the Flg field. The distribution method is now displayed in a new DistMethod field. The DistMethod field is not included in the short format display unless the DETAIL parameter is used.  If the new distribution method HotStandby is displayed, a new SrvType field indicates the server type, Preferred or Backup. If the server type is Backup, the Rank of the backup is also displayed.  If the distribution method is the new HOTSTANDBY distribution method and the DETAIL parameter is specified, the settings for AUTOSWITCHBACK and HEALTHSWITCH are also displayed.	Sysplex distributor support for hot-standby server

Table 25. Summary of new and changed Communications Server NETSTAT TSO commands (continued)

Parameter	Release	Description	Reason for change
VIPADCFG	V1R11	When the DETAIL parameter is specified, the configured PROCXCOST and ILWEIGHTING values, or the default values, are displayed for the SERVERWLM distribution method.	Support for enhanced WLM routing algorithms
	V1R11	<p>A new flag is displayed in the following circumstances:</p> <ul style="list-style-type: none"> <li>• If the VIPADefine, VIPABackup or VIPADistribute is for a TIER1, TIER2, or CPCSCOPE DVIPA.</li> <li>• If the VIPADistribute distribution method being used is coded with the TARGCONTROLLED keyword.</li> </ul> <p>If the VIPADCFG parameter is used with the DETAIL parameter, the following is true:</p> <ul style="list-style-type: none"> <li>• The TIER1 or TIER2 group name is displayed for a TIER1 or TIER2 VIPADistribute statement.</li> <li>• For a TIER1 VIPADistribute statement, the following are also displayed:                             <ul style="list-style-type: none"> <li>– A flag indicating the routing type GRE when this parameter is configured</li> <li>– A flag indicating the CONTROLPORT, followed by a port, if GRE routing or TARGCONTROLLED distribution is being used</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Sysplex distributor optimization for multi-tier z/OS workloads</li> <li>• Sysplex distributor support for DataPower</li> </ul>

### FTP TSO and UNIX commands

This section describes changes to the FTP TSO and UNIX commands. For more information about these commands, see *z/OS Communications Server: IP User's Guide and Commands*.

**FTP subcommands:** Table 26 lists the changes made to the FTP subcommands. For more information, see the *z/OS Communications Server: IP User's Guide and Commands*.

Table 26. Summary of new and changed Communications Server FTP subcommands

Subcommand	Release	Description	Reason for change
APpend	V1R11	You can now specify a z/OS UNIX named pipe as the local file. When you are logged into a V1R11 or later z/OS FTP server, you can specify a z/OS UNIX named pipe as the remote file.	FTP access to UNIX named pipes
DELEte	V1R11	When you are logged into a V1R11 or later z/OS FTP server, you can specify a z/OS UNIX named pipe as the remote file.	FTP access to UNIX named pipes
Get	V1R11	You can now specify a z/OS UNIX named pipe as the local file. When you are logged into a V1R11 or later z/OS FTP server, you can specify a z/OS UNIX named pipe as the remote file.	FTP access to UNIX named pipes

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Table 26. Summary of new and changed Communications Server FTP subcommands (continued)

Subcommand	Release	Description	Reason for change
LOCSITE	V1R11	The LOCSite subcommand now supports new options: <ul style="list-style-type: none"> <li>• FIFOIOTIME</li> <li>• FIFOOPEN TIME</li> <li>• UNIXFILETYPE</li> </ul>	FTP access to UNIX named pipes
	V1R11	The report generated by the QDISK parameter is enhanced. You can now use the QDISK parameter to report space statistics for extended address volumes.	FTP large-volume access
	V1R11	The LOCSite subcommand is used to modify the PASSIVEIGNOREADDR configuration option used by the FTP client.	FTP passive mode enhancements
LOCSTAT	V1R11	The LOCStat subcommand now supports new options: <ul style="list-style-type: none"> <li>• FIFOIOTIME</li> <li>• FIFOOPEN TIME</li> <li>• UNIXFILETYPE</li> </ul>	FTP access to UNIX named pipes
	V1R11	The LOCStat subcommand is used to display the PASSIVEIGNOREADDR configuration option used by the FTP client.	FTP passive mode enhancements
MDelete	V1R11	When you are logged into a V1R11 or later z/OS FTP server, you can specify one or more z/OS UNIX named pipes as remote files.	FTP access to UNIX named pipes
MGet	V1R11	You can now configure the z/OS FTP client to store local files as z/OS UNIX named pipes. When you are logged into a V1R11 or later z/OS FTP server, you can specify one or more z/OS UNIX named pipes as remote files.	FTP access to UNIX named pipes
MKFifo	V1R11	The MKFifo subcommand allows you to create a z/OS UNIX named pipe on the remote host.	FTP access to UNIX named pipes
MPut	V1R11	You can now specify one or more z/OS UNIX named pipes as local files.	FTP access to UNIX named pipes
Put	V1R11	You can now specify a z/OS UNIX named pipe as the local file. When you are logged into a V1R11 or later z/OS FTP server, you can specify a z/OS UNIX named pipe as a remote file.	FTP access to UNIX named pipes
REName	V1R11	When you are logged into a V1R11 or later z/OS FTP server, you can specify a z/OS UNIX named pipe as the original or new file name.	FTP access to UNIX named pipes
SITE	V1R11	The SITE subcommand now supports new options: <ul style="list-style-type: none"> <li>• FIFOIOTIME</li> <li>• FIFOOPEN TIME</li> <li>• UNIXFILETYPE</li> </ul>	FTP access to UNIX named pipes
	V1R11	The report generated by the QDISK parameter is enhanced. You can now use the QDISK parameter to report space statistics for extended address volumes.	FTP large-volume access

Table 26. Summary of new and changed Communications Server FTP subcommands (continued)

Subcommand	Release	Description	Reason for change
STAT	V1R11	The STAT subcommand now supports new options: <ul style="list-style-type: none"> <li>• FIFOIOTIME</li> <li>• FIFOOPEN TIME</li> <li>• UNIXFILETYPE</li> </ul>	FTP access to UNIX named pipes

## UNIX commands

Table 27 lists the new and updated Communications Server UNIX commands, except the FTP UNIX commands, and the netstat UNIX commands. See the following tables for those commands:

- Table 26 on page 65, FTP TSO and UNIX commands
- Table 28 on page 72, IP netstat UNIX commands

See *z/OS Communications Server: IP System Administrator's Commands* for more detailed information about the Communications Server UNIX commands.

### General updates of IP UNIX commands

Table 27. Summary of new and changed Communications Server UNIX commands

Command	Parm	Release	Description	Reason for change
binlsd	N/A	V1R11	Command is no longer supported.	Removal of support.
certbundle	N/A	V1R12	New command to create a certificate bundle file.	IKE version 2 support
dadmin	N/A	V1R11	Command is no longer supported.	Removal of support.
dhcpsd	N/A	V1R11	Command is no longer supported.	Removal of support.
dig	@server	V1R12	This parameter is no longer required for a name server which exists on an IPv6-only host.	Resolver support for IPv6 connections to DNS name servers

## Communications Server

Table 27. Summary of new and changed Communications Server UNIX commands (continued)

Command	Parm	Release	Description	Reason for change
ipsec	-f display	V1R12	<p>Report output includes new field for FIPS140.</p> <p>The following fields are changed:</p> <ul style="list-style-type: none"> <li>• DestPort, ICMPCode, ICMPType, MIPv6Type, and SourcePort - fields changed to include values of All, Opaque, and n/a.</li> <li>• ICMPTypeGranularity, ICMPCodeGranularity, and MIPv6TypeGranularity - fields changed to include values of Rule, Packet, and n/a.</li> <li>• OSPFType - field changed to include values of All and n/a.</li> <li>• RemoteIdentityType - field changed to include a KEYID value to indicate an opaque byte stream.</li> <li>• TypeRange, CodeRange, and SourcePortRange - fields changed to include a value of n/a.</li> </ul>	IPSec support for FIPS 140 cryptographic mode
		V1R11	<p>Report output includes the following new fields:</p> <ul style="list-style-type: none"> <li>• ICMP code and type granularity</li> <li>• MIPv6 type granularity</li> </ul> <p>In addition, the existing granularity fields are changed to display the value N/A in cases where they are not applicable.</p>	IPSec enhancements

Table 27. Summary of new and changed Communications Server UNIX commands (continued)

Command	Parm	Release	Description	Reason for change
ipsec continued	-k display	V1R12	<p>Report is changed as follows:</p> <ul style="list-style-type: none"> <li>The possible AuthenticationAlgorithm values for IKEv1 tunnels are changed from HMAC-MD5 and HMAC-SHA1 to HMAC-MD5, HMAC-SHA1, HMAC-SHA2-256-128, HMAC-SHA2-384-192, and HMAC-SHA2-512-256. The possible values for IKEv2 tunnels are: AES128-XCBC-96, HMAC-MD5-96, HMAC-SHA1-96, HMAC-SHA2-256-128, HMAC-SHA2-384-192, and HMAC-SHA2-512-256.</li> <li>The ExchangeMode field is always set to n/a for IKEv2 because only IKEv1 supports this field</li> <li>The IKEVersion field includes a new value of 2.x to indicate IKE version 2.</li> <li>The LocalIDType and RemoteIDType fields include a KEYID value. The LocalAuthenticationMethod and RemoteAuthenticationMethod fields include new values of ECDSA-256, ECDSA-384 and ECDSA-521.</li> <li>The State fields that existed prior to V1R12 are applicable to IKEv1. State values that are applicable to IKEv2 are INIT, WAIT KE, WAITAUTH, DONE, HALF-CLOSED, and EXPIRED.</li> <li>The EncryptionAlgorithm value of TripleDES-CBC changed to 3DES-CBC.</li> <li>The EncryptionAlgorithm field has a new value of KeyLength.</li> <li>The PseudoRandomFunction, LocalAuthenticationMethod, and RemoteAuthenticationMethod field values are processed differently depending on if you are using IKEv1 or IKEv2.</li> <li>For IKEv2, the PseudoRandomFunction field has the new values of AES-XCBC-128, HMAC-MD5, HMAC-SHA1, HMAC-SHA-256, HMAC-SHA-384, and HMAC-SHA-512.</li> <li>The NAT traversal fields are not supported for IKEv2.</li> </ul>	IKE version 2 support

## Communications Server

Table 27. Summary of new and changed Communications Server UNIX commands (continued)

Command	Parm	Release	Description	Reason for change
ipsec continued	-k display	V1R11	<p>Report output includes the following new fields:</p> <ul style="list-style-type: none"> <li>• Generation</li> <li>• IKEVersion</li> <li>• PseudoRandomFunction</li> <li>• LocalAuthenticationMethod</li> <li>• RemoteAuthenticationMethod</li> <li>• ReauthInterval</li> <li>• ReauthTime</li> </ul> <p>In addition, the following changes are made:</p> <ul style="list-style-type: none"> <li>• The possible AuthenticationAlgorithm values are changed from HMAC_MD5 and HMAC_SHA to HMAC-MD5 and HMAC-SHA1, respectively.</li> <li>• The possible EncryptionAlgorithm values are changed from DES, 3DES and AES to DES-CBC, 3DES-CBC, and AES-CBC, respectively</li> </ul> <p>The AuthenticationMethod field is removed:</p>	IPSec enhancements
ipsec continued	-m display	V1R12	<p>The report is changed as follows:</p> <ul style="list-style-type: none"> <li>• Report output includes new value for KeyLength on the HowToEncrypt field.</li> <li>• The HowToAuth field has the following new values for AuthAlgorithm: NULL, AES-GMAC-128, AES-XCBC-MAC-96, HMAC-SHA-256-128, HMAC-SHA-384-192, and HMAC-SHA-512-256.</li> <li>• The possible values for the HowToEncrypt field are changed to DoNot, AES-CBC, AES-GCM-16, DES-CBC, and 3DES-CBC.</li> </ul>	<ul style="list-style-type: none"> <li>• IKE version 2 support</li> <li>• IPSec support for cryptographic currency</li> </ul>



Table 27. Summary of new and changed Communications Server UNIX commands (continued)

Command	Parm	Release	Description	Reason for change
ipsec continued	-y display	V1R12	<p>The report is changed as follows:</p> <ul style="list-style-type: none"> <li>The IKEVersion field includes a new value of 2.x to indicate IKE version 2.</li> <li>The AssociatedFiltSrcPort, AssociatedFiltType, Code, LocalPort and Type fields changed to include values of All, Opaque, and n/a.</li> <li>The HowToEncrypt field has a new value of KeyLength.</li> <li>The HowToAuth field has new values for AuthAlgorithm: NULL, AES-GMAC-128, AES-XCBC-MAC-96, HMAC-SHA-256-128, HMAC-SHA-384-192, and HMAC-SHA-512-256.</li> <li>The possible values for the HowToEncrypt field are changed to DoNot, AES-CBC, AES-GCM-16, DES-CBC, and 3DES-CBC</li> </ul>	<ul style="list-style-type: none"> <li>IKE version 2 support</li> <li>IPSec support for cryptographic currency</li> </ul>
		V1R11	<p>Report output includes the following new fields:</p> <ul style="list-style-type: none"> <li>Generation</li> <li>IKEVersion</li> <li>Type</li> <li>TypeRange</li> <li>Code</li> <li>CodeRange</li> <li>LocalPortRange</li> <li>RemotePortRange</li> </ul> <p>In addition, the following changes are made:</p> <ul style="list-style-type: none"> <li>The possible AuthAlgorithm values are changed from Hmac_Md5 and Hmac_Sha to HMAC-MD5 and HMAC_SHA1, respectively.</li> <li>The possible HowToEncrypt values are changed from DES, 3DES, AES, or NULL. to DES-CBC, TripleDES-CBC, AES-CBC, or NULL., respectively.</li> </ul>	IPSec enhancements
named4	N/A	V1R11	Command is no longer supported.	Removal of support.
namedxfr	N/A	V1R11	Command is no longer supported.	Removal of support.
nslookup	<ul style="list-style-type: none"> <li>-server_name</li> <li>-server_address</li> </ul>	V1R12	These parameters are no longer required to specify a name server that exists on an IPv6-only host.	Resolver support for IPv6 connections to DNS name servers
nslookup4	N/A	V1R11	Command is no longer supported.	Removal of support.
nssctl	-d	V1R11	Report is enhanced to display private key and certificate services information for XMLAppliance clients.	NSS private key and certificate services for XML appliances
nsupdat4	N/A	V1R11	Command is no longer supported.	Removal of support.

## Communications Server

Table 27. Summary of new and changed Communications Server UNIX commands (continued)

Command	Parm	Release	Description	Reason for change
pasearch	-t	V1R11	Displays new parameters on AT-TLS configuration statements.	AT-TLS enhancements
ping	-v	V1R11	New -v parameter specifies that the Ping command should display detailed information about received echo replies and a statistics summary.	Verbose Ping
trmd	-p <i>stackname</i>	V1R11	New parameter to specify the TCP/IP stack name that TRMD uses.	Policy infrastructure management enhancements

### netstat UNIX commands

Table 28 lists the new and updated Communications Server netstat UNIX command. See Table 27 on page 67 for the other (the non-netstat) Communications Server UNIX command entries.

See *z/OS Communications Server: IP System Administrator's Commands* for more detailed information about the Communications Server UNIX commands.

All parameters in the following table are for the netstat UNIX command.

Table 28. Summary of new and changed Communications Server netstat UNIX commands

Parameter	Release	Description	Reason for change
-A	V1R12	Added new fields ReceivingInterface and ReceivingQueue for TCP connections that are using the QDIO inbound workload queueing function.	Performance improvements for streaming bulk data
-A	V1R12	Displays the new TCP trusted connection flag (TcpTrustedPartner), which indicates that the partner security credentials of a partner within a sysplex or subplex have been retrieved using the SIOCGPARTNERINFO ioctl, or that the SIOCSPARTNERINFO ioctl has been successfully issued or inherited from the listener socket.	Trusted TCP connections
-A	V1R11	The report displays an indicator as to whether the stack is automatically tuning the advertised receive window for this connection.	TCP throughput improvements for high-latency networks
	V1R11	The report displays a TCP connection in SynRcvd state.	Release update
	V1R11	The report has the following new fields: <ul style="list-style-type: none"> <li>ServerBacklog - Displays the number of connections currently in the backlog queue that are established but are not yet accepted.</li> <li>FRCABacklog - Displays the number of connections currently in the backlog queue that are established FRCA connections and that do not require an accept from the server application.</li> </ul>	Sysplex autonomies improvements for FRCA
	V1R11	The following values, which are used by WLM when determining a server-specific recommendation, are displayed if the socket is in a listening state and port sharing is being used: <ul style="list-style-type: none"> <li>The weighting factor that WLM uses when comparing displaceable capacity at different importance levels.</li> <li>The crossover costs that are applied to a zAAP- or zIIP-targeted workload that were processed on the conventional processor.</li> </ul>	Support for enhanced WLM routing algorithms

Table 28. Summary of new and changed Communications Server netstat UNIX commands (continued)

Parameter	Release	Description	Reason for change
-a	V1R11	The report displays a TCP connection in SynRcvd state.	Release update
-b	V1R11	The report displays a TCP connection in SynRcvd state.	Release update
-c	V1R11	The report displays a TCP connection in SynRcvd state.	Release update
-D	V1R11	A TCP connection in SynRcvd state can be dropped.	Release update
-d	V1R12	<ul style="list-style-type: none"> <li>Moved the InbPerf field from the right column to the left column on a new line.</li> <li>Added the WorkloadQueueing field to indicate whether inbound workload queueing is enabled for IPAQENET or IPAQENET6 interfaces. This field is only displayed when InbPerf is Dynamic.</li> </ul>	Configurable default address selection policy table
-d	V1R12	<ul style="list-style-type: none"> <li>Added a ChpidType field for IPAQENET and IPAQENET6 interfaces.</li> <li>Displays information about intraensemble data network and intranode management network interfaces.</li> </ul>	z/OS Communications Server in an ensemble
-d	V1R11	Displays whether OSA-Express3 optimized latency mode is enabled for IPAQENET (defined using the INTERFACE statement) and IPAQENET6 interfaces configured with an INTERFACE statement.	OSA-Express3 optimized latency mode
	V1R11	Displays the setting of the NOISOLATE and the ISOLATE parameters from the INTERFACE profile statement for IPAQENET (defined using the INTERFACE statement) and IPAQENET6.	QDIO support for OSA interface isolation
	V1R11	Displays the temporary prefix list for an IPAQENET6 interface.	IPv6 stateless address autoconfiguration enhancements
-e	V1R11	The report displays a TCP connection in SynRcvd state.	Release update
-F	V1R12	The new IPv6 prefix length field is shown if it was configured. If used with DETAIL, a new value ENCAP can be displayed in the routing type (RtgType) field. ENCAP indicates that IPv6 routing encapsulation is used to forward requests.	Extend sysplex distributor support for DataPower for IPv6
-F	V1R12	<p>In the display for a distributed DVIPA, the distribution method is no longer displayed in the Flg field. The distribution method is now displayed in a new DistMethod field. The DistMethod field is not included in the short format display unless the DETAIL parameter is used.</p> <p>If the new distribution method HotStandby is displayed, a new SrvType field indicates the server type, Preferred or Backup. If the server type is Backup, the Rank of the backup is also displayed.</p> <p>If the distribution method is the new HOTSTANDBY distribution method and the DETAIL parameter is specified, the settings for AUTOSWITCHBACK and HEALTHSWITCH are also displayed.</p>	Sysplex distributor support for hot-standby server

## Communications Server

Table 28. Summary of new and changed Communications Server netstat UNIX commands (continued)

Parameter	Release	Description	Reason for change
-F	V1R11	When the DETAIL parameter is specified, the configured PROCXCOST and ILWEIGHTING values, or the default values, are displayed for the SERVERWLM distribution method.	Support for enhanced WLM routing algorithms
	V1R11	<p>A new flag is displayed in the following circumstances:</p> <ul style="list-style-type: none"> <li>• If the VIPADefine, VIPABackup or VIPADistribute is for a TIER1, TIER2, or CPCSCOPE DVIPA.</li> <li>• If the VIPADistribute distribution method being used is coded with the TARGCONTROLLED keyword.</li> </ul> <p>If the VIPADCFG parameter is used with the DETAIL parameter, the following is true:</p> <ul style="list-style-type: none"> <li>• The TIER1 or TIER2 group name is displayed for a TIER1 or TIER2 VIPADistribute statement.</li> <li>• For a TIER1 VIPADistribute statement, the following are also displayed: <ul style="list-style-type: none"> <li>– A flag indicating the routing type GRE when this parameter is configured</li> <li>– A flag indicating the CONTROLPORT, followed by a port, if GRE routing or TARGCONTROLLED distribution is being used</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Sysplex distributor optimization for multi-tier z/OS workloads</li> <li>• Sysplex distributor support for DataPower</li> </ul>
-f	V1R12	New OSMSecClass field added to the IPv6 Configuration section to display the setting of the OSMSECCLASS parameter from the IPCONFIG6 profile statement.	z/OS Communications Server in an ensemble

Table 28. Summary of new and changed Communications Server netstat UNIX commands (continued)

Parameter	Release	Description	Reason for change
-f	V1R12	Displays the setting of the NOJOIN subparameter from the GLOBALCONFIG SYSPLEXMONITOR profile statement, which indicates whether the TCP/IP stack joins the sysplex group during stack initialization.	Control joining the sysplex XCF group
	V1R12	<ul style="list-style-type: none"> <li>The SMF parameters section displays the setting of the new DVIPA and NODVIPA parameters.</li> <li>The Network Monitor Configuration Information section displays the setting of the new DVIPA and NODVIPA subparameters for the SMFSERVICE parameter.</li> </ul>	SMF event records for sysplex events
	V1R12	The Network Monitor Configuration Information section displays the setting of the new CSMAIL, NOCSMAIL, CSSMTP and NOCSSMTP subparameters for the SMFSERVICE parameter.	Management data for CSSMTP
	V1R11	Displays the setting of the NOWLMPRIORITYQ and the WLMRIORITYQ parameters from the GLOBALCONFIG profile statement.	QDIO enhancements for WLM IO priority
	V1R11	<ul style="list-style-type: none"> <li>The SMF Parameters section displays the setting of the new PROFILE and NOPROFILE parameters.</li> <li>The Network Monitor Configuration Information section displays the setting of the new PROFILE and NOPROFILE subparameters for the SMFSERVICE parameter.</li> </ul>	Stack configuration data
	V1R11	The Network Monitor Configuration Information section displays the setting of the new NTATRCSERVICE and NONTATRCSERVICE parameters.	OSA network traffic analyzer data
	V1R11	Displays whether temporary addresses are enabled and if enabled, the preferred and valid lifetime values for temporary addresses.	IPv6 stateless address autoconfiguration enhancements
	V1R11	Displays an indicator as to whether QDIO accelerator support is enabled.	QDIO routing accelerator
-h	V1R11	The report is changed to add a flag value of TEMPORARY which is displayed for an IPv6 temporary address. Also, for a temporary address the valid lifetime expiration is displayed.	IPv6 stateless address autoconfiguration enhancements
-J	V1R12	The report is changed to display JOBNAME entries with a source of PUBLICADDRS.	Configurable default address selection policy table
	V1R11	Displays JOBNAME entries with a source of TEMPADDRS.	IPv6 stateless address autoconfiguration enhancements
-l	V1R12	New report to display default address selection policy table.	Configurable default address selection policy table
-O	V1R12	The section of the report containing the Dynamic VIPA Destination Port Table for non-z/OS targets can now show IPv6 non-z/OS distribution targets.	Extend sysplex distributor support for DataPower for IPv6

## Communications Server

Table 28. Summary of new and changed Communications Server netstat UNIX commands (continued)

Parameter	Release	Description	Reason for change
-O	V1R12	In the display for a distributed DVIPA, the distribution method is no longer displayed in the Flg field. The distribution method is now displayed in a new DistMethod field. The DistMethod field is not included in the short format display unless the DETAIL parameter is used.  The Flg field can now indicate the HotStandby target state, active (V or Active) or backup (K or Backup) depending on whether the Short or Long format display is used.  If the new distribution method HotStandby is displayed, a new SrvType field indicates the server type (Preferred or Backup).	Sysplex distributor support for hot-standby server
-O	V1R11	The TIER1 VIPADISTRIBUTE information displays the following: <ul style="list-style-type: none"> <li>• A new flag if the TARGCONTROLLED distribution method is configured.</li> <li>• A composite weight field</li> <li>• TIER1</li> <li>• TIER2</li> <li>• CPCSCOPE</li> </ul> If the VDPT parameter is used with DETAIL, the TIER1 VIPADISTRIBUTE information also contains the Tier 1 weight recommendation received from each target. This field is non-zero if TARGCONTROLLED distribution is being used.	<ul style="list-style-type: none"> <li>• Sysplex distributor optimization for multi-tier z/OS workloads</li> <li>• Sysplex distributor support for DataPower</li> </ul>
-q	V1R11	New report option that displays the resolver cache information.	Resolver DNS cache
-r	V1R12	<ul style="list-style-type: none"> <li>• Support is added for a new modifier, RADV, to display all of the IPv6 routes created based on information received in router advertisement messages.</li> <li>• Default routes learned from IPv6 router advertisements are displayed with a metric of 1 when the router advertisement indicated a preference of high, 2 when the router advertisement indicated a preference of medium, or 3 when the router advertisement indicated a preference of low. In past releases, these routes were always displayed with a metric of 1.</li> </ul>	Enhancements to IPv6 router advertisement
	V1R11	The report displays routes from the QDIO accelerator routing table. The IQDIO and QDIOACCEL parameters are mutually exclusive with DETAIL.	QDIO routing accelerator
-S	V1R12	Added new field, Segments Received on OSA Bulk Queues, which indicates the total number of segments received for all TCP connections using the bulk data ancillary input queue of the QDIO inbound workload queueing function.	Performance improvements for streaming bulk data
-s	V1R11	The report displays a TCP connection in SynRcvd state.	Release update
-t	V1R11	The report displays a TCP connection in SynRcvd state.	Release update
-V	V1R11	When the DETAIL modifier is specified, displays an indicator as to whether a sysplex distributor connection is eligible for acceleration.	QDIO routing accelerator
-x	V1R11	When the COConn and DETAIL modifiers are specified, the report displays the attributes specified from the new parameters on the AT-TLS configuration statements.	AT-TLS enhancements

## Environment variables

Table 29 lists the new and updated Communications Server environment variables. See *z/OS Communications Server: IP Configuration Reference* for more detailed information.

Table 29. Summary of new and changed Communications Server environment variables

Environment Variables	Appl	Release	Description	Reason for change
CSSMTP_CODEPAGE_CONFIG	CSSMTP	V1R11	Controls the EBCDIC code page used for configuration file to convert to EBCDIC IBM-1047.	New SMTP client for sending Internet mail
DMD_CODEPAGE	Defense Manager daemon (DMD)	V1R11	New environment variable used to specify the EBCDIC codepage to be used for the configuration file.	Policy infrastructure management enhancements
IKED_CODEPAGE	IKE daemon	V1R11	New environment variable used to specify the EBCDIC codepage to be used for the configuration file.	Policy infrastructure management enhancements
NSSD_CODEPAGE	Network Security Services (NSS) daemon	V1R11	New environment variable used to specify the EBCDIC codepage to be used for the configuration file.	Policy infrastructure management enhancements
SYSLOGD_CODEPAGE	syslog daemon	V1R11	New environment variable used to specify the EBCDIC codepage to be used for the configuration file.	Policy infrastructure management enhancements
SYSLOGD_CONFIG_FILE	syslog daemon	V1R11	New environment variable used to specify the syslogd configuration file name. The -f start option overrides this value.	Policy infrastructure management enhancements
SYSLOGD_DEBUG_LEVEL	syslog daemon	V1R11	New environment variable used to specify the debug level used by syslogd.	Policy infrastructure management enhancements
SYSLOGD_PATH_NAME	syslog daemon	V1R11	New environment variable used to specify the path name for the datagram socket. The -p start option overrides this value.	Policy infrastructure management enhancements

## Applications

Table 30 on page 78 lists the new and updated Communications Server applications. See *z/OS Communications Server: IP Configuration Reference* for more detailed information.

## Communications Server

Table 30. Summary of new and changed Communications Server applications

Application	Release	Description	Reason for change
CSSMTP mail application	V1R11	The following SMTP commands in the JES spool file are supported by the new CSSMTP mail application: <ul style="list-style-type: none"> <li>• EHLO - Identifies the domain name of the host that is sending to SMTP. This function is only supported by CSSMTP.</li> <li>• STARTTLS - Negotiates the use of TLS. This function is only supported by CSSMTP.</li> </ul>	New SMTP client for sending Internet mail
z/OS UNIX Telnet server (otelnetd)	V1R11	Support is added for a new banner page called /etc/otelnetd.banner. Starting in V1R11, when you connect to the server and when -h is not set in the /etc/inetd.conf file, the banner pages from /etc/banner and the new /etc/otelnetd.banner are displayed.	Customizable pre-logout banner for otelnetd

## APIs

This section includes updates made to the following APIs:

- “SNMP manager API”
- “Local IPsec NMI”
- “Network security services (NSS) NMI” on page 81
- “Real-time network monitoring TCP/IP NMI” on page 84
- “Packet and data trace formatting NMI” on page 87
- “TCP/IP callable NMI (EZBNMIFR)” on page 87
- “FTP client API” on page 89
- “Trusted TCP connections API for Java” on page 90

See *z/OS Communications Server: IP Programmer's Guide and Reference* for more detailed API information.

### SNMP manager API

Table 31 lists the updates to the Communications Server SNMP manager network management interface (NMI).

Table 31. Summary of new Communications Server IP SNMP manager API

Function	Parameters	Release	Description	Reason for change
snmpValueCreateUnsigned32	N/A	V1R12	This new function creates an smiValue structure, of type UNSIGNED32, that is used in the creation of an SNMP VarBind.	Enhancements to SNMP manager API
snmpBuildSession	SnmpConfigEntry	V1R12	The input SnmpConfigEntry structure can be used to pass an engineID value to be used when sending an SNMPv2 trap with USM security.	Enhancements to SNMP manager API
snmpInitialize	functionsRequested	V1R12	A value of 1 is now allowed for this parameter. This indicates a manager application's use of updated V1R12 data structures. Previously, 0 was the only allowed value.	Enhancements to SNMP manager API

### Local IPsec NMI

Table 32 on page 79 lists the updates to the Communications Server application interface for Local IPsec network management interface (NMI).



Table 32. Summary of new Communications Server IP Local IPSec NMI

Request / Response	Rel.	Description	Reason for change
NMsec_GET_IKETUN	V1R12	<p>The NMsecIKETunnel structure has the following updates:</p> <ul style="list-style-type: none"> <li>• New fields: <ul style="list-style-type: none"> <li>– NMslKETunFIPS140</li> <li>– NMslKETunEncryptKeyLength</li> </ul> </li> <li>• The NMslKETunExchangeMode field is changed in that it is not applicable for IKEv2 SAs.</li> <li>• The NMslKETunState field has a new value: <ul style="list-style-type: none"> <li>– NMsec_SASTATE_HALF_CLOSED (6)</li> </ul> </li> <li>• The NMslKETunExtState has new values: <ul style="list-style-type: none"> <li>– NMsec_P1STATE_WAIT_AUTH (6)</li> <li>– NMsec_P1STATE_HALF_CLOSED (7)</li> </ul> </li> <li>• The NMslKETunAuthAlg field has the following new values: <ul style="list-style-type: none"> <li>– NMsec_AUTH_HMAC_SHA2_256_128 (7)</li> <li>– NMsec_AUTH_HMAC_SHA2_384_192 (13)</li> <li>– NMsec_AUTH_HMAC_SHA2_512_256 (14)</li> <li>– NMsec_AUTH_AES128_XCBC_96 (9)</li> </ul> </li> </ul> <p>The NMslKETunAuthAlg field also has existing values that have changed descriptions. Those values with changed descriptions are:</p> <ul style="list-style-type: none"> <li>– NMsec_AUTH_HMAC_MD5 (38)</li> <li>– NMsec_AUTH_HMAC_SHA1 (39)</li> <li>– NMsec_AUTH_HMAC_SHA1_96 (41)</li> </ul> <ul style="list-style-type: none"> <li>• The NMslKETunEncryptAlg field has a changed value: <ul style="list-style-type: none"> <li>– NMsec_ENCR_AES (12) was changed to NMsec_ENCR_AES_CBC (12)</li> </ul> </li> <li>• The NMslKETunLocalAuthMethod field has the following new values: <ul style="list-style-type: none"> <li>– NMsec_IKETUN_ECDSA_256 (4)</li> <li>– NMsec_IKETUN_ECDSA_384 (5)</li> <li>– NMsec_IKETUN_ECDSA_521 (6)</li> </ul> </li> <li>• The NMslKETunPeerAuthMethod field has the following new values: <ul style="list-style-type: none"> <li>– NMsec_AUTH_HMAC_SHA2_256 (15)</li> <li>– NMsec_AUTH_HMAC_SHA2_384 (16)</li> <li>– NMsec_AUTH_HMAC_SHA2_512 (17)</li> <li>– NMsec_AUTH_AES128_XCBC (18)</li> </ul> </li> <li>• The NMslKETunPseudoRandomFunc field has the following new values: <ul style="list-style-type: none"> <li>– NMsec_IKETUN_ECDSA_256 (4)</li> <li>– NMsec_IKETUN_ECDSA_384 (5)</li> <li>– NMsec_IKETUN_ECDSA_521 (6)</li> </ul> </li> </ul>	IKE version 2 support
NMsec_GET_IKETUN	V1R11	<p>The NMsecIKETunnel structure contains the following new fields:</p> <ul style="list-style-type: none"> <li>• NMslKETunMajorVer</li> <li>• NMslKETunMinorVer</li> <li>• NMslKETunPseudoRandomFunc</li> <li>• NMslKETunRemoteAuthMethod</li> <li>• NMslKETunReauthInterval</li> <li>• NMslKETunReauthTime</li> <li>• NMslKETunGeneration</li> </ul>	IPSec enhancements

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Table 32. Summary of new Communications Server IP Local IPsec NMI (continued)

Request / Response	Rel.	Description	Reason for change
NMsec_GET_IKETUNCASCADE	V1R11	<p>The NMsecIPDynTunnel structure contains the following new fields:</p> <ul style="list-style-type: none"> <li>• NMsiPDynMajorVer</li> <li>• NMsiPDynMinorVer</li> <li>• NMsiPDynType</li> <li>• NMsiPDynTypeRange</li> <li>• NMsiPDynCode</li> <li>• NMsiPDynCodeRange</li> <li>• NMsiPDynSrcPortRange</li> <li>• NMsiPDynDstPortRange</li> <li>• NMsiPDynGeneration</li> </ul> <p>The NMsiPDynRsvd5 field is removed from the NMsecIPDynTunnel structure.</p> <p>The NMsecKETunnel structure contains the following new fields:</p> <ul style="list-style-type: none"> <li>• NMsiKETunMajorVer</li> <li>• NMsiKETunMinorVer</li> <li>• NMsiKETunPseudoRandomFunc</li> <li>• NMsiKETunRemoteAuthMethod</li> <li>• NMsiKETunReauthInterval</li> <li>• NMsiKETunReauthTime</li> <li>• NMsiKETunGeneration</li> </ul>	IPsec enhancements
NMsec_GET_IPFLTCURR	V1R11	<p>The NMsecIPFilter structure contains the following new fields:</p> <ul style="list-style-type: none"> <li>• NMsiPFItFlagTransOpaque</li> <li>• NMsiPFItFlagMIPv6TypePktGran</li> <li>• NMsiPFItFlagCMPTypePktGran</li> <li>• NMsiPFItFlagCMPCodePktGran</li> <li>• NMsiPFItFlagCMPv6TypePktGran</li> <li>• NMsiPFItFlagCMPv6CodePktGran</li> </ul> <p>The NMsiPFItRsvd1 field is removed.</p> <p>The length of the NMsiPFItRsvd2 is shortened.</p>	IPsec enhancements
NMsec_GET_IPFLTDEFAULT	V1R11	<p>The NMsecIPFilter structure contains the following new fields:</p> <ul style="list-style-type: none"> <li>• NMsiPFItFlagTransOpaque</li> <li>• NMsiPFItFlagMIPv6TypePktGran</li> <li>• NMsiPFItFlagCMPTypePktGran</li> <li>• NMsiPFItFlagCMPCodePktGran</li> <li>• NMsiPFItFlagCMPv6TypePktGran</li> <li>• NMsiPFItFlagCMPv6CodePktGran</li> </ul> <p>The NMsiPFItRsvd1 field is removed.</p> <p>The length of the NMsiPFItRsvd2 is shortened.</p>	IPsec enhancements
NMsec_GET_IPFLTPOLICY	V1R11	<p>The NMsecIPFilter structure contains the following new fields:</p> <ul style="list-style-type: none"> <li>• NMsiPFItFlagTransOpaque</li> <li>• NMsiPFItFlagMIPv6TypePktGran</li> <li>• NMsiPFItFlagCMPTypePktGran</li> <li>• NMsiPFItFlagCMPCodePktGran</li> <li>• NMsiPFItFlagCMPv6TypePktGran</li> <li>• NMsiPFItFlagCMPv6CodePktGran</li> </ul> <p>The NMsiPFItRsvd1 field is removed.</p> <p>The length of the NMsiPFItRsvd2 is shortened.</p>	IPsec enhancements

Table 32. Summary of new Communications Server IP Local IPsec NMI (continued)

Request / Response	Rel.	Description	Reason for change
NMsec_GET_IPTUNDYNIKE	V1R12	The NMsecIPDynamicIKE structure has a new value for the NMsiPDynKEExtState field: <ul style="list-style-type: none"> <li>• NMsec_P2STATE_HALF_CLOSED (5)</li> </ul>	IKE version 2 support
	V1R11	The NMsecIPDynTunnel structure contains the following new fields: <ul style="list-style-type: none"> <li>• NMsiPDynMajorVer</li> <li>• NMsiPDynMinorVer</li> <li>• NMsiPDynType</li> <li>• NMsiPDynType</li> <li>• NMsiPDynTypeRange</li> <li>• NMsiPDynCode</li> <li>• NMsiPDynCodeRange</li> <li>• NMsiPDynSrcPortRange</li> <li>• NMsiPDynDstPortRange</li> <li>• NMsiPDynGeneration</li> </ul> The NMsiPDynRsvd5 field is removed.	IPsec enhancements
NMsec_GET_IPTUNDYNSTACK	V1R11	The NMsecIPDynTunnel structure contains the following new fields: <ul style="list-style-type: none"> <li>• NMsiPDynMajorVer</li> <li>• NMsiPDynMinorVer</li> <li>• NMsiPDynType</li> <li>• NMsiPDynType</li> <li>• NMsiPDynTypeRange</li> <li>• NMsiPDynCode</li> <li>• NMsiPDynCodeRange</li> <li>• NMsiPDynSrcPortRange</li> <li>• NMsiPDynDstPortRange</li> <li>• NMsiPDynGeneration</li> </ul> The NMsiPDynRsvd5 field is removed.	IPsec enhancements
NMsec_GET_IPTUNMANUAL	V1R12	The NMsecIPTunnel structure includes the following updates: <ul style="list-style-type: none"> <li>• New fields:                             <ul style="list-style-type: none"> <li>– NMsiPTunFIPS140</li> <li>– NMsiPTunEncryptKeyLength</li> </ul> </li> <li>• The NMsiPTunState field has a new value:                             <ul style="list-style-type: none"> <li>– NMsec_SASTATE_HALF_CLOSED (6)</li> </ul> </li> <li>• The NMsiPTunAuthAlg field has the following new values:                             <ul style="list-style-type: none"> <li>– NMsec_AUTH_NULL (0)</li> <li>– NMsec_AUTH_AES_GMAC_128 (4)</li> <li>– NMsec_AUTH_AES_GMAC_256 (6)</li> <li>– NMsec_AUTH_HMAC_SHA2_256_128 (7)</li> <li>– NMsec_AUTH_AES128_XCBC_96 (9)</li> <li>– NMsec_AUTH_HMAC_SHA2_384_192 (13)</li> <li>– NMsec_AUTH_HMAC_SHA2_512_256 (14)</li> </ul>                             The NMsiPTunAuthAlg field also has existing values that have changed descriptions. Those values are:                             <ul style="list-style-type: none"> <li>– NMsec_AUTH_HMAC_MD5 (38)</li> <li>– NMsec_AUTH_HMAC_SHA1 (39)</li> </ul> </li> <li>• The NMsiPTunEncryptAlg field has a new value and a changed value. The new value is NMsec_ENCR_AES_GCM_16 (20)</li> <li>• The NMsec_ENCR_AES (12) value was changed to NMsec_ENCR_AES_CBC (12).</li> </ul>	IKE version 2 support
NMsec_GET_STACKINFO	V1R12	The NMsecStack structure has a new field: <ul style="list-style-type: none"> <li>• NMStackFIPS140</li> </ul>	IPsec support for FIPS 140 cryptographic mode
<ul style="list-style-type: none"> <li>• NMsec_GET_IPTUNMANUAL</li> <li>• NMsec_GET_IPTUNDYNAMIC</li> <li>• NMsec_GET_IPTUNDYNIKE</li> <li>• NMsec_GET_IKETUN</li> <li>• NMsec_GET_IKETUNCASCADE</li> </ul>	V1R12	The NMsecInFilter structure has a new value for the NMsiFitSASState field: <ul style="list-style-type: none"> <li>• NMsec_SASTATE_HALF_CLOSED (6)</li> </ul>	IKE version 2 support

### Network security services (NSS) NMI

Table 33 on page 82 lists the updates to the Communications Server application interface for NSS management interface (NMI).

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Table 33. Summary of new Communications Server NSS NMI

Request / Response	Rel.	Description	Reason for change
NMsec_GET_CLIENTINFO	V1R11	New flag fields to show whether the XMLAppliance client is enabled for the XMLAppliance certificate and private key services.	NSS private key and certificate services for XML appliances
NMsec_GET_IKETUN	V1R12	<p>The NMsecIKETunnel structure has the following updates:</p> <ul style="list-style-type: none"> <li>• New fields: <ul style="list-style-type: none"> <li>– NMslKETunFIPS140</li> <li>– NMslKETunEncryptKeyLength</li> </ul> </li> <li>• The NMslKETunExchangeMode field is changed in that it is not applicable for IKEv2 SAs.</li> <li>• The NMslKETunState field has a new value: <ul style="list-style-type: none"> <li>– NMsec_SASTATE_HALF_CLOSED (6)</li> </ul> </li> <li>• The NMslKETunExtState has new values: <ul style="list-style-type: none"> <li>– NMsec_P1STATE_WAIT_AUTH (6)</li> <li>– NMsec_P1STATE_HALF_CLOSED (7)</li> </ul> </li> <li>• The NMslKETunAuthAlg field has the following new values: <ul style="list-style-type: none"> <li>– NMsec_AUTH_HMAC_SHA2_256_128 (7)</li> <li>– NMsec_AUTH_HMAC_SHA2_384_192 (13)</li> <li>– NMsec_AUTH_HMAC_SHA2_512_256 (14)</li> <li>– NMsec_AUTH_AES128_XCBC_96 (9)</li> </ul> <p>The NMslKETunAuthAlg field also has existing values that have changed descriptions. Those values with changed descriptions are:</p> <ul style="list-style-type: none"> <li>– NMsec_AUTH_HMAC_MD5 (38)</li> <li>– NMsec_AUTH_HMAC_SHA1 (39)</li> <li>– NMsec_AUTH_HMAC_SHA1_96 (41)</li> </ul> </li> <li>• The NMslKETunEncryptAlg field has a changed value: <ul style="list-style-type: none"> <li>– NMsec_ENCR_AES (12) was changed to NMsec_ENCR_AES_CBC (12)</li> </ul> </li> <li>• The NMslKETunLocalAuthMethod field has the following new values: <ul style="list-style-type: none"> <li>– NMsec_IKETUN_ECDSA_256 (4)</li> <li>– NMsec_IKETUN_ECDSA_384 (5)</li> <li>– NMsec_IKETUN_ECDSA_521 (6)</li> </ul> </li> <li>• The NMslKETunPeerAuthMethod field has the following new values: <ul style="list-style-type: none"> <li>– NMsec_AUTH_HMAC_SHA2_256 (15)</li> <li>– NMsec_AUTH_HMAC_SHA2_384 (16)</li> <li>– NMsec_AUTH_HMAC_SHA2_512 (17)</li> <li>– NMsec_AUTH_AES128_XCBC (18)</li> </ul> </li> <li>• The NMslKETunPseudoRandomFunc field has the following new values: <ul style="list-style-type: none"> <li>– NMsec_IKETUN_ECDSA_256 (4)</li> <li>– NMsec_IKETUN_ECDSA_384 (5)</li> <li>– NMsec_IKETUN_ECDSA_521 (6)</li> </ul> </li> </ul>	IKE version 2 support
NMsec_GET_IKETUN	V1R11	<p>The NMsecIKETunnel structure contains the following new fields:</p> <ul style="list-style-type: none"> <li>• NMslKETunMajorVer</li> <li>• NMslKETunMinorVer</li> <li>• NMslKETunPseudoRandomFunc</li> <li>• NMslKETunRemoteAuthMethod</li> <li>• NMslKETunReauthInterval</li> <li>• NMslKETunReauthTime</li> <li>• NMslKETunGeneration</li> </ul>	IPSec enhancements

Table 33. Summary of new Communications Server NSS NMI (continued)

Request / Response	Rel.	Description	Reason for change
NMsec_GET_IKETUNCASCADE	V1R11	<p>The NMsecIPDynTunnel structure contains the following new fields:</p> <ul style="list-style-type: none"> <li>• NMsiPDynMajorVer</li> <li>• NMsiPDynMinorVer</li> <li>• NMsiPDynType</li> <li>• NMsiPDynTypeRange</li> <li>• NMsiPDynCode</li> <li>• NMsiPDynCodeRange</li> <li>• NMsiPDynSrcPortRange</li> <li>• NMsiPDynDstPortRange</li> <li>• NMsiPDynGeneration</li> </ul> <p>The NMsiPDynRsvd5 field is removed from the NMsecIPDynTunnel structure.</p> <p>The NMsecKETunnel structure contains the following new fields:</p> <ul style="list-style-type: none"> <li>• NMsiKETunMajorVer</li> <li>• NMsiKETunMinorVer</li> <li>• NMsiKETunPseudoRandomFunc</li> <li>• NMsiKETunRemoteAuthMethod</li> <li>• NMsiKETunReauthInterval</li> <li>• NMsiKETunReauthTime</li> <li>• NMsiKETunGeneration</li> </ul>	IPSec enhancements
NMsec_GET_IPFLTCURR	V1R11	<p>The NMsecIPFilter structure contains the following new fields:</p> <ul style="list-style-type: none"> <li>• NMsiPFItFlagTransOpaque</li> <li>• NMsiPFItFlagMIPv6TypePktGran</li> <li>• NMsiPFItFlagICMPTypePktGran</li> <li>• NMsiPFItFlagICMPCodePktGran</li> <li>• NMsiPFItFlagICMPv6TypePktGran</li> <li>• NMsiPFItFlagICMPv6CodePktGran</li> </ul> <p>The NMsiPFItRsvd1 field is removed.</p> <p>The length of the NMsiPFItRsvd2 is shortened.</p>	IPSec enhancements
NMsec_GET_IPFLTDEFAULT	V1R11	<p>The NMsecIPFilter structure contains the following new fields:</p> <ul style="list-style-type: none"> <li>• NMsiPFItFlagTransOpaque</li> <li>• NMsiPFItFlagMIPv6TypePktGran</li> <li>• NMsiPFItFlagICMPTypePktGran</li> <li>• NMsiPFItFlagICMPCodePktGran</li> <li>• NMsiPFItFlagICMPv6TypePktGran</li> <li>• NMsiPFItFlagICMPv6CodePktGran</li> </ul> <p>The NMsiPFItRsvd1 field is removed.</p> <p>The length of the NMsiPFItRsvd2 is shortened.</p>	IPSec enhancements
NMsec_GET_IPFLTPOLICY	V1R11	<p>The NMsecIPFilter structure contains the following new fields:</p> <ul style="list-style-type: none"> <li>• NMsiPFItFlagTransOpaque</li> <li>• NMsiPFItFlagMIPv6TypePktGran</li> <li>• NMsiPFItFlagICMPTypePktGran</li> <li>• NMsiPFItFlagICMPCodePktGran</li> <li>• NMsiPFItFlagICMPv6TypePktGran</li> <li>• NMsiPFItFlagICMPv6CodePktGran</li> </ul> <p>The NMsiPFItRsvd1 field is removed.</p> <p>The length of the NMsiPFItRsvd2 is shortened.</p>	IPSec enhancements

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Table 33. Summary of new Communications Server NSS NMI (continued)

Request / Response	Rel.	Description	Reason for change
NMsec_GET_IPTUNDYNIKE	V1R12	The NMsecIPDynamicIKE structure has a new value for the NMsiPDynKEExtState field: <ul style="list-style-type: none"> <li>NMsec_P2STATE_HALF_CLOSED (5)</li> </ul>	IKE version 2 support
	V1R11	The NMsecIPDynTunnel structure contains the following new fields: <ul style="list-style-type: none"> <li>NMsiPDynMajorVer</li> <li>NMsiPDynMinorVer</li> <li>NMsiPDynType</li> <li>NMsiPDynType</li> <li>NMsiPDynTypeRange</li> <li>NMsiPDynCode</li> <li>NMsiPDynCodeRange</li> <li>NMsiPDynSrcPortRange</li> <li>NMsiPDynDstPortRange</li> <li>NMsiPDynGeneration</li> </ul> <p>The NMsiPDynRsvd5 field is removed.</p>	IPSec enhancements
NMsec_GET_IPTUNDYNSTACK	V1R11	The NMsecIPDynTunnel structure contains the following new fields: <ul style="list-style-type: none"> <li>NMsiPDynMajorVer</li> <li>NMsiPDynMinorVer</li> <li>NMsiPDynType</li> <li>NMsiPDynType</li> <li>NMsiPDynTypeRange</li> <li>NMsiPDynCode</li> <li>NMsiPDynCodeRange</li> <li>NMsiPDynSrcPortRange</li> <li>NMsiPDynDstPortRange</li> <li>NMsiPDynGeneration</li> </ul> <p>The NMsiPDynRsvd5 field is removed.</p>	IPSec enhancements
NMsec_GET_IPTUNMANUAL	V1R12	The NMsecIPTunnel structure includes the following updates: <ul style="list-style-type: none"> <li>New fields: <ul style="list-style-type: none"> <li>NMsiPTunFIPS140</li> <li>NMsiPTunEncryptKeyLength</li> </ul> </li> <li>The NMsiPTunState field has a new value: <ul style="list-style-type: none"> <li>NMsec_SASTATE_HALF_CLOSED (6)</li> </ul> </li> <li>The NMsiPTunAuthAlg field has the following new values: <ul style="list-style-type: none"> <li>NMsec_AUTH_NULL (0)</li> <li>NMsec_AUTH_AES_GMAC_128 (4)</li> <li>NMsec_AUTH_AES_GMAC_256 (6)</li> <li>NMsec_AUTH_HMAC_SHA2_256_128 (7)</li> <li>NMsec_AUTH_AES128_XCBC_96 (9)</li> <li>NMsec_AUTH_HMAC_SHA2_384_192 (13)</li> <li>NMsec_AUTH_HMAC_SHA2_512_256 (14)</li> </ul> <p>The NMsiPTunAuthAlg field also has existing values that have changed descriptions. Those values are:</p> <ul style="list-style-type: none"> <li>NMsec_AUTH_HMAC_MD5 (38)</li> <li>NMsec_AUTH_HMAC_SHA1 (39)</li> </ul> </li> <li>The NMsiPTunEncryptAlg field has a new value and a changed value. The new value is NMsec_ENCR_AES_GCM_16 (20)</li> <li>The NMsec_ENCR_AES (12) value was changed to NMsec_ENCR_AES_CBC (12).</li> </ul>	IKE version 2 support
<ul style="list-style-type: none"> <li>NMsec_GET_IPTUNMANUAL</li> <li>NMsec_GET_IPTUNDYNAMIC</li> <li>NMsec_GET_IPTUNDYNIKE</li> <li>NMsec_GET_IKETUN</li> <li>NMsec_GET_IKETUNCASCADE</li> </ul>	V1R12	The NMsecInFilter structure has a new value for the NMsiFitSAState field: <ul style="list-style-type: none"> <li>NMsec_SASTATE_HALF_CLOSED (6)</li> </ul>	IKE version 2 support

### Real-time network monitoring TCP/IP NMI

Table 34 on page 85 lists the updates to the Communications Server real-time TCP/IP management interface (NMI).

Table 34. Summary of new Communications Server real-time TCP/IP NMI

NMI	Request/ response	Rel.	Description	Reason for change
Real-time packet and data trace NMI (SYSTCPDA)	PTHDR_T packet trace header	V1R12	A new Pth_DtState field is added. It applies only to the new start and end data trace records.	Data trace records for socket data flow start and end
			A new Pth_NxtHopAddr field is added. It provides the next hop interface IP address for the packet.	Packet trace filtering for encapsulated packets

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Table 34. Summary of new Communications Server real-time TCP/IP NMI (continued)

NMI	Request/ response	Rel.	Description	Reason for change
Real-time SMF data NMI (SYSTCPSM)	N/A	V1R12	Provides new CSSMTP SMF 119 records with subtypes 48-52.	Management data for CSSMTP
	N/A	V1R12	Provides new DVIPA SMF 119 records with subtypes 32-37.	SMF event records for sysplex events
	FTP client login failure record	V1R11	A new value, SMF119FT_FxProtoLevelTV1_1 may be returned in SMF119FT_FCLProtoLevel to indicate the SSL protocol is TLSV1.1.  A new field, SMF119FT_FCLFips140 is returned to indicate the FIPS 140 status of the connection.	AT-TLS enhancements
	FTP client session record	V1R11	A new value, SMF119FT_FxProtoLevelTV1_1 may be returned in SMF119FT_FCNProtoLevel to indicate the SSL protocol is TLSV1.1.  A new field, SMF119FT_FCNFips140 is returned to indicate the FIPS 140 status of the connection.	AT-TLS enhancements
	FTP client transfer initialization record	V1R11	A new value, SMF119FT_FxProtoLevelTV1_1 may be returned in SMF119FT_FCProtoLevel to indicate the SSL protocol is TLSV1.1.  A new field, SMF119FT_FCFips140 is returned to indicate the FIPS 140 status of the connection.	AT-TLS enhancements
	FTP server session record	V1R11	A new value, SMF119FT_FxProtoLevelTV1_1 may be returned in SMF119FT_FSNProtoLevel to indicate the SSL protocol is TLSV1.1.  A new field, SMF119FT_FSNFips140 is returned to indicate the FIPS 140 status of the connection.	AT-TLS enhancements
	FTP server transfer initialization record	V1R11	A new value, SMF119FT_FxProtoLevelTV1_1 may be returned in SMF119FT_FSPProtoLevel to indicate the SSL protocol is TLSV1.1.  A new field, SMF119FT_FSFips140 is returned to indicate the FIPS 140 status of the connection.	AT-TLS enhancements
	N/A	V1R11	Provides new TCP/IP profile SMF 119 subtype 4 record. See the Type 119 SMF records information in <i>z/OS Communications Server: IP Configuration Reference</i> .	Stack configuration data
Real-time TCP/IP OSAENTA trace data NMI (SYSTCPOT)	N/A	V1R11	New function to provide real-time OSAENTA trace data.	OSA network traffic analyzer data



## Packet and data trace formatting NMI

There were no packet and data trace formatting NMI updates in V1R12 or V1R11.

## TCP/IP callable NMI (EZBNMIFR)

Table 35 lists the updates to the Communications Server TCP/IP callable NMI.

Table 35. Summary of new Communications Server TCP/IP callable NMI (EZBNMIFR)

Request	Parameter/output	Rel.	Description	Reason for change
GetConnectionDetail	NWMCConnReceivingInterface NWMCConnReceivingQueue	V1R12	For TCP connections that are using the QDIO inbound workload queueing function, these fields provide the inbound interface and the ancillary queue name.	Performance improvements for streaming bulk data
GetConnectionDetail	NWMCConnTcpTrustedPartner	V1R12	This flag indicates whether the partner security credentials of a partner within a sysplex or subplex have been retrieved using the SIOCGPARTNERINFO ioctl, or that the SIOCSPARTNERINFO ioctl has been successfully issued or inherited from the listener socket.	Trusted TCP connections
GetConnectionDetail	NWMCConnTTLSSLProt output field	V1R11	Returns SSL protocol in use on the connection. When TLSV1.1 is used, 'x'0302' will be returned.	AT-TLS enhancements
GetDVIPACConnRTab	N/A	V1R11	New poll-type request to provide information about dynamic virtual IP address (DVIPA) connections.	Sysplex networking data
GetDVIPAList	NWMDvListPrefix	V1R12	This existing field is used to return the configured IPv4 prefix length of an IPv4 DVIPA. It is now also used to return the configured IPv6 prefix length of an IPv6 DVIPA.	Extend sysplex distributor support for DataPower for IPv6
GetDVIPAList	N/A	V1R11	New poll-type request to provide information about dynamic virtual IP addresses (DVIPAs).	Sysplex networking data
GetDVIPAPortDist	NWMDvPortDistGRE	V1R12	This existing field is used to indicate that generic routing encapsulation (GRE) is used to distribute requests to IPv4 non-z/OS targets. It can now also indicate that IPv6 routing encapsulation is used to distribute requests to IPv6 non-z/OS targets.	Extend sysplex distributor support for DataPower for IPv6
GetDVIPAPortDist	NWMDvPortDistMethod output field	V1R12	New NWMDvPortDistMethod_HotStandby value added to field to indicate the new HotStandby distribution method.	Sysplex distributor support for hot-standby server
	NWMDvPortDistFlags output field	V1R12	New flag added to indicate whether the HotStandby target state is active or backup.	Sysplex distributor support for hot-standby server
	NWMDvPortDistFlags2 output field	V1R12	New flags field containing HotStandby flags that indicate whether the server type is preferred or backup.	Sysplex distributor support for hot-standby server
GetDVIPAPortDist	N/A	V1R11	New poll-type request to provide information about dynamic virtual IP address (DVIPA) port distribution.	Sysplex networking data
GetDVIPARoute	N/A	V1R11	New poll-type request to provide information about dynamic virtual IP address (DVIPA) routes.	Sysplex networking data
GetGlobalStats	NWMTCPSTInBulkQSegs	V1R12	For TCP connections that are using the QDIO inbound workload queueing function, this field indicates the number of TCP segments that are received over the BulkData ancillary input queue (AIQ).	Performance improvements for streaming bulk data
GetGlobalStats	N/A	V1R12	New poll-type request to provide TCP/IP stack global statistics.	Enhancements to TCP/IP callable NMI (EZBNMIFR) - network interface and TCP/IP statistics

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Table 35. Summary of new Communications Server TCP/IP callable NMI (EZBNMIFR) (continued)

Request	Parameter/output	Rel.	Description	Reason for change
GetIfs	N/A	V1R12	New poll-type request to provide TCP/IP interface attribute and IP address information.	Enhancements to TCP/IP callable NMI (EZBNMIFR) - network interface and TCP/IP statistics
GetIfStats	N/A	V1R12	New poll-type request to provide TCP/IP stack interface counters.	Enhancements to TCP/IP callable NMI (EZBNMIFR) - network interface and TCP/IP statistics
GetIfStatsExtended	N/A	V1R12	New poll-type request to provide DLC interface counters.	Enhancements to TCP/IP callable NMI (EZBNMIFR) - network interface and TCP/IP statistics
GetProfile	<ul style="list-style-type: none"> <li>NMTP_V6CFOSMSecClass</li> <li>NMTP_INTFChpIDFlg</li> <li>NMTP_INTFChpIDType</li> </ul>	V1R12	<ul style="list-style-type: none"> <li>New field that provides the IPSECURITY OSMSECCLASS value from the IPCONFIG6 profile statement.</li> <li>New flag in field NMTP_INTFFlags that indicates whether an optional CHPID value was specified in field NMTP_INTFChpID.</li> <li>New field that provides the CHPID type for OSA-Express interfaces defined by the INTERFACE statement.</li> </ul>	z/OS Communications Server in an ensemble
GetProfile	NMTP_INTFDynTypes	V1R12	<p>Updated to return the NMTP_INTFDynTypes field which indicates the dynamic inbound performance types. This field is only set when field NMTP_INTFInbPerfType is set to NMTP_INTFIPDYN and the interface was defined by an INTERFACE statement.</p> <p>The record field is 'x'80', NMTP_INTFDYNWRKLDQ. If set, DYNAMIC WORKLOADQ is configured.</p>	Performance improvements for sysplex distributor connection routing
GetProfile	<ul style="list-style-type: none"> <li>NMTP_DVCFPfxLen</li> <li>NMTP_DDVTier1Gre</li> </ul>	V1R12	<ul style="list-style-type: none"> <li>This existing field is used to return the configured IPv4 prefix length of an IPv4 DVIPA. It is now also used to return the configured IPv6 prefix length of an IPv6 DVIPA.</li> <li>This existing field is used to indicate that generic routing encapsulation (GRE) is used to distribute requests to IPv4 non-z/OS targets. It can now also indicate that IPv6 routing encapsulation is used to distribute requests to IPv6 non-z/OS targets.</li> </ul>	Extend sysplex distributor support for DataPower for IPv6

Table 35. Summary of new Communications Server TCP/IP callable NMI (EZBNMIFR) (continued)

Request	Parameter/output	Rel.	Description	Reason for change
GetProfile	<ul style="list-style-type: none"> <li>NMTP_MGMT119DVIPA</li> <li>NMTP_MGMTNMSmfDVIPA</li> </ul>	V1R12	<ul style="list-style-type: none"> <li>New flag added to the NMTP_MGMTSmf119Types field to indicate whether the new DVIPA SMF 119 records were requested on the SMFCONFIG profile statement.</li> <li>New flag added to the NMTP_MGMTNetMonSmfRecs field to indicate whether the new DVIPA SMF 119 records were requested on the NETMONITOR profile statement.</li> </ul>	SMF event records for sysplex events
	NMTP_DDVSDistMethod output field	V1R12	New NMTP_DDVSHotStandby value added to field to indicate the new HotStandby distribution method.	Sysplex distributor support for hot-standby server
	NMTP_DDVSFlags output field	V1R12	New HotStandby flags are added: <ul style="list-style-type: none"> <li>NMTP_DDVSSrvTypePreferred is set if the server type is Preferred.</li> <li>NMTP_DDVSSrvTypeBackup is set if the server type is Backup.</li> <li>NMTP_DDVSAutoSwitchBack is set if AUTOSWITCHBACK is configured.</li> <li>NMTP_DDVSHealthSwitch is set if HEALTHSWITCH is configured.</li> </ul>	Sysplex distributor support for hot-standby server
	NMTP_DDVSBackupRank output field	V1R12	New field that indicates the rank if this is a HotStandby backup server.	Sysplex distributor support for hot-standby server
	<ul style="list-style-type: none"> <li>NMTP_PICOsecChanged</li> <li>New NMTP_DASP section</li> <li>NMTP_SRCIFlags</li> </ul>	V1R12	<ul style="list-style-type: none"> <li>New flag defined for the new DEFADDRTABLE profile statement.</li> <li>This new section provides information from the new DEFADDRTABLE TCP/IP profile statement.</li> <li>New flag added to this flags field to support the new PUBLICADDRS parameter on the SRCIP TCP/IP profile statement.</li> </ul>	Configurable default address selection policy table
	NMTP_MGMTNetMonSmfRecs field	V1R12	New flag bits, NMTP_MGMTNMSmfCSMAIL and NMTP_MGMTNMSmfCSSMTP, added to field NMTP_MGMTNetMonSmfRecs to indicate if CSSMTP SMF 119 records were requested.	Management data for CSSMTP
	New flag NMTP_GBCFSysMonNoJoin added to NMTP_GBCFSysMonOptions field	V1R12	Indicates whether GLOBALCONFIG SYSPLEXMONITOR NOJOIN is configured.	Control joining the sysplex XCF group
	N/A	V1R11	New poll-type request to provide TCP/IP stack profile information.	Stack configuration data
GetStorageStatistics	NWMStgLPACurrent	V1R12	New parameter to return the storage used for dynamic LPA modules.	Enhancements to the TCP/IP storage display
GetSysplexXCF	N/A	V1R11	New poll-type request to provide information about dynamic XCF addresses for all TCP/IP stacks in the sysplex.	Sysplex networking data
GetTCPListeners	NWMTCPFRCAnotonLIFO	V1R11	A new output field that provides the number of established FRCA connections in the backlog that are not presented to be accepted by the application.	Sysplex autonomic improvements for FRCA

### FTP client API

Table 36 on page 90 lists the updates to the Communications Server FTP client API.

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Table 36. Summary of new Communications Server FTP client API

Name	Release	Description	Reason for change
ezaftpka.macro - FTP Client Application Interface (FCAI) control block	V1R11	FCAI_SCMD_MKFIFO is added to the list of equates defining possible values for the FCAI control block field FCAI_SCMD.	FTP access to UNIX named pipes
EZAFTP KC - COBOL Map for FCAI-Map (FTP Client API)	V1R11	FCAI-SCMD-MKFIFO is added to the list of constants defining possible values for the FCAI control block field FCAI-SCMD. FCAI-SCMD-MKFIFO represents the MKFIFO subcommand.	FTP access to UNIX named pipes
EZAFTP KP - PL/I Map for FCAI_Map	V1R11	FCAI_SCMD_MKFIFO is added to the list of subcommand codes for the FCAI control block field FCAI_SCMD.	FTP access to UNIX named pipes
ezaftpkr - REXX Function package	V1R11	FCAI_SCMD_MKFIFO is added to the predefined variables to represent the MKFIFO subcommand.	FTP access to UNIX named pipes
ftp capi.h	V1R11	FCAI_SCMD_MKFIFO is added to the list of FCAI_RequestCompletionValue structure FCAI_SCMD (subcommand) values.	FTP access to UNIX named pipes
FTPClientErrorException.java	V1R11	The field SUBCOMMAND_MKFIFO is added to FTPClientErrorException.	FTP access to UNIX named pipes

### Trusted TCP connections API for Java

Table 37 lists the updates to the Communications Server trusted TCP connections API for Java.

Table 37. Summary of new Communications Server trusted TCP connections API for Java

Name	Release	Description	Reason for change
Trusted TCP connections API for Java	V1R12	Provides a Java package that enables a Java programmer to issue the SIOCSPARTNERINFO ioctl and the SIOCGPARTNERINFO ioctl to retrieve sysplex-specific connection routing information and security credentials for a partner.	Trusted TCP connections

## Socket APIs

### General updates of socket APIs

Table 38 on page 91 lists the general updates made to the IP socket APIs.

Refer to the following documents for more information about socket APIs:

- For complete documentation of the z/OS UNIX C sockets APIs, refer to *z/OS XL C/C++ Run-Time Library Reference*
- For information about z/OS UNIX Assembler Callable Services, refer to *z/OS UNIX System Services Programming: Assembler Callable Services Reference*
- For information about TCP/IP socket APIs, refer to *z/OS Communications Server: IP Sockets Application Programming Interface Guide and Reference*
- For information about TCP/IP CICS® sockets, refer to *z/OS Communications Server: IP CICS Sockets Guide*

Table 38. Summary of new and changed Communications Server socket APIs

Socket API	Function call/Parameter	Rel.	Description	Reason for change
<ul style="list-style-type: none"> <li>Language Environment C/C++ socket</li> <li>UNIX System Services Assembler Callable Service</li> <li>Macro</li> <li>Call instruction</li> <li>REXX socket</li> <li>CICS C socket calls</li> <li>CICS call instruction</li> <li>IMS call instruction</li> </ul>	New SIOCGPARTNERINFO ioctl	V1R12	Provides an interface for an application to retrieve security information about its partner.	Trusted TCP connections
	New SIOCSPARTNERINFO ioctl	V1R12	Enables an application to avoid suspending while retrieving the partner security credentials with the SIOCGPARTNERINFO ioctl.	Trusted TCP connections
<ul style="list-style-type: none"> <li>XL C/C++</li> <li>UNIX assembler callable services</li> </ul>	sendmsg() option IPV6_RTHDR on ancillary data	V1R11	The use of the IPV6_RTHDR option to build an IPv6 type 0 routing header is deprecated as described in RFC 5095.	RFC 5095 deprecation of IPv6 type 0 route header
	setsockopt() option IPV6_RTHDR	V1R11	The use of the IPV6_RTHDR option to build an IPv6 type 0 routing header is deprecated as described in RFC 5095.	RFC 5095 deprecation of IPv6 type 0 route header
<ul style="list-style-type: none"> <li>MACRO</li> <li>Call instruction</li> <li>REXX socket</li> <li>CICS C</li> <li>CICS sockets extended</li> <li>XL C/C++</li> <li>UNIX assembler callable services</li> </ul>	getsockopt, setsockopt	V1R12	<p>These APIs support a new socket option at the IPPROTO_IPV6 level: IPV6_ADDR_PREFERENCES as defined in RFC 5014. This socket option is only available for AF_INET6 sockets.</p> <p>Use this option to set and get the source IP address selection preferences affecting all packets sent by a given socket.</p>	Configurable default address selection policy table
<ul style="list-style-type: none"> <li>MACRO</li> <li>Call instruction</li> <li>REXX socket</li> <li>CICS C</li> <li>CICS sockets extended</li> <li>XL C/C++</li> <li>UNIX assembler callable services</li> </ul>	inet6_is_srcaddr()	V1R12	<p>These APIs support the inet6_is_srcaddr() call defined in RFC 5014.</p> <p>The inet6_is_srcaddr() API call tests whether the input IPv6 address conforms to the input address selection preference flags.</p> <p>The inet6_is_srcaddr function is supported in USS Assembler Callable Services as a PFS control function, BPX1PCT (PC#IsSrcAddr) or BPX4PCT (PC#IsSrcAddr).</p>	Configurable default address selection policy table
<ul style="list-style-type: none"> <li>MACRO</li> <li>Call instruction</li> <li>REXX socket</li> <li>CICS C</li> <li>CICS sockets extended</li> <li>XL C/C++</li> <li>UNIX assembler callable services</li> </ul>	bind2addrsel()	V1R12	<p>These APIs support the bind2addrsel() call defined in RFC 5014. This function is only supported for AF_INET6 sockets.</p> <p>The bind2addrsel() call binds the input socket to the source IP address TCP/IP would select for the input destination IPv6 address.</p> <p>The bind2addrsel function is supported in USS Assembler Callable Services with the new BPX1BAS and BPX4BAS entry points.</p>	Configurable default address selection policy table
<ul style="list-style-type: none"> <li>MACRO</li> <li>Call instruction</li> <li>REXX socket</li> <li>CICS C</li> <li>CICS sockets extended</li> <li>XL C/C++</li> </ul>	getaddrinfo()	V1R12	The <b>addrinfo</b> structure is enhanced to comply with RFC 5014. You can use the enhanced structure to pass source IP source address preference flags in the hints parameter of getaddrinfo().	Configurable default address selection policy table

## Communications Server

Table 38. Summary of new and changed Communications Server socket APIs (continued)

Socket API	Function call/Parameter	Rel.	Description	Reason for change
<ul style="list-style-type: none"> <li>• MACRO</li> <li>• Call instruction</li> <li>• REXX socket</li> <li>• CICS C</li> <li>• CICS sockets extended</li> <li>• XL C/C++</li> <li>• UNIX assembler callable services</li> <li>• CALL EZASOKET</li> </ul>	SIOCGIFMTU ioctl	V1R11	New ioctl function call which returns the MTU (maximum transmission unit) value for a TCP/IP stack IPv4 interface.	New API to obtain IPv4 network interface MTU
<ul style="list-style-type: none"> <li>• MACRO</li> <li>• Call instruction</li> <li>• REXX socket</li> <li>• CICS C</li> <li>• CICS sockets extended</li> <li>• XL C/C++</li> <li>• UNIX assembler callable services</li> </ul>	SIOCTLSSLCTL ioctl	V1R11	SIOCTLSSLCTL is updated to return the following: <ul style="list-style-type: none"> <li>• TTLS_PROT_TLSV1_1 when TLSV1.1 is in use on a connection</li> <li>• TTLS_FIPS140</li> </ul>	AT-TLS enhancements
<ul style="list-style-type: none"> <li>• TCP/IP C</li> <li>• UNIX assembler callable services</li> </ul>	getsockopt()	V1R12	When invoked with the SO_CLUSTERCONNTYPE option, this socket API returns an internal indicator for OSA-Express QDIO interfaces with CHPID type OSX or OSM.	z/OS Communications Server in an ensemble

## User exits

Table 39 lists the updates made to the user exits.

Table 39. Summary of new and changed Communications Server user exits

Exit	Release	Description	Reason for change
CSSMTP application exit	V1R11	Checks, accepts, or rejects mail outbound from the JES spool.	New SMTP client for sending Internet mail

## Application data

Table 40 lists changes to the application data support for TCP connections. Application data is data that is associated with a connection through the use of the SIOCSAPPLDATA ioctl socket command. The SIOCSAPPLDATA IOCTL enables applications to associate 40 bytes of application-specific information with TCP sockets the applications own. This application data can also be used to identify socket endpoints in interfaces such as Netstat, SMF, or network management applications. See the application data topic in *z/OS Communications Server: IP Configuration Reference* for detailed information about all supported application data.

Table 40. Summary of new and changed Communications Server application data

Record type	Record field	Release	Description	Reason for change
FTP client application data for the control connection	Bytes 24 and 25. Security level.	V1R11	A new value, 11, indicates the TLS protocol is TLSV1.1.	AT-TLS enhancements
FTP client application data for the data connection	Bytes 24 and 25. Security level.	V1R11	A new value, 11, indicates the TLS protocol is TLSV1.1.	AT-TLS enhancements

Table 40. Summary of new and changed Communications Server application data (continued)

Record type	Record field	Release	Description	Reason for change
FTP server application data for the control connection	Bytes 24 and 25. Security level.	V1R11	A new value, 11, indicates the TLS protocol is TLSV1.1.	AT-TLS enhancements
FTP server application data for the data connection	Bytes 24 and 25. Security level.	V1R11	A new value, 11, indicates the TLS protocol is TLSV1.1.	AT-TLS enhancements
Application data format for Telnet	Bytes 32 and 33. Security level.	V1R11	A new value, 11, indicates the TLS protocol is TLSV1.1.	AT-TLS enhancements

## IPCS subcommands

This section lists the updates to the Communications Server new and updated IPCS subcommands. See *z/OS Communications Server: IP Diagnosis Guide* for more detailed IPCS subcommands information.

### General updates to IPCS subcommands

Table 41 lists the general IPCS subcommand updates.

Table 41. Summary of new and changed Communications Server IP - General updates to IPCS subcommands

Subcommand	Release	Description	Reason for change
RESOLVER	V1R12	Displays information about IPv6 addresses used to communicate with DNS name servers.	Resolver support for IPv6 connections to DNS name servers
	V1R11	The contents of the system-wide resolver cache are displayed when the resolver address space is formatted using this report.	Resolver DNS cache

### CTRACE COMP(SYSTCPDA) subcommand

The CTRACE COMP(SYSTCPDA) subcommand is the component name for packet data traces. Table 42 lists the CTRACE COMP(SYSTCPDA) subcommand options.

Table 42. Summary of new and changed Communications Server CTRACE COMP(SYSTCPDA) subcommand options

Option	Release	Description	Reason for change
OPTIONS	V1R12	Added a new QID option to filter packet trace records based on the input queue number.	Performance improvements for sysplex distributor connection routing

### CTRACE COMP(SYSTCPIP) subcommand

Table 43 lists the CTRACE COMP(SYSTCPIP) subcommand options.

Table 43. Summary of new and changed Communications Server CTRACE COMP(SYSTCPIP) subcommand options

Option	Release	Description	Reason for change
SOCKAPI	V1R11	Includes formatting for the new SIOCGIFMTU ioctl function call.	New API to obtain IPv4 network interface MTU

### CTRACE COMP(SYSTCPIS) subcommand

There are no updates to the CTRACE COMP(SYSTCPIS) subcommand in V1R12 or V1R11.

### CTRACE COMP(SYSTCPOT) subcommand

Table 44 lists the CTRACE COMP(SYSTCPOT) subcommand options.

Table 44. Summary of new and changed Communications Server CTRACE COMP(SYSTCPOT) subcommand options

Option	Release	Description	Reason for change
OPTIONS	V1R12	Added a new QID option to filter OSA-Express Network Traffic Analyzer (OSAENTA) trace records based on the input queue number.	Performance improvements for sysplex distributor connection routing

### TCPIPCS subcommand

Table 45 lists the TCPIPCS subcommand options.

The TCPIPCS command contains the OPTLOCAL specification in some displays.

Table 45. Summary of new and changed Communications Server TCPIPCS subcommand

Option	Release	Description	Reason for change
PROFILE	V1R12	Added support to display the new CHPIDTYPE and CHPID parameters on the INTERFACE statements for IPAQENET and IPAQENET6, and the new IPSECURITY OSMSECCLASS subparameter on the IPCONFIG6 statement.	z/OS Communications Server in an ensemble
PROFILE	V1R12	The output is changed to include the new keywords and values that can be specified on the VIPADEFINE, VIPABACKUP, and VIPADISTRIBUTE statements.	Extend sysplex distributor support for DataPower for IPv6
PROFILE	V1R12	Added WORKLOADQ and NOWORKLOADQ to indicate whether inbound workload queueing is enabled for IPAQENET or IPAQENET6 interfaces. This value is only displayed when INBPERF is DYNAMIC.  A new CONVERT parameter was also added.	Performance improvements for sysplex distributor connection routing
PROFILE	V1R12	<ul style="list-style-type: none"> <li>Displays the new DEFADDRTABLE TCP/IP profile statement.</li> <li>For the SRCIP statement, displays the setting of the new PUBLICADDRS parameter for JOBNAME entries.</li> </ul>	Configurable default address selection policy table
	V1R12	Displays the setting of the new NOJOIN subparameter for the GLOBALCONFIG SYSPLEXMONITOR statement.	Control joining the sysplex XCF group
	V1R12	<ul style="list-style-type: none"> <li>Displays the setting of the new DVIPA and NODVIPA parameters for the SMFCONFIG statement.</li> <li>Displays the setting of the new DVIPA and NODVIPA subparameters for the SMFSERVICE parameter of the NETMONITOR statement.</li> </ul>	SMF event records for sysplex events
	V1R12	Displays the new keywords that can be specified on a VIPADISTRIBUTE statement.	Sysplex distributor support for hot-standby server
	V1R12	Displays the setting of the new CSMail, NOCSMAIL, CSSMTP and NOCSSMTP subparameters for the SMFSERVICE parameter of the NETMONITOR statement.	Management data for CSSMTP



Table 45. Summary of new and changed Communications Server TCIPCS subcommand (continued)

Option	Release	Description	Reason for change
PROFILE	V1R11	Displays the OSA-Express3 optimized latency mode setting for the INTERFACE profile statements for IPAQENET and IPAQENET6.	OSA-Express3 optimized latency mode
	V1R11	Displays the setting of the NOWLMPRIORITYQ and the WLMRIORITYQ parameters from the GLOBALCONFIG profile statement.	QDIO enhancements for WLM IO priority
	V1R11	Displays the setting of the NOISOLATE and the ISOLATE parameters from the INTERFACE profile statements for IPAQENET and IPAQENET6.	QDIO support for OSA interface isolation
	V1R11	<ul style="list-style-type: none"> <li>Displays the setting of the new PROFILE and NOPROFILE parameters for the SMFCONFIG statement.</li> <li>Displays the setting of the new PROFILE and NOPROFILE subparameters for the SMFSERVICE parameter of the NETMONITOR statement.</li> </ul>	Stack configuration data
	V1R11	Displays the setting of the NETMONITOR NONTATRCSERVICE and NTATRCSERVICE parameters of the NETMONITOR profile statement.	OSA network traffic analyzer data
	V1R11	<ul style="list-style-type: none"> <li>For the IPCONFIG6 statement, displays the settings of the new TEMPADDRS   NOTEMPADDRS, PREFLIFETIME, and VALIDLIFETIME parameters.</li> <li>For the IPAQENET6 INTERFACE statement, displays the values for the new TEMPPREFIX parameter.</li> <li>For the SRCIP statement, displays JOBNAME entries for which TEMPADDRS is the source.</li> </ul>	IPv6 stateless address autoconfiguration enhancements
	V1R11	Displays the PROCXCOST and ILWEIGHTING specifications on the VIPADISTRIBUTE statement.	Support for enhanced WLM routing algorithms
	V1R11	Displays the new keywords that can be specified on a VIPADEFINE, VIPABACKUP, or VIPADISTRIBUTE statement.	<ul style="list-style-type: none"> <li>Sysplex distributor optimization for multi-tier z/OS workloads</li> <li>Sysplex distributor support for DataPower</li> </ul>
	V1R11	Displays the new QDIOACCELERATOR parameter for the IPCONFIG statement.	QDIO routing accelerator
ROUTE	V1R12	Support is added for a new parameter, RADV, to display all of the IPv6 routes created based on information received in router advertisement messages.	Enhancements to IPv6 router advertisement
	V1R11	A new QDIOACCEL parameter displays the routes in the QDIO accelerator routing table.	QDIO routing accelerator
TREE	V1R11	A new QDIOACCEL parameter displays the QDIO accelerator routing table tree.	QDIO routing accelerator
XCF	V1R12	Displays information pertaining to the new HOTSTANDBY distribution method.	Sysplex distributor support for hot-standby server

## SNMP MIB modules

This section lists updates to Communications Server's support for SNMP MIB modules. For a complete list of supported SNMP MIB objects, refer to *z/OS Communications Server: IP System Administrator's Commands*.

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Table 46 lists the changes to the SNMP MIB module support.

Table 46. Summary of new and changed Communications Server SNMP MIB module support

MIB module name	Rel.	Description	Reason for change
IBMTCPIPMVS-MIB	V1R12	The <code>ibmMvsIfType</code> MIB object supports the following new values to indicate OSA-Express QDIO ethernet interfaces of CHPID type OSM and OSX: <ul style="list-style-type: none"> <li>• <code>ipaqenetOSX(34)</code></li> <li>• <code>ipaqenet6OSX(35)</code></li> <li>• <code>ipaqenet6OSM(36)</code></li> </ul> The <code>ibmMvsIfChpid</code> MIB object supports the configured CHPID number for OSA-Express QDIO ethernet interfaces of CHPID type OSX.	z/OS Communications Server in an ensemble
	V1R11	A new value, <code>optLatencyMode(16)</code> , is added to the <code>ibmMvsIfFlag</code> MIB object to indicate if optimized latency mode is in effect for an IPAQENET or IPAQENET6 interface defined by the INTERFACE profile statement.	OSA-Express3 optimized latency mode
	V1R11	A new value, <code>isolate(15)</code> , is added to the <code>ibmMvsIfFlag</code> MIB object to indicate that the ISOLATE setting is in effect for an IPAQENET or IPAQENET6 interface defined by the INTERFACE profile statement.	QDIO support for OSA interface isolation
	V1R11	The descriptions of the <code>ibmMvsDVIPADistPortTsr</code> and the <code>ibmMvsDVIPADistPortCer</code> MIB objects are changed.	Sysplex autonomics improvements for FRCA
	V1R11	A new value, <code>tlsVer1Dot1(5)</code> , is added to the <code>ibmMvsTcpConnectionTlsSslProt</code> MIB object to indicate a protocol of TLSv1.1.	AT-TLS enhancements
IF-MIB	V1R12	The <code>ifDescr</code> MIB object supports new descriptions for OSA-Express QDIO ethernet interfaces of CHPID type OSM and OSX.	z/OS Communications Server in an ensemble
IP-MIB	V1R12	For IPv6 default routes which were created because of a router advertisement, the value of the <code>ipDefaultRouterPreference</code> MIB object will be set according to the preference value from the router advertisement.	Enhancements to IPv6 router advertisement
IP-FORWARD-MIB	V1R12	For IPv6 indirect routes which were created because of a router advertisement, the value of the <code>inetCidrRouteMetric1</code> MIB object will indicate the preference value from the router advertisement.	Enhancements to IPv6 router advertisement

## SMF record type 109 enhancements

There were no changes made to the SMF record type 109 in V1R12 or V1R11.

## SMF record type 119 enhancements

This section describes the following SMF record type 119 enhancements:

- “FTP records”
- “IPSec records” on page 98
- “TCP connection records” on page 100
- “TCP/IP stack records” on page 100
- “TCP/IP CSSMTP records” on page 102

The following references contain more information:

- For SMF records written to the MVS SMF data sets, see SMF type 119 records in *z/OS Communications Server: IP Configuration Reference*.
- For SMF records which are only available from one of the Network Management Interfaces, see "Network Management Interfaces (NMIs)" in *z/OS Communications Server: IP Programmer's Guide and Reference*.

### FTP records

Table 47 lists the changes made to the FTP SMF record type 119.

Table 47. Summary of new and changed Communications Server SMF record type 119 - FTP records

Record type	Record field	Release	Description	Reason for change
Client transfer completion record <b>Note:</b> Record is available in the MVS SMF data sets and from the NMI.	<ul style="list-style-type: none"> <li>• SMF119FT_FCProtoLevel</li> <li>• SMF119FT_FCfips140</li> </ul>	V1R11	<p>A new value, SMF119FT_FxProtoLevelTV1_1 may be returned in this field to indicate the TLS protocol is TLSV1.1.</p> <p>The record field also indicates the level of FIPS support:</p> <ul style="list-style-type: none"> <li>• '00'x - No FIPS support</li> <li>• '01'x - FIPS 140 support</li> </ul>	AT-TLS enhancements
Server logon failure record <b>Note:</b> Record is available in the MVS SMF data sets and from the NMI.	<ul style="list-style-type: none"> <li>• SMF119FT_FFProtoLevel</li> <li>• SMF119FT_FFfips140</li> </ul>	V1R11	<p>A new value, SMF119FT_FxProtoLevelTV1_1 may be returned in this field to indicate the TLS protocol is TLSV1.1.</p> <p>The record also indicates the level of FIPS support:</p> <ul style="list-style-type: none"> <li>• '00'x - No FIPS support</li> <li>• '01'x - FIPS 140 support</li> </ul>	AT-TLS enhancements
Server transfer completion record <b>Note:</b> Record is available in the MVS SMF data sets and from the NMI.	<ul style="list-style-type: none"> <li>• SMF119FT_FSPProtoLevel</li> <li>• SMF119FT_FSfips140</li> </ul>	V1R11	<p>A new value, SMF119FT_FxProtoLevelTV1_1 may be returned in this field to indicate the TLS protocol is TLSV1.1.</p> <p>The record also indicates the level of FIPS support:</p> <ul style="list-style-type: none"> <li>• '00'x - No FIPS support</li> <li>• '01'x - FIPS 140 support</li> </ul>	AT-TLS enhancements

# Communications Server

## IPSec records

Table 48 lists the changes made to the IPSec SMF record type 119.

Table 48. Summary of new and changed Communications Server SMF record type 119 - IPSec records

Record type	Record field	Release	Description	Reason for change
IPSec IKE tunnel activation and refresh	IPSec common IKE tunnel specific section	V1R12	<p>Subtype 73 has the following updates:</p> <ul style="list-style-type: none"> <li>Offset 0 (x'0') has a new bit for FIPS mode: <ul style="list-style-type: none"> <li>x'02000000', SMF119IS_IKETunFIPS140.</li> </ul> </li> <li>Offset 198(x'C6') for the SMF119IS_IKETunAuthAlg record has new values and also changed descriptions of existing values. The new values are: <ul style="list-style-type: none"> <li>SMF119IS_AUTH_HMAC_SHA2_256_128 (7)</li> <li>SMF119IS_AUTH_AES128_XCBC (9)</li> <li>SMF119IS_AUTH_HMAC_SHA2_384_192 (13)</li> <li>SMF119IS_AUTH_HMAC_SHA2_512_256 (14)</li> </ul> </li> </ul> <p>The following existing values have changed descriptions:</p> <ul style="list-style-type: none"> <li>SMF119IS_AUTH_HMAC_MD5 (38)</li> <li>SMF119IS_AUTH_HMAC_SHA1 (39)</li> <li>SMF119IS_AUTH_HMAC_MD5_96 (40)</li> <li>SMF119IS_AUTH_HMAC_SHA1_96 (41)</li> </ul> <ul style="list-style-type: none"> <li>Offset 199(x'C7') for the SMF119IS_IKETunEncryptAlg record has a changed possible value. The old value was SMF119IS_ENCR_AES(12) and the new value is SMF119IS_ENCR_AES_CBC (12).</li> <li>Offset 204(x'CC') for record SMF119IS_IKETunPeerAuthMethod has the following new values: <ul style="list-style-type: none"> <li>SMF119IS_IKETUN_ECDSA_256 (4)</li> <li>SMF119IS_IKETUN_ECDSA_384 (5)</li> <li>SMF119IS_IKETUN_ECDSA_521 (6)</li> </ul> </li> <li>Offset 238(x'EE') for the SMF119IS_IKETunPseudoRandomFunc record has the following new values: <ul style="list-style-type: none"> <li>SMF119IS_AUTH_HMAC_SHA2_256 (15)</li> <li>SMF119IS_AUTH_HMAC_SHA2_384 (16)</li> <li>SMF119IS_AUTH_HMAC_SHA2_512 (17)</li> <li>SMF119IS_AUTH_AES128_XCBC (18)</li> </ul> </li> <li>Offset 239(x'EF') for record SMF119IS_IKETunLocalAuthMethod has the following new values: <ul style="list-style-type: none"> <li>SMF119IS_IKETUN_ECDSA_256 (4)</li> <li>SMF119IS_IKETUN_ECDSA_384 (5)</li> <li>SMF119IS_IKETUN_ECDSA_521 (6)</li> </ul> </li> <li>252(x'FC') offset has a new record for SMF119IS_IKETunEncryptKeyLength.</li> </ul>	IKE version 2 support

Table 48. Summary of new and changed Communications Server SMF record type 119 - IPSec records (continued)

Record type	Record field	Release	Description	Reason for change
IPSec IKE tunnel activation and refresh - continued	IPSec common IKE tunnel specific section - continued	V1R12	<p>Subtype 75 has the following updates:</p> <ul style="list-style-type: none"> <li>• Offset 96(x'60') has a new bit for FIPS mode: x'4000000', SMF119IS_IPTunFIPS140</li> <li>• Offset 138(x'8A') for the SMF119IS_IPTunAuthAlg record has new values and also changed descriptions of existing values. The new values are: <ul style="list-style-type: none"> <li>– SMF119IS_AUTH_NULL (0)</li> <li>– SMF119IS_AUTH_AES_GMAC_128 (4)</li> <li>– SMF119IS_AUTH_AES_GMAC_256 (6)</li> <li>– SMF119IS_AUTH_HMAC_SHA2_256_128 (7)</li> <li>– SMF119IS_AUTH_AES128_XCBC_96 (9)</li> <li>– SMF119IS_AUTH_HMAC_SHA2_384_192 (13)</li> <li>– SMF119IS_AUTH_HMAC_SHA2_512_256 (14)</li> </ul> </li> </ul> <p>The following existing values have changed descriptions:</p> <ul style="list-style-type: none"> <li>– SMF119IS_AUTH_HMAC_MD5 (38)</li> <li>– SMF119IS_AUTH_HMAC_SHA1 (39)</li> </ul> <ul style="list-style-type: none"> <li>• Offset 139(x'8B') for the SMF119IS_IPTunEncryptAlg record has a new value: <ul style="list-style-type: none"> <li>– SMF119IS_ENCR_AES_GCM_16 (20)</li> </ul> </li> </ul> <p>It also has a changed value; the value SMF119IS_ENCR_AES (12) changed to SMF119IS_ENCR_AES_CBC (12).</p> <ul style="list-style-type: none"> <li>• Offset 160(x'A0') has a new record for SMF119IS_IPTunEncryptKeyLength.</li> </ul>	IKE version 2 support
	IPSec common IKE tunnel specific section	V1R11	<p>Subtype 73 has the following new fields:</p> <ul style="list-style-type: none"> <li>• SMF119IS_IKETunMajorVer</li> <li>• SMF119IS_IKETunMinorVer</li> <li>• SMF119IS_IKETunPseudoRandomFunc</li> <li>• SMF119IS_IKETunRemoteAuthMethod</li> <li>• SMF119IS_IKETunReauthInterval</li> <li>• SMF119IS_IKETunReauthTime</li> <li>• SMF119IS_IKETunGeneration</li> </ul>	IPSec enhancements
IPSec IKE tunnel deactivation and expire	IPSec common IKE tunnel specific section	V1R11	<p>Subtype 74 has the following new fields:</p> <ul style="list-style-type: none"> <li>• SMF119IS_IKETunMajorVer</li> <li>• SMF119IS_IKETunMinorVer</li> <li>• SMF119IS_IKETunPseudoRandomFunc</li> <li>• SMF119IS_IKETunRemoteAuthMethod</li> <li>• SMF119IS_IKETunReauthInterval</li> <li>• SMF119IS_IKETunReauthTime</li> <li>• SMF119IS_IKETunGeneration</li> </ul>	IPSec enhancements
IPSec dynamic tunnel activation and refresh	IPSec dynamic tunnel specific section	V1R11	<p>Subtype 75 has the following new fields:</p> <ul style="list-style-type: none"> <li>• SMF119IS_IPDynMajorVer</li> <li>• SMF119IS_IPDynMinorVer</li> <li>• SMF119IS_IPDynType</li> <li>• SMF119IS_IPDynTypeRange</li> <li>• SMF119IS_IPDynCode</li> <li>• SMF119IS_IPDynCodeRange</li> <li>• SMF119IS_IPDynSrcPortRange</li> <li>• SMF119IS_IPDynDstPortRange</li> <li>• SMF119IS_IPDynGeneration</li> </ul> <p>The SMF119IS_IPDynRsvd5 field is removed.</p>	IPSec enhancements

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Table 48. Summary of new and changed Communications Server SMF record type 119 - IPsec records (continued)

Record type	Record field	Release	Description	Reason for change
IPsec dynamic tunnel deactivation	IPsec dynamic tunnel specific section	V1R11	Subtype 76 has the following new fields: <ul style="list-style-type: none"> <li>SMF119IS_IPDynMajorVer</li> <li>SMF119IS_IPDynMinorVer</li> <li>SMF119IS_IPDynType</li> <li>SMF119IS_IPDynTypeRange</li> <li>SMF119IS_IPDynCode</li> <li>SMF119IS_IPDynCodeRange</li> <li>SMF119IS_IPDynSrcPortRange</li> <li>SMF119IS_IPDynDstPortRange</li> <li>SMF119IS_IPDynGeneration</li> </ul> <p>The SMF119IS_IPDynRsvd5 field is removed.</p>	IPsec enhancements
IPsec dynamic tunnel added	IPsec dynamic tunnel specific section	V1R11	Subtype 77 has the following new fields: <ul style="list-style-type: none"> <li>SMF119IS_IPDynMajorVer</li> <li>SMF119IS_IPDynMinorVer</li> <li>SMF119IS_IPDynType</li> <li>SMF119IS_IPDynTypeRange</li> <li>SMF119IS_IPDynCode</li> <li>SMF119IS_IPDynCodeRange</li> <li>SMF119IS_IPDynSrcPortRange</li> <li>SMF119IS_IPDynDstPortRange</li> <li>SMF119IS_IPDynGeneration</li> </ul> <p>The SMF119IS_IPDynRsvd5 field is removed.</p>	IPsec enhancements
IPsec dynamic tunnel removed	IPsec dynamic tunnel specific section	V1R11	Subtype 78 has the following new fields: <ul style="list-style-type: none"> <li>SMF119IS_IPDynMajorVer</li> <li>SMF119IS_IPDynMinorVer</li> <li>SMF119IS_IPDynType</li> <li>SMF119IS_IPDynTypeRange</li> <li>SMF119IS_IPDynCode</li> <li>SMF119IS_IPDynCodeRange</li> <li>SMF119IS_IPDynSrcPortRange</li> <li>SMF119IS_IPDynDstPortRange</li> <li>SMF119IS_IPDynGeneration</li> </ul> <p>The SMF119IS_IPDynRsvd5 field is removed.</p>	IPsec enhancements

### TCP connection records

Table 49 lists the changes made to the TCP connection termination SMF record type 119 records.

Table 49. Summary of new and changed Communications Server SMF record type 119 - TCP connection termination records

Record type	Record field	Release	Description	Reason for change
Connection termination record	<ul style="list-style-type: none"> <li>SMF119AP_TTTTLSSP</li> <li>SMF119AP_TTTTLSFP</li> </ul>	V1R11	<p>A new value, SMF119AP_TTTTLSSPTV1_1, may be returned in this field to indicate the SSL protocol is TLSV1.1.</p> <p>The record also indicates the level of FIPS support:</p> <ul style="list-style-type: none"> <li>'00'x - No FIPS support</li> <li>'01'x - FIPS 140 support</li> </ul>	AT-TLS enhancements

### TCP/IP stack records

Table 50 lists the changes made to the TCP/IP stack SMF type 119 records.

Table 50. Summary of new and changed Communications Server SMF type 119 record - TCP/IP stack records

Record type	Record field	Release	Description	Reason for change
DVIPA status change	N/A	V1R12	New record, subtype 32	SMF event records for sysplex events

Table 50. Summary of new and changed Communications Server SMF type 119 record - TCP/IP stack records (continued)

Record type	Record field	Release	Description	Reason for change
DVIPA removed	N/A	V1R12	New record, subtype 33	SMF event records for sysplex events
DVIPA target added	N/A	V1R12	New record, subtype 34	SMF event records for sysplex events
DVIPA target removed	N/A	V1R12	New record, subtype 35	SMF event records for sysplex events
DVIPA target server started	N/A	V1R12	New record, subtype 36	SMF event records for sysplex events
DVIPA target server ended	N/A	V1R12	New record, subtype 37	SMF event records for sysplex events
TCP/IP profile record	<ul style="list-style-type: none"> <li>NMTP_V6CFOSMSecClass</li> <li>NMTP_INTFChpIDFlg</li> <li>NMTP_INTFChpIDType</li> </ul>	V1R12	<ul style="list-style-type: none"> <li>New field that provides the IPSECURITY OSMSECCLASS value from the IPCONFIG6 profile statement.</li> <li>New flag in field NMTP_INTFFlags that indicates whether an optional CHPID value was specified in field NMTP_INTFChpID.</li> <li>New field that provides the CHPID type for OSA-Express interfaces defined by the INTERFACE statement.</li> </ul>	z/OS Communications Server in an ensemble
TCP/IP profile record	NMTP_DVCFPfxLen	V1R12	This existing field is used to return the configured IPv4 prefix length of an IPv4 DVIPA. It is now also used to return the configured IPv6 prefix length of an IPv6 DVIPA.	Extend sysplex distributor support for DataPower for IPv6
TCP/IP profile record	NMTP_DDVSTier1Gre	V1R12	This existing field is used to indicate that generic routing encapsulation (GRE) is used to distribute requests to IPv4 non-z/OS targets. It can now also indicate that IPv6 routing encapsulation is used to distribute requests to IPv6 non-z/OS targets.	Extend sysplex distributor support for DataPower for IPv6
TCP/IP profile record	NMTP_INTFDynTypes	V1R12	<p>Indicates the dynamic inbound performance types. This field is only set when field NMTP_INTFInbPerfType is set to NMTP_INTFIPDYN and the interface was defined by an INTERFACE statement.</p> <p>The record field is x'80', NMTP_INTFDYNWRKLDQ. If set, DYNAMIC WORKLOADQ is configured.</p>	Performance improvements for sysplex distributor connection routing

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Table 50. Summary of new and changed Communications Server SMF type 119 record - TCP/IP stack records (continued)

Record type	Record field	Release	Description	Reason for change
TCP/IP profile record	<ul style="list-style-type: none"> <li>NMTP_PICOSecChanged</li> <li>New NMTP_DASP section</li> <li>NMTP_SRCIFlags</li> </ul>	V1R12	<ul style="list-style-type: none"> <li>New flag defined for the new DEFADDRTABLE profile statement.</li> <li>This new section provides information from the new DEFADDRTABLE TCP/IP profile statement.</li> <li>New flag added to this flags field to support the new PUBLICADDRS parameter on the SRCIP TCP/IP profile statement.</li> </ul>	Configurable default address selection policy table
	<ul style="list-style-type: none"> <li>NMTP_MGMTNMSMFCSSMTP</li> <li>NMTP_MGMTNMSMFCMAIL</li> </ul>	V1R12	New flags added to field NMTP_MGMTNetMonSmfRecs to indicate if new CSSMTP SMF 119 records were requested on the NETMONITOR profile statement.	Management data for CSSMTP
	<ul style="list-style-type: none"> <li>NMTP_MGMT119DVIPA</li> <li>NMTP_MGMTNMSmfDVIPA</li> </ul>	V1R12	<ul style="list-style-type: none"> <li>New flag added to the NMTP_MGMTSmf119Types field to indicate whether the new DVIPA SMF 119 records were requested on the SMFCONFIG profile statement.</li> <li>New flag added to the NMTP_MGMTNetMonSmfRecs field to indicate whether the new DVIPA SMF 119 records were requested on the NETMONITOR profile statement.</li> </ul>	SMF event records for sysplex events
	New flag NMTP_GBCFSysMonNoJoin added to NMTP_GBCFSysMonOptions field	V1R12	Indicates whether GLOBALCONFIG SYSPLEXMONITOR NOJOIN is configured.	Control joining the sysplex XCF group
	For the DVIPA section, NMTP_DDVSDistMethod output field	V1R12	New NMTP_DDVSHotStandby value added to field to indicate the new HotStandby distribution method.	Sysplex distributor support for hot-standby server
	For the DVIPA section, NMTP_DDVSFlags output field	V1R12	New HotStandby flags are added: <ul style="list-style-type: none"> <li>NMTP_DDVSrvTypePreferred is set if the server type is Preferred.</li> <li>NMTP_DDVSrvTypeBackup is set if the server type is Backup.</li> <li>NMTP_DDVSAutoSwitchBack is set if AUTOSWITCHBACK is configured.</li> <li>NMTP_DDVSHealthSwitch is set if HEALTHSWITCH is configured.</li> </ul>	Sysplex distributor support for hot-standby server
	For the DVIPA section, NMTP_DDVSBackupRank output field	V1R12	New field that indicates the rank if this is a HotStandby backup server.	Sysplex distributor support for hot-standby server
	N/A	V1R11	New SMF 119 subtype 4 event record which provides TCP/IP stack profile information.	Stack configuration data

### TCP/IP CSSMTP records

Table 51 on page 103 lists the changes made to the TCP/IP CSSMTP SMF type 119 records.



Table 51. Summary of new and changed Communications Server SMF type 119 record - TCP/IP CSSMTP records

Record type	Record field	Rel.	Description	Reason for change
CSSMTP Configuration change	N/A	V1R12	New SMF 119 subtype 48 event record for CSSMTP configuration change.	Management data for CSSMTP
CSSMTP Connection ended	N/A	V1R12	New SMF 119 subtype 49 event record for CSSMTP target server connection ended.	Management data for CSSMTP
CSSMTP Mail message ended	N/A	V1R12	New SMF 119 subtype 50 event record for CSSMTP mail message completed.	Management data for CSSMTP
CSSMTP Spool file ended	N/A	V1R12	New SMF 119 subtype 51 event record for CSSMTP spool record completed.	Management data for CSSMTP
CSSMTP interval statistics	N/A	V1R12	New SMF 119 subtype 52 event record for CSSMTP statistics interval ended.	Management data for CSSMTP

## CICS socket configuration and operator transactions

Table 52 lists the changes made to the CICS socket configuration and operator transactions. For more information about the EZAC configuration transaction, see Configuration transaction (EZAC) in *z/OS Communications Server: IP CICS Sockets Guide*. For more information about the EZAO operator transaction, see "IP CICS Sockets interface management" in *z/OS Communications Server: IP CICS Sockets Guide*.

Table 52. Summary of new and changed Communications Server CICS socket configuration and operator transactions

IP CICS socket transaction	Release	Parameter	Description	Reason for change
Listener	V1R11	WLMGN1, WLMGN2, and WLMGN3	These parameters are no longer supported.	Removal of support.

## RACF interfaces

Table 53 lists the functions for which new or changed RACF support is available. Sample RACF commands to change the RACF configuration can be found in one of the following members member EZARACF of the installation data set, SEZAINST:

- EZARACF - Contains sample commands for environments where multilevel security is not configured.
- EZARACFM - Contains sample commands for environments where multilevel security is configured.

You can use the function name from the table to search EZARACF for all the commands necessary for the function. See *z/OS Communications Server: IP Configuration Guide* for more information for each function.

Table 53. Summary of new and changed Communications Server RACF interfaces

Function name	Rel.	Description	Reason for change
N/A	V1R11	The sample RACF commands which apply to a multilevel secure environment, have been moved from sample member EZARACF in data set SEZAINST, to new sample member EZARACFM in data set SEZAINST.	Release update.

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Table 53. Summary of new and changed Communications Server RACF interfaces (continued)

Function name	Rel.	Description	Reason for change
BINLSD EZATDLSD	V1R11	This application is deleted. You should remove it from the RACF SERVAUTH class for facility EZB.SOCKOPT.sysname.tcprocname. SO_BROADCAST.	Removal of support.
CSSMTP	V1R11	New profile names supported for authorizing CSSMTP.	New SMTP client for sending Internet mail
DHCP	V1R11	This application is deleted. You should remove it from the RACF STARTED class.	Removal of support.
Netstat	V1R12	New security resource name can be added in the SERVAUTH class to control access to the new Netstat DEFADDRT/-l (lower case L) report.	Configurable default address selection policy table
	V1R11	New security resource name can be added in the SERVAUTH class for new Netstat RESCache/-q report.	Resolver DNS cache
Network security services (NSS)	V1R11	Supports resources for restricting XMLAppliance client access to private key and certificate services and to the certificates and private keys themselves.	NSS private key and certificate services for XML appliances
PORTC (PORTCLNT)	V1R11	This application is no longer supported. You should remove the application started procedure name from the RACF STARTED class.	Removal of support.
Network Management Interface (NMI)	V1R11	New resource name, EZB.NETMGNT.sysname.tcpiprocname. SYSTCPOT, supported in the SERVAUTH class to control access to the new SYSTCPOT NMI function. This function provides OSAENTA trace information.	OSA network traffic analyzer data
Support for intranode management network	V1R12	New resource name supported for authorizing applications to use OSA-Express3 features configured with CHPID type OSM.	z/OS Communications Server in an ensemble
Trusted TCP connections	V1R12	<ul style="list-style-type: none"> <li>New resource in the SERVAUTH class, EZB.IOCTL.sysname.tcprocname.PARTNERINFO, to control whether an application can use the SIOCGPARTNERINFO ioctl to obtain partner security credentials within a sysplex or subplex over a trusted TCP connection.</li> <li>New resource in the SERVAUTH class, EZBDOMAIN, to define a common security domain name within your sysplex or subplex.</li> </ul>	Trusted TCP connections

## Communications Server SNA summary of interface changes

This section describes the updates to the following Communications Server SNA interfaces:

- “Start options” on page 105
- “Start option behavior changes” on page 105
- “Definition statements” on page 106
- “Commands” on page 106
- “Command behavior changes” on page 107
- “SNA API macroinstruction operands” on page 109
- “VTAM Internal Trace (VIT) entries” on page 109
- “Network monitoring interface API” on page 110
- “Sense code changes” on page 111

- “Vector and vector list changes” on page 111
- “Request parameter list return code feedbacks” on page 111

## Start options

Table 54 on page 105 lists the new or changed SNA start options.

Refer to *z/OS Communications Server: SNA Resource Definition Reference* for more information on start options.

Table 54. Summary of new and changed Communications Server start options

Start option	Release	Description of update	Reason for change
EEVERIFY	V1R12	New start option that specifies whether VTAM should automatically send an LDLC probe to the remote partner to determine if all ports are accessible during the activation of the Enterprise Extender (EE) connection. This option also specifies the time interval at which VTAM should send the probe on active EE connections.	Enterprise Extender connection health verification
ENSEMBLE	V1R12	New start option that specifies whether this z/OS Communications Server will permit connectivity to the intraensemble data network and the intranode management network. Access to these networks is through OSA-Express3 features configured in OSX and OSM modes.	z/OS Communications Server in an ensemble
HPRPSDLY	V1R11	New start option that specifies the minimum amount of time VTAM delays prior to entering path switch for an HPR pipe which has a unresponsive partner.	HPR performance enhancements
MULTPATH	V1R12	New start option that specifies whether VTAM allows multipath for IPv4 and IPv6 Enterprise Extender connections.	Multipath control for Enterprise Extender
TDUDIAG	V1R11	New start option that specifies when diagnostic information will be appended with node and TG control vectors within a Topology Database Update (TDU).	APPN topology database update enhancements
TRACE	V1R12	Changed to accept a new SUBTRACE=DIO option when the TYPE=VTAM OPTION is specified.	Performance improvements for sysplex distributor connection routing

## Start option behavior changes

Table 55 on page 105 lists the SNA start options that have changed behavior.

For complete information about all SNA start options, refer to *z/OS Communications Server: SNA Resource Definition Reference*.

Table 55. Summary of new and changed Communications Server start option behavior changes

Start option with changed behavior	Release	Description of update	Reason for change
INOPDUMP	V1R11	When INOPDUMP=ON is specified, any dump that is taken as a result of this setting and the occurrence of an inoperative condition will include the VIT data space (ISTITDS1) if the VIT data space is active.	Include data space VIT with INOP dump

## Definition statements

Table 56 on page 106 lists the changes to SNA definition statements.

For complete information about all changed and new definition statements, refer to the *z/OS Communications Server: SNA Resource Definition Reference*.

Table 56. Summary of new and changed Communications Server definition statements

Definition statement	Release	Description of update	Reason for change
GROUP	V1R12	In an Enterprise Extender XCA major node (MEDIUM=HPRIP), a new keyword EEVERIFY is available. It affects the Enterprise Extender connections associated with the connection network defined by this GROUP.  EEVERIFY specifies whether VTAM should automatically send an LDLC probe to the remote partner to determine if all ports are accessible during the activation of the EE connection. It also specifies the time interval at which VTAM should send the probe on active EE connections.	Enterprise Extender connection health verification
	V1R11	In an Enterprise Extender XCA major node (MEDIUM=HPRIP), two new keywords, HPREEARB and HPRPSDLY, are available. Both of these keywords affect HPR pipes which traverse the Enterprise Extender connections associated with the connection network defined by this GROUP: <ul style="list-style-type: none"> <li>• HPREEARB allows these HPR pipes to use the progressive mode Adaptive Rate-Based (ARB) flow control algorithm.</li> <li>• HPRPSDLY specifies the amount of time that these HPR pipes are to delay entering path switch when the partner is unresponsive.</li> </ul>	HPR performance enhancements
PU	V1R12	A new keyword EEVERIFY is available on the model major node for Enterprise Extender (DYNTYPE=EE), and on the switched major node. It affects the EE connections with these Enterprise Extender physical units.  EEVERIFY specifies whether VTAM should automatically send an LDLC probe to the remote partner to determine if all ports are accessible during the activation of the EE connection. It also specifies the time interval at which VTAM should send the probe on active EE connections.	Enterprise Extender connection health verification
	V1R11	Two new keywords, HPREEARB and HPRPSDLY, are available on the model major node for Enterprise Extender (DYNTYPE=EE), and on the switched major node. Both of these keywords affect the HPR pipes associated with these Enterprise Extender physical units: <ul style="list-style-type: none"> <li>• HPREEARB allows these HPR pipes to use the progressive mode Adaptive Rate-Based (ARB) flow control algorithm.</li> <li>• HPRPSDLY specifies the amount of time that these HPR pipes are to delay entering path switch when the partner is unresponsive.</li> </ul>	HPR performance enhancements

## Commands

Table 57 on page 107 lists the new and changed SNA commands.

For complete information about SNA commands, refer to the *z/OS Communications Server: SNA Operation*.

Table 57. Summary of new and changed Communications Server commands

Command	Release	Description	Reason for change
DISPLAY EE	V1R12	Added a new LIST=EEVERIFY option. When this option is specified, general Enterprise Extender information and EE Health Verification information is displayed at the local IP address level.	Enterprise Extender connection health verification
DISPLAY MODELS	V1R11	A new operand, APPL, allows you to specify an application name to discover the model application definition that will be used to build the application's dynamic definition.	Display potential model application name
DISPLAY TOPO	V1R12	A new TDUDIAG value on the LIST operand displays the following information: <ul style="list-style-type: none"> <li>A summary of TDU diagnostic information; displayed when no other operands are specified.</li> <li>TDU diagnostic information that is specific to the node; displayed when the ID operand is also specified.</li> <li>TDU diagnostic information specific to the TG; displayed when the ORIG, DEST, and TGN operands are also specified.</li> </ul>	Enhancements to topology database diagnostics
DISPLAY TRL	V1R11	When the TRLE represents an OSA-Express in QDIO mode or HiperSockets™ device, the display output includes an additional message (IST23051).	Improved responsiveness to storage shortage conditions
MODIFY NOTRACE	V1R12	A new SUBTRACE value, DIO, is accepted when TYPE=VTAM is specified.	Performance improvements for sysplex distributor connection routing
MODIFY TNSTATS	V1R11	When tuning statistics are displayed for a TRLE that is configured with MPCLEVEL=QDIO, messages IST2316I and IST2317I are now included in the display information.	OSA-Express3 optimized latency mode
MODIFY TRACE	V1R12	A new SUBTRACE value, DIO, is accepted when TYPE=VTAM is specified.	Performance improvements for sysplex distributor connection routing
MODIFY VTAMOPTS	V1R12	This command can be used to change the value of the ENSEMBLE start option.	z/OS Communications Server in an ensemble
MODIFY VTAMOPTS	V1R12	This command can be used to change the value of the EEVERIFY start option.	Enterprise Extender connection health verification
	V1R12	This command can be used to change the value of the MULTPATH start option.	Multipath control for Enterprise Extender
	V1R11	This command can be used to change the value of the HPRPSDLY start option.	HPR performance enhancements
	V1R11	This command can be used to change the value of the TDUDIAG start option.	APPN topology database update enhancements

## Command behavior changes

Table 58 on page 108 lists the SNA commands that have changed behavior.

For complete information about SNA commands, refer to the *z/OS Communications Server: SNA Operation*.

## Communications Server

Table 58. Summary of new and changed Communications Server commands with changed behavior

Command	Release	Description of behavior change	Reason for change
DISPLAY ID	V1R12	When ID= <i>trlename</i> is specified for an active QDIO TRLE, messages IST2331I, IST2332 and one or more IST2333I are issued. Previously message IST1918I was issued. Message IST924I is added to separate data device information.	Performance improvements for sysplex distributor connection routing
DISPLAY ID	V1R12	When ID= <i>trlename</i> is specified for an active QDIO TRLE, message IST2337I describing the chpid type and number is issued.	z/OS Communications Server in an ensemble
DISPLAY ID	V1R12	When the ID represents a high performance routing (HPR) physical unit name or line of the Enterprise Extender XCA major node (MEDIUM=HPRIP), the display output is enhanced to optionally include the additional messages IST2327I, IST2328I, IST2329I, IST2339I, IST2340I, IST2341I and IST2343I.	Enterprise Extender connection health verification
	V1R11	When the ID represents a high performance routing (HPR) physical unit name, the display output is enhanced to optionally include some additional messages (IST2267I, IST2268I, IST2269I, IST2271I, and IST2272I).	HPR performance enhancements
DISPLAY TOPO	V1R12	When ID= <i>cpname</i> ,LIST=ALL is specified, the display output is enhanced to include additional messages.	Enhancements to topology database diagnostics
	V1R12	When ORIG= <i>orig</i> ,DEST= <i>dest</i> is specified, the display output is enhanced to include additional messages.	Enhancements to topology database diagnostics
	V1R12	When LIST=TDUINFO is specified, the display output is enhanced to include, in addition to information about TDUs received, the following information: <ul style="list-style-type: none"> <li>Information about corrupted control vectors.</li> <li>Information about TDUs sent.</li> </ul> <p>In addition, when LIST=TDUINFO,SCOPE=ACTIVITY is specified, the display output is enhanced to include information about RSN updates.</p> <p>Also, when a new FORMAT operand is specified on LIST=TDUINFO, the output is displayed in an expanded format.</p>	Enhancements to topology database diagnostics
DISPLAY TRL	V1R12	When TRLE= <i>trlename</i> is specified for an active QDIO TRLE, messages IST2331I, IST2332 and one or more IST2333I are issued. Previously message IST1918I was issued. Message IST924I is added to separate data device information.	Performance improvements for sysplex distributor connection routing
DISPLAY TRL	V1R12	When TRLE= <i>trlename</i> is specified for an active QDIO TRLE, message IST2337I describing the chpid type and number is issued.	z/OS Communications Server in an ensemble
MODIFY INOPDUMP	V1R11	When INOPDUMP=ON is specified, any dump that is taken as a result of this setting and the occurrence of an inoperative condition will include the VIT data space (ISTITDS1) if the VIT data space is active.	Include data space VIT with INOP dump
MODIFY VTAMOPTS	V1R11	When INOPDUMP=ON is specified, any dump that is taken as a result of this setting and the occurrence of an inoperative condition will include the VIT data space (ISTITDS1) if the VIT data space is active.	Include data space VIT with INOP dump

## SNA API macroinstruction operands

Table 59 on page 109 lists the new or changed SNA API macroinstruction operands.

For complete information about SNA API macroinstruction operands, refer to *z/OS Communications Server: SNA Programming*.

Table 59. Summary of new and changed Communications Server SNA API macroinstruction operands

Macro-instruction	Release	Description	Reason for change
SETLOGON OPTCD=START	V1R12	An application can supply a CV64 with IP characteristics information.	Enhancements to the TN3270E server - session manager sends CV64

## VTAM Internal Trace (VIT) entries

Table 60 on page 109 lists the new and changed VTAM Internal Trace (VIT) entries.

For complete information about VIT entries, refer to *z/OS Communications Server: SNA Diagnosis Vol 2, FFST Dumps and the VIT*.

Table 60. Summary of new and changed Communications Server VTAM Internal Trace (VIT) entries

VIT entry	Release	Description	Related support
DAPT	V1R11	<b>Changed:</b> Added DAPTR type.	HPR performance enhancements
QAPL	V1R12	<b>New:</b> OSA-Express QDIO or HiperSockets accelerator parameter list.	Performance improvements for sysplex distributor connection routing
ODPK	V1R12	<b>Changed:</b> Added an indicator of the read queue identifier for inbound packets.	Performance improvements for sysplex distributor connection routing
ODPK	V1R11	<b>Changed:</b> Additional direction indicator is defined.	Improved responsiveness to storage shortage conditions
QDIP	V1R12	<b>Changed:</b> Enabled using the DIO subtrace type under the CIA trace option. You must specify SUBTRACE=DIO,OPT=CIA to enable this trace entry. Previously, this trace entry was enabled under the CIA trace option.	Performance improvements for sysplex distributor connection routing
QDIP	V1R11	<b>New:</b> QDIO performance statistics within the CIA VIT option.	OSA-Express3 optimized latency mode
QSRB	V1R12	<b>New:</b> OSA-Express QDIO or HiperSockets Service Request Block (SRB) event.	Performance improvements for sysplex distributor connection routing
QSR2	V1R12	<b>New:</b> OSA-Express QDIO or HiperSockets Service Request Block (SRB) event (part 2).	Performance improvements for sysplex distributor connection routing
RTP	V1R11	<b>Changed:</b> Number of retries field moved to a full byte field.	HPR performance enhancements
RTP2	V1R11	<b>Changed:</b> MNPS fields moved to RTP3 and new counts added here.	HPR performance enhancements
RTP3	V1R11	<b>New:</b> This optionally included VIT entry contains the MNPS fields moved from RTP2.	HPR performance enhancements

## Communications Server

Table 60. Summary of new and changed Communications Server VTAM Internal Trace (VIT) entries (continued)

VIT entry	Release	Description	Related support
SBAL	V1R12	<b>Changed:</b> Added direction indicator and write queue priority for outbound packets and added a read queue identifier for inbound packets.	Performance improvements for sysplex distributor connection routing
SLSB	V1R12	<b>Changed:</b> Added direction indicator and read queue identifier for inbound packets.	Performance improvements for sysplex distributor connection routing

## Network monitoring interface API

Table 61 lists the updates to the SNA network monitoring interface API.

Table 61. Summary of new Communications Server network monitoring interface API

Request / Response	Release	Description	Reason for change
CSM statistics	V1R11	Accepts up to four request filter records specifying ASID values.	SNA network management interface enhancements for detailed CSM usage
HPR connection	V1R12	The following new EE connection health verification information is provided: <ul style="list-style-type: none"> <li>EEConn_VERTriplet - EE Health Verification triplet</li> <li>EEConn_PBRTriplet - EE Policy Based Routing triplet</li> <li>EEConnS_Ver_Failed_Flag - Health of the EE connection</li> <li>EEConnS_HVER_TOD - TOD when EE health verification info received from the remote partner</li> <li>EEConn_VERData - EE Health verification section</li> <li>EEConn_PBRData - EE Health verification PBR data</li> <li>EEConnS_HVER_SUCCESS_TOD - TOD when last EE health verification was successful</li> <li>EEConnS_HVER_FAIL_TOD - TOD when last EE health verification failed</li> </ul>	Enterprise Extender connection health verification
	V1R11	When the ARB level is the new progressive mode ARB, the bit settings in the HPRCONNDS_ARB_ALGORITHM will be x'10'; this setting is new to the NMI applications.	HPR performance enhancements



## Sense code changes

Table 62 on page 111 lists SNA sense code changes.

Table 62. Summary of sense code changes

Sense code	Release	Description	Reason for change
X'088C4700'	V1R11	Control vector X'47' was expected after control vector X'46' in a Topology Database Update (TDU) but was not present. <b>Note:</b> Update also available with APAR OA23783.	Release update
X'A001001F'	V1R11	Progressive Mode ARB is not allowed in this environment.	HPR performance enhancements

## Vector and vector list changes

Table 63 lists the changes made to the SNA vector and vector list changes.

Table 63. Summary of new and changed Communications Server vector changes

Control vector or vector list	Release	Change Description	Reason for change
HPR capabilities control vector (CV61)	V1R11	Subvector X'81'- V6181_ARB_LEVEL has a new defined ARB level of V6181_ARB_PROGRESSIVE ('10'B). If set to this level, this node supports the progressive mode Adaptive Rate-Based (ARB) flow control algorithm for its HPR pipes.	HPR performance enhancements
Access-Method-Support Vector List (ISTAMSVL)	V1R12	AMS05B61 defined to indicate VTAM support of user control vectors on SETLOGON START.	Enhancements to the TN3270E server - session manager sends CV64
ISTGLBAL	V1R12	ISTGL61 defined to indicate VTAM support of user control vectors on SETLOGON START.	Enhancements to the TN3270E server - session manager sends CV64
Application-ACB Vector List (ISTVACBV)	V1R12	VAC81UCV defined for an application to indicate that it will pass control vectors on the SETLOGON START.	Enhancements to the TN3270E server - session manager sends CV64
ISTDNIB	V1R12	NIBUCVA, NIBVECS, NIBVECL, and NIBVEC defined to support the passing of the control vector on the SETLOGON START.	Enhancements to the TN3270E server - session manager sends CV64
Topology Resource Sequence Number Update (X'4E') Control Vector	V1R11	This new control vector can be included in a topology database update (TDU) with node or TG control vectors. The X'4E' control vector contains diagnostic information about the node that updated the resource sequence number (RSN).	APPN topology database update enhancements

## Request parameter list return code feedbacks

Table 64 on page 112 lists the changes made to the VTAM request parameter list (RPL) return code feedbacks.

## Communications Server

Table 64. Summary of new and changed Communications Server VTAM request parameter list (RPL) return code feedbacks

New RTNCD/FDB2 pairs returned by VTAM API	Release	Change Description	Reason for change
X'14' and X'94'	V1R12	No LU name passed.	Common storage reduction for TN3270E server
X'14' and X'95'	V1R12	No applicable RDTE found.	Common storage reduction for TN3270E server
X'14' and X'96'	V1R12	Conflict with found RDTE.	Common storage reduction for TN3270E server

## Tuning statistics reports

Table 65 on page 112 lists the new and changed SNA tuning statistics reports.

Table 65. Summary of new and changed Communications Server SNA tuning statistics reports

Tuning statistics report	Release	Description	Reason for change
QDIO and Hipersockets	V1R12	<ul style="list-style-type: none"> <li>Changed READ direction label to RD/x (where x is the read queue number) and added the read queue type to message IST1233I for QDIO and Hipersockets interfaces. Multiple read groups may be reported for QDIO interfaces.</li> <li>Removed tuning statistics for unused data devices for QDIO and Hipersockets interfaces.</li> </ul>	Performance improvements for sysplex distributor connection routing

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## Chapter 9. Cryptographic Services summary of interface changes

In addition to the interface changes included in this chapter, updates to Cryptographic Services resulted in SYS1.SAMPLIB member changes. See Chapter 5, “Summary of changes to SYS1.SAMPLIB,” on page 13 for those changes.

Interface changes for the following Cryptographic Services components are included in this chapter:

- Integrated Cryptographic Service Facility (ICSF)
- PKI Services
- System SSL

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### ICSF summary of interface changes

The following tables describe new and changed services for ICSF FMIDs HCR7770 (Cryptographic Support for z/OS V1R9-R11), HCR7751 (Cryptographic Support for z/OS V1R8-R10 & z/OS.e V1R8), and HCR7750 (Cryptographic support for z/OS V1R7-R9 and z/OS.e V1R7-R8).

HCR7770 is included as part of the Cryptographic Services base element for z/OS V1R12

Table 66. Summary of new and changed ICSF callable services (FMID HCR7770)

Callable service	Release	Description
ICSF Query Algorithm (CSFIQA and CSFIQA6)	HCR7770	<b>Changed:</b> Returns additional data.
ICSF Query Facility (CSFIQF and CSFIQF6)	HCR7770	<b>Changed:</b> Returns additional data.
PKCS #11 Derive key (CSFPDVK)	HCR7770	<b>New:</b> Support for PKCS #11.
PKCS #11 Derive multiple keys (CSFPDMK)	HCR7770	<b>New:</b> Support for PKCS #11.
PKCS #11 Generate HMAC (CSFPHMG)	HCR7770	<b>New:</b> Support for PKCS #11.
PKCS #11 Generate key pair (CSFPGKP)	HCR7770	<b>New:</b> Support for PKCS #11.
PKCS #11 Generate secret key (CSFPGSK)	HCR7770	<b>New:</b> Support for PKCS #11.
PKCS #11 One-way hash generate (CSFPOWH)	HCR7770	<b>New:</b> Support for PKCS #11.
PKCS #11 Private key sign (CSFPPKS)	HCR7770	<b>New:</b> Support for PKCS #11.
PKCS #11 Pseudo-random function (CSFPPRF)	HCR7770	<b>New:</b> Support for PKCS #11.
PKCS #11 Public key verify (CSFPPKV)	HCR7770	<b>New:</b> Support for PKCS #11.
PKCS #11 Secret key decrypt (CSFPSKD)	HCR7770	<b>New:</b> Support for PKCS #11.

## ICSF

Table 66. Summary of new and changed ICSF callable services (FMID HCR7770) (continued)

Callable service	Release	Description
PKCS #11 Secret key encrypt (CSFPSKE)	HCR7770	<b>New:</b> Support for PKCS #11.
PKCS #11 Unwrap key (CSFPUWK)	HCR7770	<b>New:</b> Support for PKCS #11.
PKCS #11 Verify HMAC (CSFPHMV)	HCR7770	<b>New:</b> Support for PKCS #11.
PKCS #11 Wrap key (CSFPWPK)	HCR7770	<b>New:</b> Support for PKCS #11.
PKA Key Translate (CSNDPKT and CSNFPKT).	HCR7770	<b>New:</b> Support for RSA private key export.
PKA Key Generate (CSNDPKG and CSNFPKG)	HCR7770	<b>Changed:</b> Support for RSA private key export.
PKA Key Token Build (CSNDPKB and CSNFPKB)	HCR7770	<b>Changed:</b> Support for RSA private key export.
Symmetric Key Export (CSNFSYX)	HCR7770	<b>Changed:</b> Support for invocation in AMODE(64).
Symmetric Key Import (CSNFSYI)	HCR7770	<b>Changed:</b> Support for invocation in AMODE(64).
Symmetric Key Encipher (CSNBSYE, CSNBSYE1, CSNESYE and CSNESYE1)	HCR7770	<b>Changed:</b> Support an encrypted key in the CKDS.
Symmetric Key Decipher (CSNBSYD, CSNBSYD1, CSNESYD and CSNESYD1)	HCR7770	<b>Changed:</b> Support an encrypted key in the CKDS.

Table 67. Summary of new and changed ICSF callable services (FMID HCR7751)

Callable service	Release	Description
ICSF Query Algorithm (CSFIQA and CSFIQA6)	HCR7751	<b>New:</b> HCR7751
Symmetric Algorithm Decipher (CSNBSAD, CSNBSAD1, CSNESAD, and CSNESAD1)	HCR7751	<b>New:</b> Supports secure key AES
Symmetric Algorithm Encipher (CSNBSAE, CSNBSAE1, CSNESAE, and CSNESAE1)	HCR7751	<b>New:</b> Supports secure key AES
Symmetric MAC Generate (CSNBSMG, CSNBSMG1, CSNESMG and CSNESMG1)	HCR7751	<b>New:</b> Supports IPv6
Symmetric MAC Verify (CSNBSMV, CSNBSMV1, CSNESMV and CSNESMV1)	HCR7751	<b>New:</b> Supports IPv6

Table 67. Summary of new and changed ICSF callable services (FMID HCR7751) (continued)

Callable service	Release	Description
ICSF Query Function (CSFIQF and CSFIQF6)	HCR7751	<b>Changed:</b> Supports secure key AES
Key Generate (CSNBKGN and CSNEKGN)	HCR7751	<b>Changed:</b> Supports secure key AES
Key Record Create (CSNBKRC)	HCR7751	<b>Changed:</b> Supports secure key AES
Key Record Delete (CSNBKRD)	HCR7751	<b>Changed:</b> Supports secure key AES
Key Record Read (CSNBKRR)	HCR7751	<b>Changed:</b> Supports secure key AES
Key Record Write (CSNBKRW)	HCR7751	<b>Changed:</b> Supports secure key AES
Key Test (CSNBKYT)	HCR7751	<b>Changed:</b> Supports secure key AES
Key Token Build (CSNBKTB)	HCR7751	<b>Changed:</b> Supports secure key AES
Multiple Clear Key Import (CSNBCKM and CSNECKM)	HCR7751	<b>Changed:</b> Supports secure key AES
Multiple Secure Key Import (CSNBCKM)	HCR7751	<b>Changed:</b> Supports secure key AES
Symmetric Key Export (CSNDSYX)	HCR7751	<b>Changed:</b> Supports secure key AES
Symmetric Key Generate (CSNDSYG)	HCR7751	<b>Changed:</b> Supports secure key AES
Symmetric Key Import (CSNDSYI)	HCR7751	<b>Changed:</b> Supports secure key AES
VISA CVV Service Generate (CSNBCSG)	HCR7751	<b>Changed:</b> Supports PAN-14, PAN-15, PAN-17 and PAN-18
VISA CVV Service Verify (CSNBCSV)	HCR7751	<b>Changed:</b> Supports PAN-14, PAN-15, PAN-17 and PAN-18

Table 68. Summary of new and changed ICSF callable services (FMID HCR7750)

Callable service	Release	Description
One-Way Hash Generate (CSNBOWH/CSNBOWH1/CSNEOWH/CSNEOWH1)	HCR7750	<b>Changed:</b> Supports SHA-2 algorithms.
ICSF Query Facility (CSFIQF/CSFIQF6)	HCR7750	<b>Changed:</b> Supports SHA-2 algorithms.
PKA Decrypt (CSNFPKD/CSNFPKD)	HCR7750	<b>Changed:</b> Supports 4096-bit RSA keys on z9 <sup>®</sup> EC, z9 BC and z10 EC.
PKA Encrypt (CSNFPE/CSNFPE)	HCR7750	<b>Changed:</b> Supports 4096-bit RSA keys on z9 EC, z9 BC and z10 EC.
PKA Key Extract (CSNFPKX/CSNFPKX)	HCR7750	<b>Changed:</b> Supports 4096-bit RSA keys on z9 EC, z9 BC and z10 EC.
PKA Key Generate (CSNFPKG/CSNFPKG)	HCR7750	<b>Changed:</b> Supports 4096-bit RSA keys on z9 EC, z9 BC and z10 EC.

Table 68. Summary of new and changed ICSF callable services (FMID HCR7750) (continued)

Callable service	Release	Description
PKA Key Import (CSNFPKI/CSNFPKI)	HCR7750	<b>Changed:</b> Supports 4096-bit RSA keys on z9 EC, z9 BC and z10 EC.
PKA Key Token Build (CSNFPKB/CSNFPKB)	HCR7750	<b>Changed:</b> Supports 4096-bit RSA keys on z9 EC, z9 BC and z10 EC.
PKA Key Token Change (CSNDKTC)	HCR7750	<b>Changed:</b> Supports 4096-bit RSA keys on z9 EC, z9 BC and z10 EC.
PKDS Record Create (CSNDKRC/CSNFRKC)	HCR7750	<b>Changed:</b> Supports 4096-bit RSA keys on z9 EC, z9 BC and z10 EC.
PKDS Record Write (CSNDKRW)	HCR7750	<b>Changed:</b> Supports 4096-bit RSA keys on z9 EC, z9 BC and z10 EC.
PKDS Record Delete (CSNDKRD/CSNFRKD)	HCR7750	<b>Changed:</b> Supports 4096-bit RSA keys on z9 EC, z9 BC and z10 EC.
Remote Key Export (CSNDKRX)	HCR7750	<b>Changed:</b> Supports 4096-bit RSA keys on z9 EC, z9 BC and z10 EC.
Symmetric Key Export (CSNDSYX)	HCR7750	<b>Changed:</b> Supports 4096-bit RSA keys on z9 EC, z9 BC and z10 EC.
Symmetric Key Generate (CSNDSYG)	HCR7750	<b>Changed:</b> Supports 4096-bit RSA keys on z9 EC, z9 BC and z10 EC.
Symmetric Key Import (CSNDSYI)	HCR7750	<b>Changed:</b> Supports 4096-bit RSA keys on z9 EC, z9 BC and z10 EC.
Trusted Block Create (CSNDTBC)	HCR7750	<b>Changed:</b> Supports 4096-bit RSA keys on z9 EC, z9 BC and z10 EC.
Digital Signature Generate (CSNDDSG)	HCR7750	<b>Changed:</b> Supports 4096-bit RSA keys on z9 EC, z9 BC and z10 EC.
Digital Signature Verify (CSNDDSV)	HCR7750	<b>Changed:</b> Supports 4096-bit RSA keys on z9 EC, z9 BC and z10 EC.
Clear PIN Encrypt (CSNBCPE)	HCR7750	<b>Changed:</b> Supports ISO-3 PIN block format.
Encrypted PIN Generate (CSNBEPG)	HCR7750	<b>Changed:</b> Supports ISO-3 PIN block format.
Encrypted PIN Translate (CSNBPTR)	HCR7750	<b>Changed:</b> Supports ISO-3 PIN block format.
PIN Change/Unblock (CSNBPCU)	HCR7750	<b>Changed:</b> Supports ISO-3 PIN block format.
Secure Messaging for PINs (CSNBSPN)	HCR7750	<b>Changed:</b> Supports ISO-3 PIN block format.
Random Number Generate (CSNBRNG/CSNERNG/CSNBRNGL/CSNERNGL)	HCR7750	<b>Changed:</b> Permits the user to specify the length of the random number generated.

## PKI Services summary of interface changes

In addition to the PKI Services interfaces described in this section, you should also review Chapter 5, “Summary of changes to SYS1.SAMPLIB,” on page 13 for changes to SYS1.SAMPLIB.

The PKI Services interfaces described in this section are:

- “Code samples” on page 117

- “Internet protocol standards” on page 119
- “Sample forms” on page 119
- “Substitution variables” on page 120
- “Utilities” on page 120

## Code samples

Table 69 lists new and updated PKI Services code samples. For more detailed information, see *z/OS Cryptographic Services PKI Services Guide and Reference*.

Table 69. Summary of new and changed code samples for PKI Services.

File name	Release	Description	Reason for change
altdomain.jsp, altipaddr.jsp, alturi.jsp, altemail.jsp	z/OS V1R12	<b>Updated:</b> Allow repeatable AltDomain, AltIPAddr, AltURI, and AltEmail fields.	Multiple instances of name forms in Subject Alternate Name extension
CustomExt.jsp	z/OS V1R12	<b>New:</b> The HTML and JavaScript for defining custom certificate extensions.	Custom certificate extensions
IKYSETUP	z/OS V1R12	<b>Updated:</b> Allows the use of an elliptic curve cryptography (ECC) algorithm to generate the CA's private key.	Support for elliptic curve cryptography (ECC)
pkixexit.c	z/OS V1R12	<b>Updated:</b> <ul style="list-style-type: none"> <li>• Use new C/C++ runtime library functions to accurately check certificate expiration dates.</li> <li>• Use new 64-bit time functions for time-stamping.</li> </ul>	Release update
	z/OS V1R11	<b>Updated:</b> Added a new function, QRECOVER, that provides a mechanism to retrieve a passphrase needed to recover a certificate, in case the user has forgotten the passphrase.	Key generation for certificates

## PKI Services

Table 69. Summary of new and changed code samples for PKI Services. (continued)

File name	Release	Description	Reason for change
pkiserv.conf	z/OS V1R12	<b>Updated:</b> Added a new keyword that specifies the days on which the daily maintenance task is to run.	Release update
	z/OS V1R12	<b>Updated:</b> Added a new keyword that specifies the time at which the daily maintenance task is to run.	Release update
	z/OS V1R12	<b>Updated:</b> Added a new keyword that specifies whether the daily maintenance task should run during PKI Services startup.	Release update
	z/OS V1R12	<b>Updated:</b> Added new signature algorithm OIDs for elliptic curve cryptography (ECC) algorithms.	Support for elliptic curve cryptography (ECC)
	z/OS V1R12	<b>Updated:</b> Added new signature algorithm OIDs for SHA224, SHA384, and SHA512 with RSA encryption.	Release update
	z/OS V1R12	<b>Updated:</b> Changed the default signature algorithm to SHA256 with RSA encryption.	Release update
	z/OS V1R12	<b>Updated:</b> Added a new keyword that specifies whether support for certificate management protocol (CMP) messages is enabled.	Support for certificate management protocol (CMP)
	z/OS V1R11	<b>Updated:</b> Added a new signature algorithm OID for SHA-256 with RSA encryption.	Support for SHA-256
		<b>Updated:</b> Added a new keyword for the length of time expired certificates and keys should remain in the ICL and TKDS.	Key generation for certificates
		<b>Updated:</b> Added a new keyword for the location of a form listing certificates that can be recovered.	Key generation for certificates
<b>Updated:</b> Added a new keyword for the name of a token in the token database (TKDS) that PKI Services uses to store keys that it generates.		Key generation for certificates	
pkiserv.envars	z/OS V1R12	<b>Updated:</b> Changed the default for the PATH variable to /bin.	Release update
	z/OS V1R11	<b>Updated:</b> Added a new environment variable, _PKISERV_ENABLE_JSP, that specifies whether you are implementing the Web application using Java™ server pages or REXX CGI execs.	Support for Java server pages



Table 69. Summary of new and changed code samples for PKI Services. (continued)

File name	Release	Description	Reason for change
pkiserv.tmpl	z/OS V1R12	<b>Updated:</b> The KeySize INSERT was replaced by one that combines key size and key algorithm. The 1-Year PKI Generated Key template was updated to demonstrate the use of the new INSERT.	Support for elliptic curve cryptography (ECC)
	z/OS V1R12	<b>Updated:</b> A new CustomExt INSERT was added for defining custom certificate extensions. The n-year PKI browser certificate was updated to demonstrate the CustomExt INSERT.	Custom certificate extensions
	z/OS V1R12	<b>Updated:</b> Allow repeatable AltDomain, AltIPAddr, AltURI, and AltEmail INSERTs.	Multiple instances of name forms in Subject Alternate Name extension
PKIServ.xsd	z/OS V1R11	<b>New:</b> The XML schema for pkitmpl.xml.	Support for Java server pages
pkitmpl.xml	z/OS V1R12	<b>Updated:</b> The 1-Year PKI generated key certificate request was updated to demonstrate the use of the new JSP.	Support for elliptic curve cryptography (ECC)
	z/OS V1R12	<b>Updated:</b> The n-year PKI browser certificate was updated to demonstrate the use of CustomExt.jsp.	Custom certificate extensions
	z/OS V1R11	<b>New:</b> An XML template file that defines a root CA URL, applications, and certificate requests.	Support for Java server pages

## Internet protocol standards

Table 70 lists changes made to support for internet protocol standards for PKI Services. For more detailed information, see *z/OS Cryptographic Services PKI Services Guide and Reference*.

Table 70. Summary of new and changed substitution variables for PKI Services

Protocol name	Release	Description	Reason for change
Certificate management protocol (CMP)	z/OS V1R12	<b>New:</b> Support is added for the certificate management protocol (CMP). This support allows a CMP client to communicate with PKI Services to request, revoke, suspend, and resume certificates.	Support for certificate management protocol (CMP)

## Sample forms

Table 71 on page 120 lists changes made to sample forms for PKI Services. For more detailed information, see *z/OS Cryptographic Services PKI Services Guide and Reference*.

## PKI Services

Table 71. Summary of new and changed sample forms for PKI Services

File name	Release	Description	Reason for change
expiringmsgform	z/OS V1R11	<b>Updated:</b> The link has been replaced by two links, one to be used with REXX CGI execs, and one to be used with Java server pages. When you copy the sample form, you need to edit it to use the link that applies to the method you are using to implement the Web application.	Support for Java server pages
readymsg.form	z/OS V1R11	<b>Updated:</b> Each link has been replaced by two links, one to be used with REXX CGI execs, and one to be used with Java server pages. When you copy the sample form, you need to edit it to use the link that applies to the method you are using to implement the Web application.	Support for Java server pages
recoverymsg.form	z/OS V1R11	<b>New:</b> An e-mail sent to a user who has asked to recover a certificate, listing the certificates that can be recovered.	Key generation for certificates
rejectmsg.form	z/OS V1R12	<b>Updated:</b> Now includes the reason that the certificate request was rejected.	Release update

## Substitution variables

Table 72 lists changes made to PKI Services substitution variables. For more detailed information, see *z/OS Cryptographic Services PKI Services Guide and Reference*.

Table 72. Summary of new and changed substitution variables for PKI Services

Variable name	Release	Description	Reason for change
%%rejectreason%%	z/OS V1R12	<b>New:</b> The reason for the rejection of a certificate request.	Release update

## Utilities

Table 73 lists the changes made to PKI Services utilities. For more detailed information, see *z/OS Cryptographic Services PKI Services Guide and Reference*.

Table 73. Summary of new and changed PKI Services utilities

Utility name	Release	Description	Reason for change
createcrls	z/OS V1R12	<b>New:</b> This new utility creates LDAP posting objects for certificate revocation lists (CRLs). The PKI Services daemon later posts the CRLs to an LDAP directory. You can use this program to create a CRL immediately, instead of waiting for PKI Services to do it automatically.	Release update

Table 73. Summary of new and changed PKI Services utilities (continued)

Utility name	Release	Description	Reason for change
postcerts	z/OS V1R12	<b>New:</b> This new utility creates LDAP posting objects for certificates, which the PKI Services daemon later posts to an LDAP directory. You can use this utility if you have created certificates that PKI Services did not automatically post to an LDAP directory; for example if you created certificates before you configured PKI Services to automatically post them.	Release update
TemplateTool	z/OS V1R11	<b>New:</b> This new utility performs two functions: <ul style="list-style-type: none"> <li>Validates an XML template file against the XML schema file, and optionally converts it to a format that can be used by the PKI Services daemon</li> <li>Converts a text template file used with REXX CGI execs to an XML template file that can be used with Java server pages</li> </ul>	Support for Java server pages

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## System SSL summary of interface changes

The System SSL interfaces described in this section are:

- “API functions” on page 122
- “ASN.1 status codes” on page 130
- “CMS status codes” on page 131
- “Environment variables” on page 132
- “Function return codes” on page 133
- “gskkyman command” on page 134

## System SSL

### API functions

For detailed information about these functions, see *z/OS Cryptographic Services System SSL Programming*.

Table 74. Summary of changes to z/OS V1R12 System SSL APIs

API	Release	Description	Reason for change
Certificate Management APIs	z/OS V1R12	<b>New:</b> <ul style="list-style-type: none"> <li>• <code>gsk_construct_private_key</code> - constructs a private key from its component values.</li> <li>• <code>gsk_construct_public_key</code> - constructs a public key from its component values</li> <li>• <code>gsk_factor_private_key</code> - factorizes a private key into its component values.</li> <li>• <code>gsk_factor_public_key</code> - factorizes a public key into its component values.</li> <li>• <code>gsk_free_private_key</code> - releases storage allocated for private key information.</li> <li>• <code>gsk_free_public_key</code> - releases storage allocated for public key information.</li> <li>• <code>gsk_get_certificate_info</code> - returns requested certificate information for an X.509 certificate.</li> <li>• <code>gsk_get_ec_parameters_info</code> - get the named curve type and key size for elliptic curve parameters.</li> </ul>	Release update
Certificate Management APIs	z/OS V1R12	<b>Changed:</b> <ul style="list-style-type: none"> <li>• <code>gsk_construct_certificate</code> - constructs a signed certificate and returns it to the caller.</li> <li>• <code>gsk_construct_renewal_request</code> - constructs a certification renewal request as described in PKCS #10.</li> <li>• <code>gsk_construct_signed_certificate</code> - constructs a signed certificate for a certificate request.</li> <li>• <code>gsk_create_database_renewal_request</code> - creates a PKCS #10 certification renewal request.</li> <li>• <code>gsk_create_database_signed_certificate</code> - creates a signed certificate as part of a set of certificates.</li> <li>• <code>gsk_create_renewal_request</code> - creates a PKCS #10 certification renewal request.</li> <li>• <code>gsk_create_signed_certificate</code> - creates a signed certificate.</li> <li>• <code>gsk_create_signed_certificate_record</code> - creates a signed certificate.</li> <li>• <code>gsk_create_signed_certificate_set</code> - creates a signed certificate as part of a set of certificates.</li> <li>• <code>gsk_create_signed_ctl</code> - creates a signed certificate revocation list.</li> </ul>	Release update

Table 74. Summary of changes to z/OS V1R12 System SSL APIs (continued)

API	Release	Description	Reason for change
Certificate Management APIs	z/OS V1R12	<p><b>Changed:</b></p> <ul style="list-style-type: none"> <li>• gsk_create_signed_crl_record - creates a signed certificate revocation list.</li> <li>• gsk_make_signed_data_content - creates PKCS #7 SignedData content information.</li> <li>• gsk_make_signed_data_content_extended - creates PKCS #7 SignedData content information.</li> <li>• gsk_make_signed_data_msg - creates a PKCS #7 SignedData message from application data.</li> <li>• gsk_make_signed_data_msg_extended - creates a PKCS #7 SignedData message from application data.</li> <li>• gsk_read_signed_data_content - processes PKCS #7 SignedData content information.</li> <li>• gsk_read_signed_data_content_extended - processes PKCS #7 SignedData content information.</li> <li>• gsk_read_signed_data_msg - processes a PKCS #7 SignedData message.</li> <li>• gsk_read_signed_data_msg_extended - processes a PKCS #7 SignedData message.</li> <li>• gsk_sign_certificate - signs an X.509 certificate.</li> <li>• gsk_sign_crl - signs an X.509 certificate revocation list.</li> <li>• gsk_sign_data - signs a data stream.</li> <li>• gsk_verify_certificate_signature - verifies the signature for an X.509 certificate.</li> <li>• gsk_verify_crl_signature - verifies the signature for an X.509 certificate revocation list.</li> <li>• gsk_verify_data_signature - verifies the signature for a data stream.</li> </ul>	Release update
Deprecated Secure Sockets Layer APIs	z/OS V1R11	<p><b>New:</b> None</p> <p><b>Changed:</b></p> <ul style="list-style-type: none"> <li>• gsk_get_cipher_info</li> <li>• gsk_initialize</li> <li>• gsk_secure_soc_init</li> <li>• gsk_srb_initialize</li> </ul> <p><b>Note:</b> Deprecated APIs only supported in 31-bit addressing mode.</p>	Release update

## System SSL

Table 74. Summary of changes to z/OS V1R12 System SSL APIs (continued)

API	Release	Description	Reason for change
Reference APIs	z/OS V1R11	<p><b>New:</b> gsk_attribute_set_tls_extension - defines a TLS extension to the SSL environment or connection</p> <p><b>Changed:</b></p> <ul style="list-style-type: none"> <li>• gsk_attribute_get_buffer</li> <li>• gsk_attribute_get_cert_info</li> <li>• gsk_attribute_get_data</li> <li>• gsk_attribute_get_enum</li> <li>• gsk_attribute_set_buffer</li> <li>• gsk_attribute_set_callback</li> <li>• gsk_attribute_set_enum</li> <li>• gsk_attribute_set_numeric_value</li> <li>• gsk_environment_open</li> <li>• gsk_get_cert_by_label</li> <li>• gsk_get_cipher_suites</li> <li>• gsk_get_ssl_vector</li> <li>• gsk_secure_socket_init</li> <li>• gsk_secure_socket_misc</li> <li>• gsk_secure_socket_shutdown</li> </ul>	Release update

Table 75. Summary of changes to z/OS V1R11 System SSL APIs

API	Release	Description	Reason for change
Certificate Management APIs	z/OS V1R11	<p><b>New:</b></p> <ul style="list-style-type: none"> <li>• gsk_fips_state_query - queries the current state of FIPS mode.</li> <li>• gsk_fips_state_set - sets the state of FIPS mode for System SSL.</li> <li>• gsk_perform_kat - conducts a set of known answer tests for the System SSL algorithms validated by NIST. The caller must set FIPS mode prior to calling this function.</li> <li>• gsk_validate_certificate_mode - validates an X.509 certificate.</li> </ul>	Release update

Table 75. Summary of changes to z/OS V1R11 System SSL APIs (continued)

API	Release	Description	Reason for change
Certificate Management APIs	z/OS V1R11	<p><b>Changed:</b></p> <ul style="list-style-type: none"> <li>• gsk_add_record</li> <li>• gsk_change_database_password</li> <li>• gsk_change_database_record_length</li> <li>• gsk_construct_certificate</li> <li>• gsk_construct_renewal_request</li> <li>• gsk_construct_self_signed_certificate</li> <li>• gsk_construct_signed_certificate</li> <li>• gsk_create_certification_request</li> <li>• gsk_create_database</li> <li>• gsk_create_database_renewal_request</li> <li>• gsk_create_database_signed_certificate</li> <li>• gsk_create_renewal_request</li> <li>• gsk_create_self_signed_certificate</li> <li>• gsk_create_signed_certificate</li> <li>• gsk_create_signed_certificate_record</li> <li>• gsk_create_signed_certificate_set</li> <li>• gsk_create_signed_crl</li> <li>• gsk_create_signed_crl_record</li> <li>• gsk_decode_certificate</li> <li>• gsk_decode_certificate_extensions</li> <li>• gsk_decode_crl</li> <li>• gsk_decode_import_certificate</li> <li>• gsk_decode_name</li> <li>• gsk_decode_public_key</li> <li>• gsk_delete_record</li> <li>• gsk_dn_to_name</li> <li>• gsk_encode_certificate_extensions</li> <li>• gsk_encode_export_certificate</li> <li>• gsk_encode_export_key</li> <li>• gsk_encode_name</li> <li>• gsk_encode_public_key</li> <li>• gsk_export_key</li> <li>• gsk_generate_key_agreement_pair</li> <li>• gsk_generate_key_pair</li> <li>• gsk_generate_key_parameters</li> <li>• gsk_generate_secret</li> <li>• gsk_get_cms_vector</li> <li>• gsk_get_directory_certificates</li> <li>• gsk_get_directory_crls</li> <li>• gsk_import_certificate</li> <li>• gsk_import_key</li> </ul>	Release update

## System SSL

Table 75. Summary of changes to z/OS V1R11 System SSL APIs (continued)

API	Release	Description	Reason for change
Certificate Management APIs	z/OS V1R11	<p><b>Changed:</b></p> <ul style="list-style-type: none"> <li>• gsk_make_encrypted_data_content</li> <li>• gsk_make_encrypted_data_msg</li> <li>• gsk_make_enveloped_data_content</li> <li>• gsk_make_enveloped_data_content_extended</li> <li>• gsk_make_enveloped_data_msg</li> <li>• gsk_make_enveloped_data_msg_extended</li> <li>• gsk_make_signed_data_content</li> <li>• gsk_make_signed_data_content_extended</li> <li>• gsk_make_signed_data_msg</li> <li>• gsk_make_signed_data_msg_extended</li> <li>• gsk_name_to_dn</li> <li>• gsk_open_database</li> <li>• gsk_open_database_using_stash_file</li> <li>• gsk_open_keyring</li> <li>• gsk_query_crypto_level</li> <li>• gsk_read_encrypted_data_content</li> <li>• gsk_read_encrypted_data_msg</li> <li>• gsk_read_enveloped_data_content</li> <li>• gsk_read_enveloped_data_content_extended</li> <li>• gsk_read_enveloped_data_msg</li> <li>• gsk_read_enveloped_data_msg_extended</li> <li>• gsk_read_signed_data_content</li> <li>• gsk_read_signed_data_content_extended</li> <li>• gsk_read_signed_data_msg</li> <li>• gsk_read_signed_data_msg_extended</li> <li>• gsk_replace_record</li> <li>• gsk_set_default_key</li> <li>• gsk_sign_certificate</li> <li>• gsk_sign_crl</li> <li>• gsk_sign_data</li> <li>• gsk_validate_certificate</li> <li>• gsk_verify_certificate_signature</li> <li>• gsk_verify_crl_signature</li> <li>• gsk_verify_data_signature</li> </ul>	Release update



Table 75. Summary of changes to z/OS V1R11 System SSL APIs (continued)

API	Release	Description	Reason for change
Certificate Management APIs	z/OS V1R11	<p><b>Changed:</b></p> <ul style="list-style-type: none"> <li>• gsk_make_signed_data_content() - creates PKCS #7 SignedData content information.</li> <li>• gsk_make_signed_data_content_extended() - creates PKCS #7 SignedData content information.</li> <li>• gsk_make_signed_data_msg() - creates a PKCS #7 SignedData message from application data.</li> <li>• gsk_make_signed_data_msg_extended() - creates a PKCS #7 SignedData message from application data.</li> <li>• gsk_read_signed_data_content() - processes PKCS #7 SignedData content information.</li> <li>• gsk_read_signed_data_content_extended() - processes PKCS #7 SignedData content information.</li> <li>• gsk_read_signed_data_msg() - processes a PKCS #7 SignedData message.</li> <li>• gsk_read_signed_data_msg_extended() - processes a PKCS #7 SignedData message.</li> <li>• gsk_sign_certificate() - signs an X.509 certificate.</li> <li>• gsk_sign_crl() - signs an X.509 certificate revocation list.</li> <li>• gsk_sign_data() - signs a data stream.</li> <li>• gsk_verify_certificate_signature() - verifies the signature for an X.509 certificate.</li> <li>• gsk_verify_crl_signature() - verifies the signature for an X.509 certificate revocation list.</li> <li>• gsk_verify_data_signature() - verifies the signature for a data stream.</li> </ul>	Release update
Deprecated Secure Sockets Layer APIs	z/OS V1R11	<p><b>New:</b> None</p> <p><b>Changed:</b></p> <ul style="list-style-type: none"> <li>• gsk_get_cipher_info</li> <li>• gsk_initialize</li> <li>• gsk_secure_soc_init</li> <li>• gsk_srb_initialize</li> </ul> <p><b>Note:</b> Deprecated APIs only supported in 31-bit addressing mode.</p>	Release update

## System SSL

Table 75. Summary of changes to z/OS V1R11 System SSL APIs (continued)

API	Release	Description	Reason for change
Reference APIs	z/OS V1R11	<p><b>New:</b> gsk_attribute_set_tls_extension - defines a TLS extension to the SSL environment or connection</p> <p><b>Changed:</b></p> <ul style="list-style-type: none"> <li>• gsk_attribute_get_buffer</li> <li>• gsk_attribute_get_cert_info</li> <li>• gsk_attribute_get_data</li> <li>• gsk_attribute_get_enum</li> <li>• gsk_attribute_set_buffer</li> <li>• gsk_attribute_set_callback</li> <li>• gsk_attribute_set_enum</li> <li>• gsk_attribute_set_numeric_value</li> <li>• gsk_environment_open</li> <li>• gsk_get_cert_by_label</li> <li>• gsk_get_cipher_suites</li> <li>• gsk_get_ssl_vector</li> <li>• gsk_secure_socket_init</li> <li>• gsk_secure_socket_misc</li> <li>• gsk_secure_socket_shutdown</li> </ul>	Release update

For detailed information about these functions, see *z/OS Cryptographic Services System SSL Programming*.

Table 76. Summary of changes to z/OS V1R10 System SSL APIs

API	Release	Description	Reason for change
Certificate Management APIs	z/OS V1R10	<p><b>New:</b></p> <ul style="list-style-type: none"> <li>• gsk_create_database_renewal_request() - creates a PKCS #10 certification renewal request.</li> <li>• gsk_create_database_signed_certificate() - creates a signed certificate as part of a set of certificates.</li> <li>• gsk_create_signed_certificate_record() - creates a signed certificate.</li> <li>• gsk_create_signed_crl_record() - creates a signed certificate revocation list.</li> </ul>	Release update

Table 76. Summary of changes to z/OS V1R10 System SSL APIs (continued)

API	Release	Description	Reason for change
Certificate Management APIs	z/OS V1R10	<p><b>Changed:</b></p> <ul style="list-style-type: none"> <li>• gsk_construct_certificate() - constructs a signed certificate and returns it to the caller.</li> <li>• gsk_construct_renewal_request() - constructs a certification renewal request as described in PKCS #10.</li> <li>• gsk_construct_self_signed_certificate() - constructs a self-signed certificate and returns it to the caller.</li> <li>• gsk_construct_signed_certificate() - constructs a signed certificate for a certificate request.</li> <li>• gsk_create_certification_request() - creates a PKCS #10 certification request.</li> <li>• gsk_create_renewal_request() - creates a certification renewal request as described in PKCS #10.</li> <li>• gsk_create_self_signed_certificate() - creates a self-signed certificate.</li> <li>• gsk_create_signed_certificate() - creates a signed certificate.</li> <li>• gsk_create_signed_certificate_set() - creates a signed certificate as part of a set of certificates.</li> <li>• gsk_create_signed_crl()</li> <li>• gsk_generate_random_bytes() - generates a random byte stream.</li> </ul>	Release update

## System SSL

Table 76. Summary of changes to z/OS V1R10 System SSL APIs (continued)

API	Release	Description	Reason for change
Certificate Management APIs	z/OS V1R10	<p><b>Changed:</b> (continued)</p> <ul style="list-style-type: none"> <li>• gsk_make_signed_data_content() - creates PKCS #7 SignedData content information.</li> <li>• gsk_make_signed_data_content_extended() - creates PKCS #7 SignedData content information.</li> <li>• gsk_make_signed_data_msg() - creates a PKCS #7 SignedData message from application data.</li> <li>• gsk_make_signed_data_msg_extended() - creates a PKCS #7 SignedData message from application data.</li> <li>• gsk_read_signed_data_content() - processes PKCS #7 SignedData content information.</li> <li>• gsk_read_signed_data_content_extended() - processes PKCS #7 SignedData content information.</li> <li>• gsk_read_signed_data_msg() - processes a PKCS #7 SignedData message.</li> <li>• gsk_read_signed_data_msg_extended() - processes a PKCS #7 SignedData message.</li> <li>• gsk_sign_certificate() - signs an X.509 certificate.</li> <li>• gsk_sign_crl() - signs an X.509 certificate revocation list.</li> <li>• gsk_sign_data() - signs a data stream.</li> <li>• gsk_verify_certificate_signature() - verifies the signature for an X.509 certificate.</li> <li>• gsk_verify_crl_signature() - verifies the signature for an X.509 certificate revocation list.</li> <li>• gsk_verify_data_signature() - verifies the signature for a data stream.</li> </ul>	Release update
Deprecated Secure Sockets Layer APIs	z/OS V1R10	<p><b>New:</b> None</p> <p><b>Changed:</b> None</p> <p><b>Note:</b> Deprecated APIs only supported in 31-bit addressing mode.</p>	Release update
Reference APIs	z/OS V1R10	<p><b>New:</b> None</p> <p><b>Changed:</b> None</p>	Release update

For detailed information about these functions, see *z/OS Cryptographic Services System SSL Programming*.

### ASN.1 status codes

There are no new or changed status codes for z/OS V1R11 and z/OS V1R10.

## CMS status codes

Table 77 lists the new and updated status codes. See *z/OS Cryptographic Services System SSL Programming* for more detailed information.

Table 77. Summary of changes to CMS status codes

Status code	Release	Description	Reason for change
03353003	z/OS V1R11	<b>Changed:</b> Cryptographic algorithm is not supported.	Release update
03353010	z/OS V1R11	<b>Changed:</b> Database is not open for update.	Release update
03353014	z/OS V1R12	<b>Changed:</b> Record is too big.	Release update
0335301F	z/OS V1R12	<b>Changed:</b> Incorrect Base64 encoding.	Release update
03353034	z/OS V1R11	<b>Changed:</b> Encryption key size is not supported.	Release update
0335303D	z/OS V1R10	<b>Changed:</b> Digest data size is not correct	Release update
03353040	z/OS V1R10	<b>Changed:</b> Self-signed certificate not in database	Release update
03353046	z/OS V1R10	<b>Changed:</b> Version is not supported.	Release update
03353058	z/OS V1R12	<b>Changed:</b> Modulus not supplied.	Release update
03353059	z/OS V1R12	<b>Changed:</b> Public exponent not supplied.	Release update
0335305A	z/OS V1R12	<b>Changed:</b> Private exponent not supplied.	Release update
0335305B	z/OS V1R12	<b>Changed:</b> First prime not supplied.	Release update
0335305C	z/OS V1R12	<b>Changed:</b> Second prime not supplied.	Release update
0335305D	z/OS V1R12	<b>Changed:</b> First prime exponent not supplied.	Release update
0335305E	z/OS V1R12	<b>Changed:</b> Second prime exponent not supplied.	Release update
0335305F	z/OS V1R12	<b>Changed:</b> CRT coefficient not supplied.	Release update
03353064	z/OS V1R10	<b>New:</b> Digest type and key type are incompatible	Release update
03353065	z/OS V1R10	<b>New:</b> Generate random bytes input buffer not valid	Release update
03353066	z/OS V1R10	<b>New:</b> Generate random bytes produced duplicate output	Release update
03353067	z/OS V1R11	<b>New:</b> Known Answer Test has failed.	Release update
03353068	z/OS V1R11	<b>New:</b> The API is not supported	Release update
03353069	z/OS V1R11	<b>New:</b> Key database is not a FIPS mode database.	Release update
0335306A	z/OS V1R11	<b>New:</b> Key database can only be opened for update if running in FIPS mode.	Release update
0335306B	z/OS V1R11	<b>New:</b> Cannot switch from non-FIPS mode to FIPS mode.	Release update
0335306C	z/OS V1R11	<b>New:</b> Attempt to execute in FIPS mode failed.	Release update
0335306D	z/OS V1R11	<b>New:</b> Acceptable policy intersection cannot be found.	Release update
0335306E	z/OS V1R11	<b>New:</b> Variable argument count is not valid.	Release update
0335306F	z/OS V1R11	<b>New:</b> Required certificate extension is missing.	Release update
03353070	z/OS V1R11	<b>New:</b> Certificate extension data is incorrect.	Release update
03353071	z/OS V1R11	<b>New:</b> Certificate extension data has an incorrect critical indicator.	Release update
03353072	z/OS V1R11	<b>New:</b> Certificate contains a duplicate extension.	Release update

## System SSL

Table 77. Summary of changes to CMS status codes (continued)

Status code	Release	Description	Reason for change
03353073	z/OS V1R11	<b>New:</b> Cannot match CRL distribution points.	Release update
03353074	z/OS V1R11	<b>New:</b> FIPS mode key generation failed pair-wise consistency check.	Release update
03353076	z/OS V1R12	<b>New:</b> Prime not supplied	Release update
03353077	z/OS V1R12	<b>New:</b> Subprime not supplied	Release update
03353078	z/OS V1R12	<b>New:</b> Base not supplied	Release update
03353079	z/OS V1R12	<b>New:</b> Private value not supplied	Release update
0335307A	z/OS V1R12	<b>New:</b> Public value not supplied	Release update
0335307B	z/OS V1R12	<b>New:</b> Private key structure not supplied	Release update
0335307C	z/OS V1R12	<b>New:</b> Public key structure not supplied	Release update
0335307D	z/OS V1R12	<b>New:</b> Size specified for supplied structure is too small	Release update
0335307E	z/OS V1R12	<b>New:</b> Elliptic Curve is not supported	Release update
0335307F	z/OS V1R12	<b>New:</b> EC Parameters not supplied	Release update
03353080	z/OS V1R12	<b>New:</b> Signature not supplied	Release update
03353081	z/OS V1R12	<b>New:</b> Elliptic curve parameters are not valid	Release update
03353082	z/OS V1R12	<b>New:</b> Elliptic curve not supported in FIPS mode	Release update
03353083	z/OS V1R12	<b>New:</b> ICSF services are unavailable	Release update
03353084	z/OS V1R12	<b>New:</b> ICSF callable service returned an error	Release update
03353085	z/OS V1R12	<b>New:</b> ICSF PKCS #11 not operating in FIPS modeN	Release update
03353086	z/OS V1R12	<b>New:</b> Incorrect key algorithm	Release update
03353087	z/OS V1R12	<b>New:</b> Certificate revocation list is expired	Release update

## Environment variables

Table 78 identifies changes to environment variables used by System SSL. For detailed information about these environment variables, see *z/OS Cryptographic Services System SSL Programming*.

Table 78. Summary of changes to System SSL environment variables

Environment variable	Release	Description	Reason for change
GSK_HW_CRYPTO	z/OS V1R10	<b>Changed:</b> Specifies whether the hardware cryptographic support will be used.	Release update
GSK_PROTOCOL_SSLV2	z/OS V1R11	<b>Changed:</b> Specifies whether the SSL V2 protocol is supported. The SSL V2 protocol should be disabled whenever possible since the SSL V3 protocol provides significant security enhancements. This variable has no effect when operating in FIPS mode.	Release update
GSK_PROTOCOL_SSLV3	z/OS V1R11	<b>Changed:</b> Specifies whether the SSL V3 protocol is supported. This variable has no effect when operating in FIPS mode.	Release update

Table 78. Summary of changes to System SSL environment variables (continued)

Environment variable	Release	Description	Reason for change
GSK_V3_CIPHER_SPECS	z/OS V1R11	<b>Changed:</b> Specifies the SSL V3 cipher specifications in order of preference as a string consisting of 1 or more 2-character values. The SSL V3 cipher specifications are used for the SSL V3, TLS V1.0 and TLS V1.1 protocols.	Release update
GSK_V3_SESSION_TIMEOUT	z/OS V1R11	<b>Changed:</b> Specifies the session timeout value in seconds for the SSL V3, TLS V1.0 and TLS V1.1 protocols.	Release update
GSK_V3_SIDCACHE_SIZE	z/OS V1R11	<b>Changed:</b> Specifies the number of session identifiers that can be contained in the SSL V3 cache. The SSL V3 session cache is used for the SSL V3, TLS V1.0 and TLS V1.1 protocols.	Release update
GSK_RNG_ALLOW_ZERO_BYTES	z/OS V1R10	<b>Changed:</b> Specifies whether the SSL random number generator will include bytes with a zero value in the random byte output stream or remove them.	Release update

## Function return codes

Table 79 lists the new and updated function return codes. See *z/OS Cryptographic Services System SSL Programming* for more detailed information.

Table 79. Summary of changes to function return codes

Function code	Release	Description	Reason for change
7	z/OS V1R10	<b>Changed:</b> No certificates available	Release update
8	z/OS V1R11	<b>Changed:</b> Certification validation error	Release update
9	z/OS V1R11	<b>Changed:</b> Cryptographic processing error	Release update
10	z/OS V1R12	<b>Changed:</b> ASN processing error.	Release update
109	z/OS V1R10	<b>Changed:</b> No certification authority certificates	Release update
402	z/OS V1R11	<b>Changed:</b> No SSL cipher specifications	Release update
407	z/OS V1R11	<b>Changed:</b> Key label does not exist	Release update
412	z/OS V1R11	<b>Changed:</b> SSL protocol or certificate type is not supported	Release update
428	z/OS V1R11	<b>Changed:</b> Key entry does not contain a private key	Release update
432	z/OS V1R12	<b>Changed:</b> Session renegotiation is not allowed.	Release update
435	z/OS V1R10	<b>Changed:</b> Certification authority is unknown	Release update
440	z/OS V1R12	<b>Changed:</b> Incorrect key usage	Release update
444	z/OS V1R10	<b>New:</b> Error encountered generating random bytes	Release update
445	z/OS V1R11	<b>New:</b> Key database is not a FIPS mode database.	Release update
446	z/OS V1R11	<b>New:</b> TLS extension mismatch has been encountered.	Release update
447	z/OS V1R11	<b>New:</b> Required TLS extension has been rejected.	Release update
448	z/OS V1R11	<b>New:</b> Requested server name is not recognized.	Release update
449	z/OS V1R11	<b>New:</b> Unsupported fragment length was received.	Release update
450	z/OS V1R11	<b>New:</b> TLS extension length field is not valid.	Release update

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Table 79. Summary of changes to function return codes (continued)

Function code	Release	Description	Reason for change
460	z/OS V1R12	<b>New:</b> Required TLS Renegotiation Indication not received	Release update
601	z/OS V1R11	<b>Changed:</b> Protocol is not SSL V3, TLS V1.0 or TLS V1.1	Release update
603	z/OS V1R12	<b>New:</b> Specified function enumerator is not valid.	Release update
604	z/OS V1R12	<b>New:</b> Send sequence number is near maximum value.	Release update
707	z/OS V1R11	<b>New:</b> TLS extension type is not valid.	Release update
708	z/OS V1R11	<b>New:</b> Supplied TLS extension data is not valid.	Release update

## Deprecated Function return codes

Table 80 lists the new and updated deprecated function return codes. See *z/OS Cryptographic Services System SSL Programming* for more detailed information.

Table 80. Summary of changes to deprecated function return codes

Function code	Release	Description	Reason for change
-106	z/OS V1R12	<b>New:</b> Required TLS Renegotiation Indication not received	Release update
-104	z/OS V1R10	<b>New:</b> Error encountered generating random bytes	Release update
-55	z/OS V1R10	<b>Changed:</b> Incorrect key usage	Release update
-36	z/OS V1R11	<b>Changed:</b> Cryptographic processing error	Release update
-35	z/OS V1R11	<b>Changed:</b> Certificate validation error	Release update
-27	z/OS V1R11	<b>Changed:</b> Key entry does not contain a private key	Release update
-19	z/OS V1R10	<b>Changed:</b> Certification authority is unknown	Release update
-18	z/OS V1R10	<b>Changed:</b> Self-signed certificate cannot be validated	Release update
-15	z/OS V1R10	<b>Changed:</b> Certificate is not valid	Release update
-7	z/OS V1R12	<b>Changed:</b> Session renegotiation is not allowed	Release update
18	z/OS V1R10	<b>Changed:</b> No certification authority certificates	Release update
19	z/OS V1R10	<b>Changed:</b> No certificates available	Release update

## gskkyman command

Table 81 identifies changes to the gskkyman command used by System SSL to manage certificates in the key database file. See *z/OS Cryptographic Services System SSL Programming* for more information about the gskkyman command.

Table 81. Summary of changes to gskkyman command

Release	Description	Reason for change
z/OS V1R10	The gskkyman command has been enhanced to support additional signature algorithms.	Release update



Table 81. Summary of changes to gskkyman command (continued)

Release	Description	Reason for change
z/OS V1R10	The gskkyman command has been enhanced to: <ul style="list-style-type: none"><li>• support additional signature algorithms</li><li>• support 4096 key sizes</li><li>• display certificate details.</li></ul>	Release update

## System SSL

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## Chapter 10. DFSMS summary of interface changes

In addition to the interface changes included in this chapter, updates to DFSMS resulted in SYS1.PARMLIB and SYS1.SAMPLIB member changes. See Chapter 3, “Summary of changes to SYS1.PARMLIB,” on page 7 and Chapter 5, “Summary of changes to SYS1.SAMPLIB,” on page 13 for those changes. See *z/OS MVS Initialization and Tuning Reference* for more information about these members. See *z/OS DFSMS OAM Planning, Installation, and Storage Administration Guide for Object Support* for information about the changes to the CBROAMxx member of SYS1.SAMPLIB.

The DFSMS interfaces described in this chapter are:

- “DFSMSdftp summary of interface changes”
- “DFSMSdss summary of interface changes” on page 142
- “DFSMSShsm summary of interface changes” on page 145
- “DFSMSRmm summary of interface changes” on page 149
- “DFSMSStvs summary of interface changes” on page 157

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### DFSMSdftp summary of interface changes

This section summarizes new and changed interfaces, commands, and panels for DFSMSdftp, OAM, and Advanced Copy Services. It covers DFSMSdftp interfaces that were updated since z/OS V1R9. It also includes changes resulting from service updates and small programming enhancements that followed z/OS V1R9.

### Access method services

Table 82 lists new and changed access method services (IDCAMS) commands and report types. See *z/OS DFSMS Access Method Services for Catalogs* for more specific information about these commands.

Table 82. DFSMSdftp: Summary of new and changed IDCAMS commands

Command name	Release	Description	Reason for change
ALTER	z/OS V1R12	<b>New Keywords:</b> <b>RECLAIMCA</b> Enables CA reclaim for the data set. When enabled, CA reclaim causes empty CA space be reclaimed automatically for key-sequenced data sets. <b>NORECLAIMCA</b> Disables CA reclaim for the data set.	CA reclaim support
DEFINE USERCATALOG	z/OS V1R12	<b>New Keywords:</b> <b>EATTR</b> Specifies whether a catalog can have extended attributes (format 8 and 9 DSCBs) and optionally reside in EAS.	EAV enhancements for z/OS V1R12
DELETE	z/OS V1R11	<b>New Keywords:</b> <b>MASK</b> Specifies multiple variations of a data set name to be deleted, using wild cards.	DELETE MASK support.

## DFSMSdfp

Table 82. DFSMSdfp: Summary of new and changed IDCAMS commands (continued)

Command name	Release	Description	Reason for change
LISTCAT	z/OS V1R12	<b>New Keywords:</b> <b>CA RECLAIM</b> On LISTCAT output, shows the cataloged value for the CA reclaim attribute.	CA reclaim support
VERIFY	z/OS V1R12	<b>New Keyword:</b> <b>RECOVER</b> Completes previously interrupted VSAM processing. The data set cannot be opened on any system; otherwise, the command will fail with an OPEN error.	Release update

## Callable services

There are no new or changed data areas for z/OS V1R12 and V1R11.

## Commands

Table 83 lists new and changed system-level commands related to DFSMSdfp support. See *z/OS DFSMS OAM Planning, Installation, and Storage Administration Guide for Object Support* and *z/OS MVS System Commands* for more specific information about these commands.

Table 83. DFSMSdfp: Summary of new and changed system-level commands

Command name	Release	Description	Reason for change
SETSMS CA_RECLAIM	z/OS V1R12	<b>New:</b> New CA_RECLAIM parameter enables or disables the CA reclaim function for the system. When enabled, CA reclaim causes empty CA space be reclaimed automatically for key-sequenced data sets.	CA reclaim support

## Data areas

There are no new or changed data areas for z/OS V1R12 and V1R11.

## Exits and mapping macros

Table 84. OAM: Summary of changed exits

Exit Name	Release	Description	Reason for change
CBRUXSAE	z/OS V1R11	New return codes to be processed by the CBRUXSAE security authorization exit. The additional return codes enable an installation to code up their CBRUXSAE user exit to bypass the exit for any combination of functions and it authorizes users to store objects into an existing collection while preventing them from creating new collections.	OAM Enhancements

Table 85 on page 139 lists the changes to exit parameter list mapping macros. For more exit information, see *z/OS DFSMS Installation Exits*.

Table 85. DFSMSdfp: Summary of new and changed mapping macros

Macro name	Release	Description	Reason for change
IFGTEP mapping macro for the Label Anomaly Exit Parameter List	z/OS V1R11	<b>Added:</b> The new bits TEPAOUTSEQ, TEPARDFMLV, TEPARDBMLV, and TEPARFMFV have been added.	OCE RAS enhancement: providing an installation-wide abend option for multi-volume tape conditions.
IHAVDA	z/OS V1R12	<b>Added:</b> New bits added to DVAAMFLG.	XTIOT (extended task input/output table) enhancements

## ISMF panels

Table 86 lists changes to ISMF panels. For more information about these panels, see *z/OS DFSMSdfp Storage Administration* and *z/OS DFSMS Using the Interactive Storage Management Facility*.

Table 86. DFSMSdfp: Summary of new and changed ISMF panels

Panel and application name	Release	Description	Reason for change
Data Class Define/Alter Panel	z/OS V1R12	<b>New:</b> CA Reclaim field, to enable or disable CA reclaim for the data class.	CA reclaim support, see <i>z/OS DFSMSdfp Storage Administration</i> .
Data Class Display Panel	z/OS V1R12	<b>New:</b> CA Reclaim field.	CA reclaim support, see <i>z/OS DFSMSdfp Storage Administration</i> .
Data Class List Panel	z/OS V1R12	<b>New:</b> CA Reclaim column.	CA reclaim support, see <i>z/OS DFSMSdfp Storage Administration</i> .
Data Class Print Panel	z/OS V1R12	<b>New:</b> CA Reclaim field.	CA reclaim support, see <i>z/OS DFSMSdfp Storage Administration</i> .
Data Class Sort Entry Panel	z/OS V1R12	<b>New:</b> CA Reclaim field.	CA reclaim support, see <i>z/OS DFSMSdfp Storage Administration</i> .
Data Class View Entry Panel	z/OS V1R12	<b>New:</b> CA Reclaim field.	CA reclaim support, see <i>z/OS DFSMSdfp Storage Administration</i> .
Copy Entry Panel	z/OS V1R12	<b>New:</b> Copy Storage Group Volumes field.	Release update, see <i>z/OS DFSMSdfp Storage Administration</i> .
Pool Storage Group Define Panel	z/OS V1R12	<b>Updated:</b> The Allocation/migration Threshold field is expanded to allow a high threshold value of 100%.	Release update, see <i>z/OS DFSMSdfp Storage Administration</i> .
Copy Pool Define/Alter Panel	z/OS V1R11	<b>New:</b> New field to capture catalog information for data set recovery, and catalog name fields.	DFSMSHsm fast replication enhancements; see <i>z/OS DFSMSHsm Storage Administration</i> .
Copy Pool Alter Panel	z/OS V1R11	<b>Updated:</b> Multiple fields.	Extended address volume (EAV) support, see <i>z/OS DFSMSdfp Storage Administration</i> .

## DFSMSdfp

Table 86. DFSMSdfp: Summary of new and changed ISMF panels (continued)

Panel and application name	Release	Description	Reason for change
Data Class Define/Alter Panel	z/OS V1R11	<b>Updated:</b> Multiple fields.	Extended address volume (EAV) support, see <i>z/OS DFSMS Implementing System-Managed Storage</i> and <i>z/OS DFSMSdfp Storage Administration</i> .
Data Class List Panel	z/OS V1R11	<b>Updated</b>	Extended address volume (EAV) support, see <i>z/OS DFSMSdfp Storage Administration</i> .
Data Class Sort Entry Panel	z/OS V1R11	<b>Updated</b>	Extended address volume (EAV) support, see <i>z/OS DFSMSdfp Storage Administration</i> .
Data Class View Entry Panel	z/OS V1R11	<b>Updated</b>	Extended address volume (EAV) support, see <i>z/OS DFSMSdfp Storage Administration</i> .
Pool Storage Group Define Panel	z/OS V1R11	<b>Updated:</b> Multiple fields.	Extended address volume (EAV) support, see <i>z/OS DFSMS Implementing System-Managed Storage</i> .

## Macros

Table 87 lists new and changed executable macros.

Table 87. DFSMSdfp: Summary of new and changed executable macros

Macro name	Release	Description	Reason for change
ANTRQST	z/OS V1R12	<b>New:</b> TERTIARY subparameter for REQUEST=XRECOVER.	Release update
REALLOC	z/OS V1R11	<b>New and changed:</b> parameters.	Extended address volume (EAV) support. See REALLOC Parameter List in <i>z/OS DFSMSdfp Advanced Services</i> .

## NaviQuest panels

There are no new or changed Naviquest panels in z/OS V1R12 or z/OS V1R11.

## Programming interfaces

Table 88 lists new and changed programming interfaces.

Table 88. DFSMSdfp: Summary of new and changed programming interfaces

Programming Interface	Release	Description	Reason for change
ANTTREXX	z/OS V1R12	<b>New:</b> The program ANTTREXX allows a REXX exec to use the ANTRQST API.	Support for the ANTRQST macro through the REXX programming language.

Table 88. DFSMSdfp: Summary of new and changed programming interfaces (continued)

Programming Interface	Release	Description	Reason for change
REALLOC	z/OS V1R11	<b>New and changed:</b> parameters.	Extended address volume (EAV) support. See REALLOC Parameter List in <i>z/OS DFSMSdfp Advanced Services</i> .

## RACF commands and FACILITY class profiles

There are no new or changed RACF commands and FACILITY class profiles for DFSMSdfp in z/OS V1R12 and z/OS V1R11.

## SMF and LOGREC records

Table 89 lists changes to SMF records used by DFSMS. For more detailed SMF information, see *z/OS MVS System Management Facilities (SMF)*. For more LOGREC information, see *z/OS MVS Diagnosis: Reference*. For information about the SMF Type 85 records, see *z/OS DFSMS OAM Planning, Installation, and Storage Administration Guide for Object Support*. For information about other SMF Type records, see *z/OS MVS System Management Facilities (SMF)*.

Table 89. DFSMSdfp: Summary of new and changed SMF records

Event code or record type	Release	Description	Reason for change
SMF Type 64	z/OS V1R12	<b>New:</b> SMF64DAU was added to the Statistics at OPEN Time section.	CA reclaim support
SMF Type 85, Subtype 2	z/OS V1R11	<b>New:</b> New flags were set in ST2FLGS to indicate the archive retention attributes associated with STORE.	OAM Enhancements
SMF Type 85, Subtype 5	z/OS V1R11	<b>New:</b> New flags were set in ST5FLGS to indicate the archive retention attributes associated with CHANGE.	OAM Enhancements
SMF Type 85, Subtype 10	z/OS V1R11	<b>New:</b> New flags were set in ST10FLGS to indicate the archive retention attributes associated with STOREEND.	OAM Enhancements

## SMS ACS read-only variables

There are no new or changed SMS ACS read-only variables for z/OS V1R12 and z/OS V1R11.

## SMS Constructs

There are no new or changed SMS Constructs for z/OS V1R11 and z/OS V1R10.

## SYS1.NUCLEUS members

There are no new or changed SYS1.NUCLEUS members for z/OS V1R11 and z/OS V1R10.

## TSO/E commands for Advanced Copy Services

Command name	Release	Description	Reason for change
XRECOVER	z/OS V1R12	<b>Updated:</b> New keyword TERTIARY indicates that the secondary volumes used for the recovery must not be the same as those that were in use when XRC was ended or suspended.	Release update

## Utilities

Table 90 identifies changes to the DFSMS utilities. For detailed information about DFSMS utilities, refer to *z/OS DFSMS Utilities*.

Table 90. DFSMSdfp: Summary of changes to utilities

Utility name	Release	Description	Reason for change
IEHLIST	z/OS V1R11	<b>Updated:</b> Multiple changes to IEHLIST output.	Extended address volume (EAV) support, see IEHLIST VTOC Listing in <i>z/OS DFSMSdfp Utilities</i> .

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## DFSMSdss summary of interface changes

### APIs

There are no new or changed application programming interfaces for z/OS V1R12 or V1R11.

### Commands

Table 91 lists new and changed commands for DFSMSdss. For descriptions and syntax of the DFSMSdss commands, see *z/OS DFSMSdss Storage Administration*.

Table 91. DFSMSdss: Summary of changed commands

Command name	Release	Description	Reason for change
COPY	z/OS V1R12	<b>Updated:</b> New FCFASTREVERSERESTORE and FCFULLVOLUMERELATION keywords	Support for the fast reverse restore capability of the IBM System Storage® DS8000® series
COPYDUMP	z/OS V1R12	<b>Updated:</b> For backups to and from tape, and for backups on DASD when the backup data set is in the extended format, DFSMS now uses BSAM instead of EXCP to read from and write to DFSMSdss dump data sets during COPY processing. This allows DFSMSdss to support 256K blocks when writing to and reading from a tape. It also allows the use of Extended Format Sequential (extended addressable, Compressible or Striped) data sets on DASD.	Release update



Table 91. DFSMSdss: Summary of changed commands (continued)

Command name	Release	Description	Reason for change
DUMP	z/OS V1R12	<b>Updated:</b> For backups to and from tape, and for backups on DASD when the backup data set is in the extended format, DFSMS now uses BSAM instead of EXCP to read from and write to DFSMSdss dump data sets during COPY processing. This allows DFSMSdss to support 256K blocks when writing to and reading from a tape. It also allows the use of Extended Format Sequential (extended addressable, Compressible or Striped) data sets on DASD.	Release update
	z/OS V1R12	<b>Updated:</b> For the OUTDDNAME parameter, the default block size for output records that are written to tape is determined by obtaining the optimum block size for the device. The maximum is 262 144.	Release update
RESTORE	z/OS V1R12	<b>Updated:</b> For backups to and from tape, and for backups on DASD when the backup data set is in the extended format, DFSMS now uses BSAM instead of EXCP to read from and write to DFSMSdss dump data sets during COPY processing. This allows DFSMSdss to support 256K blocks when writing to and reading from a tape. It also allows the use of Extended Format Sequential (extended addressable, Compressible or Striped) data sets on DASD.	Release update

## Data areas

Table 92. DFSMSdss: Summary of changed data areas

Data area names	Release	Description	Reason for change
ADRTAPB	z/OS V1R12	<b>Updated:</b> Various changes.	Support for using BSAM instead of EXCP to read from and write to DFSMSdss dump data sets during DUMP, COPYDUMP, and RESTORE operations. See <i>z/OS DFSMSdss Storage Administration</i>
ADREID0	z/OS V1R11	<b>New:</b> EIREC28 DSECT Fields for Target Data Set Allocation Notification Exit (Eioption 28).	Extended address volume (EAV) support, see ADREID0 Data Area in <i>z/OS DFSMSdss Storage Administration</i> .

## EXEC PARM values

Table 93. DFSMSdss: Summary of changes to EXEC PARM values

PARM name	Release	Description	Reason for change
USEEXCP=YESINO	z/OS V1R12	<b>New:</b> Specifies whether the access method used by DFSMSdss for DUMP output, RESTORE input and COPYDUMP operations is to be EXCP. If the backup is to or from tape, the default is NO. If the backup is to or from DASD, the default is YES, unless the backup data set is in the extended format.	Support for using BSAM instead of EXCP to read from and write to DFSMSdss dump data sets during DUMP, COPYDUMP, and RESTORE operations.

## Exits

Table 94 lists new and changed exits for DFSMSdss. For descriptions of the DFSMSdss exits, see *z/OS DFSMSdss Storage Administration*.

Table 94. DFSMSdss: Summary of changed exits

Exit Name	Release	Description	Reason for change
ADRUIXIT	z/OS V1R12	<b>New:</b> Bits are added to ADRUFO.	Support for the fast reverse restore capability of the IBMSystem StorageDS8000 series, and for using BSAM instead of EXCP to read from and write to DFSMSdss dump data sets during DUMP, COPYDUMP, and RESTORE operations. See <i>z/OS DFSMS Installation Exits</i> .
ADREID0	z/OS V1R11	<b>New:</b> EIOPTION28 is added.	DFSMSdss Extended address volume support (EAV). See Target Data Set Allocation Notificatoin Exit (Eioption 28) in <i>z/OS DFSMSdss Storage Administration</i> .

## ISMF panels

There are no new or changed ISMF panels for DFSMSdss in z/OS V1R12 or V1R11.

## RACF FACILITY class profiles

Table 95 identifies new and changed RACF FACILITY CLASS profiles. See *z/OS Security Server RACF Security Administrator's Guide* for information about RACF.

Table 95. DFSMSdss: Summary of changes to RACF FACILITY class profiles

RACF Function	Release	Description	Reason for change
STGADMIN.ADR.COPY.FCRRR	z/OS V1R12	<b>New:</b> This RACF FACILITY class profile controls access to the FCFASTREVERSERESTORE keyword with the COPY command.	RACF protection of fast reverse restore.

## DFSMSHsm summary of interface changes

This topic summarizes new and changed interfaces for DFSMSHsm. It documents DFSMSHsm interfaces that were updated since z/OS V1R10. It also includes changes resulting from service updates and small programming enhancements.

### Commands

Table 96 identifies the new and changed DFSMSHsm commands. DFSMSHsm commands are documented in *z/OS DFSMSHsm Storage Administration* and *z/OS DFSMSHsm Managing Your Own Data*.

Table 96. DFSMSHsm: Summary of changed commands

Command name	Release	Description	Reason for change
BACKDS	z/OS V1R11	<b>New:</b> The RETAIN_DAYS parameter has been added to support a data set backup retention period.	DFSMS backup retention enhancements
	z/OS V1R10	<b>New:</b> The NEWNAME, DATE, TIME, SPHERE, and GENVSAMCOMP_NAMES (GVCN) parameters have been added to support data set backup enhancements.	DFSMS backup enhancements
BACKVOL	z/OS V1R12	<b>New:</b> The DUMP parameter has been updated to allow stacking up to 255 dump copies on a single dump volume.	Dump stacking enhancements
BDELETE	z/OS V1R11	<b>New:</b> The ALL parameter must be specified to delete all backup versions of a data set.	DFSMS backup retention enhancements
	z/OS V1R10	<b>New:</b> The DATE and TIME parameters have been added to support backup enhancements.	DFSMS backup enhancements
DEFINE	z/OS V1R12	<b>New:</b> The DUMPCLASS parameter has been updated to allow stacking up to 255 dump copies on a single dump volume.	Dump stacking enhancements
FRBACKUP	z/OS V1R10	<b>New:</b> The ALLOWPPRCP parameter has been added to the FRBACKUP command to allow you to specify whether the preserve mirror operation is required, preferred, or not desired when the target volume is a Metro Mirror primary volume during fast replication backup.	DFSMS FlashCopy® Preserve Mirror
FRRECOV	z/OS V1R12	<b>New:</b> A set of new parameters have been added to the FRRECOV COPYPOOL command. The FROMDUMP parameter and DUMPCLASS subparameter allow recovery of a copy pool or volumes within a copy pool from a dump backup copy. The PARTIALOK parameter allows recovery from a partial dump version. The RESUME parameter allows control over resuming a previously failed recovery attempt.	Multi-task volume recovery from dump enhancements
		<b>New:</b> The FORCE parameter has been added allowing recovery from a DASD backup copy that has an incomplete dump copy.	DFSMS fast reverse restore enhancements
	z/OS V1R10	<b>New:</b> The ALLOWPPRCP parameter has been added to the FRRECOV command to allow you to specify whether the preserve mirror operation is required, preferred, or not desired when the target volume is a Metro Mirror primary volume during fast replication recovery.	DFSMS FlashCopy Preserve Mirror

## DFSMSHsm

Table 96. DFSMSHsm: Summary of changed commands (continued)

Command name	Release	Description	Reason for change
HBACKDS	z/OS V1R11	<b>New:</b> The RETAINDAYS parameter has been added to support a data set backup retention period.	DFSMS backup retention enhancements
	z/OS V1R10	<b>New:</b> The parameters NEWNAME, DATE, TIME, SPHERE, and GENVSAMCOMPNames (GVCN) have been added to support dataset backup enhancements.	DFSMS backup enhancements
HBDELETE	z/OS V1R11	<b>New:</b> The ALL parameter must be specified to delete all backup versions of a data set.	DFSMS backup retention enhancements
	z/OS V1R10	<b>New:</b> The DATE and TIME keywords have been added to support backup enhancements.	DFSMS backup enhancements
HLIST	z/OS V1R10	<b>New:</b> HLIST DATASET BCDS/BOTH and HLIST LEVEL BCDS/BOTH output has been updated to indicate whether the data set was backed up with NEWNAME, SPHERE(NO) and GVCN options.	DFSMS backup enhancements
HRECOVER	z/OS V1R11	<b>New:</b> The TIME keyword was added to recover a backup version of a data set by time as well as by date.	DFSMS backup retention enhancements
LIST	z/OS V1R12	<b>New:</b> The FCFRRINCOMPLETE and INCOMPLETERECOVERY have been added to the LIST COPYPOOL SELECT command to request information about an FRBACKUP DASD copy (FCFRRINCOMPLETE) and to request information about copy pool FRBACKUP versions that have not been recovered completely (INCOMPLETERECOVERY).	DFSMS fast reverse restore enhancements
		<b>Changed:</b> LIST COPYPOOL( <i>cpname</i> ) output includes: a new FASTREPLICATION state (FCFRRINCOMPLETE), fast reverse restore status field (FCFRR=), and recovery complete status field (RECOVERYINCOMPLETE=). This new output is displayed when OUTDATASET, SYSOUT, or TERMINAL is specified as the destination for the output.	DFSMS fast reverse restore enhancements
	z/OS V1R11	<b>Changed:</b> LIST DSNAME BCDS, LIST DSNAME BOTH, and LIST LEVEL( <i>hlq</i> ) output has been updated to display the RETAINDAYS value for each backup version of a data set, and the date and time when each was created.	DFSMS backup enhancements
	z/OS V1R10	<b>Changed:</b> LIST DATASET BCDS/BOTH and LIST LEVEL BCDS/BOTH output has been updated to indicate whether the data set was backed up with NEWNAME, SPHERE(NO) and GVCN options.	DFSMS backup enhancements
RECOVER	z/OS V1R11	<b>New:</b> The TIME keyword was added to recover a backup version of a data set by time as well as by date.	DFSMS backup retention enhancements

Table 96. DFSMShsm: Summary of changed commands (continued)

Command name	Release	Description	Reason for change
SETSYS	z/OS V1R12	<b>New:</b> Five new parameters (BACKUP, CDSBACKUP, DUMP, MIGRATION, and RECOVERY) have been added to the SETSYS DSSXMMODE command to provide expanded, more granular control of the DFSMSdss cross memory interface.	Expanded control of the DFSMSdss cross memory interface
		<b>New:</b> The FCRELATION parameter has been added to the SETSYS FASTREPLICATION command specifying whether an extent-level or a full-volume-level FlashCopy relationship is to be established for fast replication backup and recovery of volumes.	DFSMs fast reverse restore enhancements
		<b>New:</b> MAXDUMPRECOVERTASKS parameter specifying the maximum number of volume recovery from dump tasks DFSMShsm can concurrently process.	Multi-task volume recovery from dump enhancements
		<b>New:</b> USECYLINDERMANAGEDSPACE parameter specifying whether to allow use of cylinder managed space for migration copies and backup versions.	EAV enhancement for z/OS V1R12
	z/OS V1R11	<b>New:</b> ML1OVERFLOW parameter with DATASIZE and THRESHOLD values, to enable ML1 overflow volumes to be selected for migration or backup of large data sets.	DFSMs ML1 enhancements
z/OS V1R10	<b>New:</b> The new subparameter GENVSAMCOMPNames has been added to SETSYS DSBACKUP.	DFSMs backup enhancements	
	<b>New:</b> A new parameter, TAPEDATASETORDER, has been added allowing you to specify the order in which you want DFSMShsm to recall or recover data sets from a tape which might increase throughput.	DFSMs backup enhancements	
QUERY	z/OS V1R12	<b>Changed:</b> The QUERY COPYPOOL command output, in message ARC1820I, will display applicable “background copy percent-complete” (PCT-COMP) information for full-volume FlashCopy pairs with an incomplete background copy.	DFSMs fast reverse restore enhancements

## Data areas

DFSMShsm control blocks and data areas are documented in *z/OS DFSMShsm Data Areas*, which is available online at the z/OS Internet Library:  
<http://www.ibm.com/systems/z/os/zos/bkserv/>

## Exits

There are no new or changed DFSMShsm exits.

## Macros

Table 97 on page 148 identifies the new and changed DFSMShsm macros. DFSMShsm macros are documented in *z/OS DFSMShsm Managing Your Own Data*.

## DFSMSHsm

Table 97. DFSMSHsm: Summary of changed executable macros

Macro name	Release	Description	Reason for change
ARCFSR2	z/OS V1R10	<b>New:</b> Reformatted from ARCFSR for reporting records with DFSMSrmm report generator. Maps FSR DS records for DFSMSHsm in SMF form.	Support for the DFSMSrmm report generator
ARCHBACK	z/OS V1R11	<b>Updated:</b> The new RETAINDAYS keyword was added to support a data set backup retention period.	DFSMS backup retention enhancements
	z/OS V1R10	<b>Updated:</b> The new keywords NEWNAME, DATE, TIME, SPHERE, and GENVSAMCOMPNames are added to support dataset backup enhancements.	DFSMS backup enhancements
ARCHBDEL	z/OS V1R11	<b>Updated:</b> The ALL parameter must be specified to delete all backup versions of a data set.	DFSMS backup retention enhancements
ARCHRCOV	z/OS V1R11	<b>New:</b> The TIME keyword was added to recover a backup version of a data set by time as well as by date.	DFSMS backup retention enhancements
ARCUTILP	z/OS V1R10	<b>Updated:</b> The ARCUTILP macro is updated with new optional TYPE keyword values, to specify that all or specific types of records be mapped.	Support for the DFSMSrmm report generator
ARCWFSR2	z/OS V1R10	<b>New:</b> Reformatted from ARCWWFSR for reporting records with DFSMSrmm report generator. Maps WWFSR for DFSMSHsm in SMF form.	Support for the DFSMSrmm report generator
ARCXTRCT	z/OS V1R12	<b>New:</b> A new DATA=COPYPOOL flag, CPFINCOMP, has been added.	DFSMS fast reverse restore enhancements
	z/OS V1R10	<b>Updated:</b> DATA=BUVER output indicates whether the NEWNAME keyword was used when creating a backup version.	DFSMS backup enhancements

## RACF FACILITY class profiles

Table 98 identifies the new and changed RACF FACILITY class profiles for DFSMSHsm. See *z/OS Security Server RACF Security Administrator's Guide* for information about RACF.

Table 98. DFSMSHsm: Summary of changes to RACF FACILITY class profiles

FACILITY class profile	Release	Description	Reason for change
STGADMIN.ARC.BACKDS.NEWNAME	z/OS V1R10	<b>New:</b> Facility class name for the NEWNAME parameter of the BACKDS command.	DFSMSHsm BACKDS NEWNAME enhancement
STGADMIN.ARC.ENDUSER.HBACKDS.NEWNAME	z/OS V1R10	<b>New:</b> Facility class name for the NEWNAME parameter of the HBACKDS command.	DFSMSHsm HBACKDS NEWNAME enhancement
STGADMIN.ARC.BACKDS.RETAINDAYS	z/OS V1R11	<b>New:</b> Facility class name for the RETAINDAYS parameter of the BACKDS command.	DFSMSHsm BACKDS RETAINDAYS enhancement
STGADMIN.ARC.ENDUSER.HBACKDS.RETAINDAYS	z/OS V1R11	<b>New:</b> Facility class name for the RETAINDAYS parameter of the HBACKDS command.	DFSMSHsm HBACKDS RETAINDAYS enhancement

## DFSMSrmm summary of interface changes

### APIs

Table 99 lists the new application programming interfaces (APIs) for DFSMSrmm. For more detailed information about APIs, see *z/OS DFSMSrmm Application Programming Interface*, SC26-7403.

Table 99. DFSMSrmm: Summary of new application programming interfaces

Interface name	Release	Description	Reason for change
EDGXCI	z/OS V1R11	<b>New:</b> MULTI=YESINO operand.	Support for returning multiple resources from SEARCH subcommands.
EDGXHINT	z/OS V1R11	<b>New:</b> The EDGXHINT interface is an alternative interface to the DFSMSrmm application programming interface. EDGXHINT is shipped as a load module in LINKLIB.	Support for high level languages when writing applications to obtain information about DFSMSrmm resources.

### Commands

Table 100 lists new and changed commands. See *z/OS DFSMSrmm Managing and Using Removable Media* for more specific information about these commands.

Table 100. DFSMSrmm: Summary of changed commands

Command name	Release	Description	Reason for change
ADDDATASET	z/OS V1R10	<b>New:</b> The DELETED operand has been added.	Support for deleted data sets.
ADDVOLUME	z/OS V1R10	<b>Changed:</b> <ul style="list-style-type: none"> <li>• The MEDINF, CAPACITY, ERROR, NOWORM, OPENCOUNT, PERCENT, WMC, and WORM operands have been added.</li> <li>• RECORDINGFORMAT has been changed to include EFMT3 and EEFMT3.</li> </ul>	<ul style="list-style-type: none"> <li>• Release support.</li> <li>• Support for the IBM System Storage TS1130 Tape Drive (3592).</li> </ul>
CHANGEDATASET	z/OS V1R10	<b>New:</b> <ul style="list-style-type: none"> <li>• The DELETED operand has been added.</li> <li>• The LASTDDNAME, LASTJOBNAME, LASTSTEPNAME, NOLASTDDNAME, NOLASTJOBNAME, NOLASTSTEPNAME, and TOTALBLKCOUNT operands have been added.</li> </ul>	<ul style="list-style-type: none"> <li>• Support for deleted data sets.</li> <li>• Release support.</li> </ul>

## DFSMSrmm

Table 100. DFSMSrmm: Summary of changed commands (continued)

Command name	Release	Description	Reason for change
CHANGEVOLUME	z/OS V1R12	<b>New:</b> HOLD and NOHOLD operands are added.	Enhanced volume hold support.
	z/OS V1R10	<b>Changed:</b> <ul style="list-style-type: none"> <li>The MEDINF, REPLACE, CAPACITY, ERROR, NOWORM, OPENCOUNT, PERCENT, WMC, and WORM operands have been added.</li> <li>RECORDINGFORMAT has been changed to include EFMT3 and EEFMT3.</li> </ul>	<ul style="list-style-type: none"> <li>Release support.</li> <li>Support for the IBM System Storage TS1130 Tape Drive (3592).</li> </ul>
EDGINERS	z/OS V1R11	<b>Changed:</b> Added SCAN operand.	Scan labels of tape volumes.
	z/OS V1R10	<b>Changed:</b> Updated ERASE operand.	Support for the IBM System Storage TS1130 Tape Drive (3592).
LISTCONTROL	z/OS V1R12	<b>New:</b> STATUS operand is added.	Enhanced status display.
	z/OS V1R10	<b>New:</b> MEDINF, OPENRULE, NOOPENRULE, PRITITION, and NOPRTITION operands are added.	Release support.
SEARCHDATASET	z/OS V1R10	<b>New:</b> The DELETED operand has been added.	Support for deleted data sets.
SEARCHVOLUME	z/OS V1R12	<b>New:</b> HOLD and NOHOLD operands are added.	Query volume hold attribute.
	z/OS V1R11	<b>Changed:</b> Added the ASDATE, CRDATE, LASTREFDATE, READDATE, WRITEDATE, LASTCHANGEDATE, MOVEDATE, and STOREDATE operands.	Enhanced querying of volume attributes.
	z/OS V1R10	<b>Changed:</b> <ul style="list-style-type: none"> <li>RECORDINGFORMAT has been changed to include EFMT3 and EEFMT3.</li> <li>Added the WORM operand.</li> <li>USE has been changed to include ALL, IRMM, NOTIRMM, NOTMVS, and NOTVM.</li> </ul>	<ul style="list-style-type: none"> <li>Support for the IBM System Storage TS1130 Tape Drive (3592).</li> <li>Support for WORM type volumes.</li> <li>Support for non-IBM systems.</li> </ul>

## Data areas

Table 101 lists new and changed data areas. For more information about DFSMSrmm data areas, see *z/OS DFSMSrmm Reporting*.

Table 101. DFSMSrmm: Summary of new and changed data areas

Data area name	Release	Description	Reason for change
EDGACTSY	z/OS V1R12	<b>Changed:</b> Activity File Symbols.	Support for Release 12 function.
EDGCLREC	z/OS V1R12	<b>Changed:</b> Conversion Library Information.	Support for Release 12 function.
EDGLCSUP	z/OS V1R12	<b>Changed:</b> OAM Interface.	Support for Release 12 function.
EDGEXTSY	z/OS V1R12	<b>Changed:</b> Extract Data Set Symbols.	Support for Release 12 function.



Table 101. DFSMSrmm: Summary of new and changed data areas (continued)

Data area name	Release	Description	Reason for change
EDGPL100	z/OS V1R12	<b>Changed:</b> Installation Exit Mapping Macro.	Support for Release 12 function.
EDGPL200	z/OS V1R12	<b>Changed:</b> Installation Exit Mapping Macro.	Support for Release 12 function.
EDGPL300	z/OS V1R12	<b>Changed:</b> Installation Exit Mapping Macro.	Support for Release 12 function.
EDGRVEXT	z/OS V1R12	<b>Changed:</b> Extract Data Set Volume Report Record.	Support for Release 12 function.
EDGRXEXT	z/OS V1R12	<b>Changed:</b> Extract Data Set Extended Data Set Name Record.	Support for Release 12 function.
EDGSLAB	z/OS V1R12	<b>Changed:</b> Sticky Label Data.	Support for Release 12 function.
EDGSRCSY	z/OS V1R12	<b>Changed:</b> Inventory Management SMF Record	Support for Release 12 function.
EDGSVREC	z/OS V1R12	<b>Changed:</b> SMF Volume Information.	Support for Release 12 function.
EDGCLREC	z/OS V1R11	<b>Changed:</b> Conversion Library Information.	Support for Release 11 function.
EDGLCSUP	z/OS V1R11	<b>Changed:</b> OAM Interface.	Support for Release 11 function.
EDGPL100	z/OS V1R11	<b>Changed:</b> Installation Exit Mapping Macro.	Support for Release 11 function.
EDGPL200	z/OS V1R11	<b>Changed:</b> Installation Exit Mapping Macro.	Support for Release 11 function.
EDGPL300	z/OS V1R11	<b>Changed:</b> Installation Exit Mapping Macro.	Support for Release 11 function.
EDGRVEXT	z/OS V1R11	<b>Changed:</b> Extract Data Set Volume Report Record.	Support for Release 11 function.
EDGRXEXT	z/OS V1R11	<b>Changed:</b> Extract Data Set Extended Data Set Name Record.	Support for Release 11 function.
EDGSLAB	z/OS V1R11	<b>Changed:</b> Sticky Label Data.	Support for Release 11 function.
EDGSVREC	z/OS V1R11	<b>Changed:</b> SMF Volume Information.	Support for Release 11 function.
EDGACTSY	z/OS V1R12	<b>Changed:</b> Activity File Symbols.	Support for Release 12 function.
EDGEXTSY	z/OS V1R10	<b>Changed:</b> Extract Data Set Symbols.	Support for Release 10 function.
EDGPL100	z/OS V1R10	<b>Changed:</b> Installation Exit Mapping Macro.	APAR OA26592.
EDGPL300	z/OS V1R10	<b>Changed:</b> Installation Exit Mapping Macro.	Support for Release 11 function.
EDGS42SY	z/OS V1R10	<b>Changed:</b> SMF Audit Record Type 42 Subtype 22	Support for Release 10 function.
EDGSMFSY	z/OS V1R10	<b>Changed:</b> SMF Record Symbols.	Support for Release 10 function.
EDGSRCSY	z/OS V1R10	<b>Changed:</b> Inventory Management SMF Record	Support for Release 10 function.

## ISPF panels

Table 102 lists new and changed DFSMSrmm ISPF panels.

Table 102. DFSMSrmm: Summary of new and changed ISPF panels

Panel name	Release	Description	Reason for change
EDGP@CLS	z/OS V1R12	<b>Changed:</b> View search results	Suppress search results list.
EDGPCC00	z/OS V1R12	<b>New:</b> DFSMSrmm Status	CONTROL STATUS fastpath command.
EDGPT110	z/OS V1R12	<b>Changed:</b> HOLD	Volume hold support.
EDGPT410	z/OS V1R12	<b>Changed:</b> HOLD	Volume hold support.
EDGHD11A	z/OS V1R11	<b>Changed:</b> MANAGEMENTVALUE	Reflect command parsing changes.
EDGHD11E	z/OS V1R11	<b>Changed:</b> MANAGEMENTVALUE	Reflect command parsing changes.
EDGHD11F	z/OS V1R11	<b>Changed:</b> DATACLASS	Reflect command parsing changes.
EDGHD11G	z/OS V1R11	<b>Changed:</b> STORAGECLASS	Reflect command parsing changes.
EDGHD11L	z/OS V1R11	<b>Changed:</b> (LAST)DDNAME	Reflect command parsing changes.
EDGHD11V	z/OS V1R11	<b>Changed:</b> (LAST)PROGRAMNAME	Reflect command parsing changes.
EDGHT149	z/OS V1R11	<b>Changed:</b> STORAGEEGROUP	Reflect command parsing changes.
EDGPT210	z/OS V1R11	<b>Added:</b> Volume type, Create date, and Create time	Add Volumes enhancements
EDGPT230	z/OS V1R11	<b>Added:</b> Volume type, Storage group, Create date, and Create time	Add Scratch Volumes enhancements
EDGPT240	z/OS V1R11	<b>Added:</b> Create date and Create time	Add Stacked Volume enhancements

## REXX variables

Table 103 lists new and changed REXX variables that you can use when you write REXX execs to obtain information about DFSMSrmm resources. See *z/OS DFSMSrmm Managing and Using Removable Media* for more detailed information.

Table 103. DFSMSrmm TSO subcommand REXX variables

Variable name	Release	Subcommands	Contents
EDG@CSIP	z/OS V1R12	LC	Client/server local IP address
EDG@HLD	z/OS V1R12	LV	Hold attribute
EDG@JRNS	z/OS V1R12	LC	Journal status
EDG@RMID	z/OS V1R12	LC	Started procedure name
EDG@SRIP	z/OS V1R12	LC	Server IP address
EDG@STDS	z/OS V1R12	LC	Debug setting
EDG@STIS	z/OS V1R12	LC	IP verb state
EDG@STIT	z/OS V1R12	LC	IP verb time

Table 103. DFSMSrmm TSO subcommand REXX variables (continued)

Variable name	Release	Subcommands	Contents
EDG@STIV	z/OS V1R12	LC	IP verb
EDG@STLA	z/OS V1R12	LC	Local active tasks
EDG@STLH	z/OS V1R12	LC	Local held tasks
EDG@STLO	z/OS V1R12	LC	Local tasks
EDG@STLR	z/OS V1R12	LC	Last CDS reserve time
EDG@STNH	z/OS V1R12	LC	New requests held
EDG@STPL	z/OS V1R12	LC	PDA Trace levels
EDG@STQC	z/OS V1R12	LC	Queued catalog requests
EDG@STQN	z/OS V1R12	LC	Queued nowait requests
EDG@STQR	z/OS V1R12	LC	Queued requests
EDG@STRF	z/OS V1R12	LC	Task requested function
EDG@STRH	z/OS V1R12	LC	CDS Reserved
EDG@STRM	z/OS V1R12	LC	DFSMSrmm status
EDG@STRT	z/OS V1R12	LC	Task requestor's system ID
EDG@STSA	z/OS V1R12	LC	Server active tasks
EDG@STSH	z/OS V1R12	LC	Server held tasks
EDG@STSL	z/OS V1R12	LC	Server listener
EDG@STSO	z/OS V1R12	LC	Server tasks
EDG@STST	z/OS V1R12	LC	Task start time
EDG@STTQ	z/OS V1R12	LC	Task requestor's ID
EDG@STTR	z/OS V1R12	LC	Task requestor type
EDG@STTS	z/OS V1R12	LC	Task status
EDG@STTT	z/OS V1R12	LC	Task token
EDG@BESK	z/OS V1R11	LD SD	BES key index
EDG@GDGC	z/OS V1R11	LC	GDG cycleby
EDG@GDGD	z/OS V1R11	LC	GDG duplicate
EDG@JRNT	z/OS V1R11	LC	Journal transaction
EDG@AUD	z/OS V1R10	LC	SMF audit record type
EDG@BLKC	z/OS V1R10	LD	Number of data set blocks
EDG@BLKS	z/OS V1R10	LD SD	Size of data set blocks
EDG@DLTD	z/OS V1R10	LD	Deleted by disposition processing
EDG@DSS6	z/OS V1R10	LD	Data set size
EDG@MDNF	z/OS V1R10	LV, LC	Media information name
EDG@MDRA	z/OS V1R10	LC	MEDINF replace policy for age
EDG@MDRP	z/OS V1R10	LC	MEDINF replace policy for permanent errors
EDG@MDRT	z/OS V1R10	LC	MEDINF replace policy for temporary errors
EDG@MDRW	z/OS V1R10	LC	MEDINF replace policy for write mount count
EDG@MDRX	z/OS V1R10	LV, LC	External recording technology

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Table 103. DFSMSrmm TSO subcommand REXX variables (continued)

Variable name	Release	Subcommands	Contents
EDG@MDTX	z/OS V1R10	LV, LC	External media type
EDG@MEDR	z/OS V1R10	LV SV LC	Tape recording technology
EDG@MEDT	z/OS V1R10	LV SV LC	Tape media type
EDG@ORIA	z/OS V1R10	LC OPENRULE	Input action
EDG@ORII	z/OS V1R10	LC OPENRULE	Input IGNORE condition (BY)
EDG@ORIR	z/OS V1R10	LC OPENRULE	Input REJECT condition (BY)
EDG@OROA	z/OS V1R10	LC OPENRULE	Output action
EDG@OROI	z/OS V1R10	LC OPENRULE	Output IGNORE condition (BY)
EDG@OROR	z/OS V1R10	LC OPENRULE	Output REJECT condition (BY)
EDG@ORTP	z/OS V1R10	LC OPENRULE	Type of open rule entry
EDG@ORVE	z/OS V1R10	LC OPENRULE	Volume range end
EDG@ORVL	z/OS V1R10	LC OPENRULE	Volume serial number
EDG@ORVS	z/OS V1R10	LC OPENRULE	Volume range start
EDG@PTNA	z/OS V1R10	LC PRTITION	NOSMT Action for partition entry
EDG@PTNL	z/OS V1R10	LC PRTITION	Location name for NOSMT
EDG@PTSA	z/OS V1R10	LC PRTITION	SMT Action for partition entry
EDG@PTTP	z/OS V1R10	LC PRTITION	Type of partition entry
EDG@PTVE	z/OS V1R10	LC PRTITION	Volume range end
EDG@PTVL	z/OS V1R10	LC PRTITION	Volume serial number
EDG@PTVS	z/OS V1R10	LC PRTITION	Volume range start
EDG@SEQ	z/OS V1R10	LV	Volume sequence number
EDG@SSM	z/OS V1R10	LC	SMF security record type
EDG@USEM	z/OS V1R10	LV	Volume usage (KB)
EDG@USE6	z/OS V1R10	LV	Volume usage (Application written data)
EDG@VACT	z/OS V1R10	LC	VRSMIN action
EDG@VCAP	z/OS V1R10	LV, LC	Volume/media capacity
EDG@VDRA	z/OS V1R10	LC	VRSDROP action
EDG@VDRC	z/OS V1R10	LC	VRSDROP count
EDG@VDRP	z/OS V1R10	LC	VRSDROP percent
EDG@VREA	z/OS V1R10	LC	VRSRETAIN action
EDG@VREC	z/OS V1R10	LC	VRSRETAIN count
EDG@VREP	z/OS V1R10	LC	VRSRETAIN percent
EDG@WORM	z/OS V1R10	LV	Volume is WORM
EDG@XDRA	z/OS V1R10	LC	EXPDTDROP action
EDG@XDRC	z/OS V1R10	LC	EXPDTDROP count
EDG@XDRP	z/OS V1R10	LC	EXPDTDROP percent
EDG@X300	z/OS V1R10	LC	EDG_EXIT300 installation exit status

## Structured field introducers

Table 104 lists new and changed DFSMSrmm structured field introducers that you can use with the DFSMSrmm application programming interface. For more information, see *z/OS DFSMSrmm Application Programming Interface*.

Table 104. Structured field introducers

Release	SFI name	SFI number	Data Description	Subcommands
z/OS V1R12	CSIP	X'819250'	Client IP address	LC
z/OS V1R12	HLD	X'838F40'	Volume hold	LV SV(e)
z/OS V1R12	RMID	X'889000'	Started procedure name	LC
z/OS V1R12	SRIP	X'8A1A30'	Server IP address	LC
z/OS V1R12	STDS	X'8A2800'	Debug setting	LC
z/OS V1R12	STIS	X'8A3200'	Task - IP verb state	LC
z/OS V1R12	STIT	X'8A3201'	Task - IP verb time	LC
z/OS V1R12	STIV	X'8A3203'	Task - IP verb	LC
z/OS V1R12	STLA	X'8A3300'	Local active tasks	LC
z/OS V1R12	STLH	X'8A3307'	Local held tasks	LC
z/OS V1R12	STLO	X'8A3314'	Local tasks	LC
z/OS V1R12	STLR	X'8A3317'	Last RESERVE time	LC
z/OS V1R12	STNH	X'8A3400'	New requests held	LC
z/OS V1R12	STPL	X'8A3450'	PDA trace levels	LC
z/OS V1R12	STQC	X'8A3500'	Catalog requests	LC
z/OS V1R12	STQN	X'8A3511'	Nowait requests	LC
z/OS V1R12	STQR	X'8A3515'	Queued requests	LC
z/OS V1R12	STRF	X'8A3600'	Task - requested function	LC
z/OS V1R12	STRH	X'8A3602'	CDS RESERVED	LC
z/OS V1R12	STRM	X'8A3607'	RMM status	LC
z/OS V1R12	STRT	X'8A3614'	Task - requestor's system	LC
z/OS V1R12	STSA	X'8A3650'	Server active tasks	LC
z/OS V1R12	STSH	X'8A3657'	Server held tasks	LC
z/OS V1R12	STSL	X'8A3661'	Server listener task	LC
z/OS V1R12	STSO	X'8A3664'	Server tasks	LC
z/OS V1R12	STST	X'8A3669'	Task start time	LC
z/OS V1R12	STTQ	X'8A3700'	Task requestor	LC
z/OS V1R12	STTR	X'8A3701'	Task requestor's type	LC
z/OS V1R12	STTS	X'8A3702'	Task status	LC
z/OS V1R12	STTT	X'8A3703'	Task token	LC
z/OS V1R11	BESK	X'809310'	CA Tape Encryption key index	LD SD(e)
z/OS V1R11	GDGC	X'837800'	GDC cycleby	LC
z/OS V1R11	GDGD	X'837805'	GDC duplicate	LC
z/OS V1R11	JRNT	X'83ED00'	Journal transaction	LC
z/OS V1R10	AUD	X'807000'	SMF audit record type	LC

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Table 104. Structured field introducers (continued)

Release	SFI name	SFI number	Data Description	Subcommands
z/OS V1R10	CDSQ	X'812900'	Control data set ENQ	LC
z/OS V1R10	DLTD	X'823700'	Deleted by disposition processing	LD SD(e)
z/OS V1R10	DSS6	X'82B030'	Data set size, Factor	LD SD(e)
z/OS V1R10	IRRM	X'83B830'	Managed by IRMM),	LV, SV (e)
z/OS V1R10	MDNF	X'851400'	Media Information Name	LV SV(e) LC
z/OS V1R10	MDRA	X'851980'	MEDINF replace policy for age	LC
z/OS V1R10	MDRP	X'8519C0'	MEDINF replace policy for permanent errors	LC
z/OS V1R10	MDRT	X'8519E0'	MEDINF replace policy for temporary errors	LC
z/OS V1R10	MDRW	X'8519F0'	MEDINF replace policy for write mount count	LC
z/OS V1R10	MDRX	X'851A00'	External Recording Technology	LV SV(e) LC
z/OS V1R10	MDTX	X'853400'	External Media Type	LV SV(e) LC
z/OS V1R10	MEDR	X'857000'	Recording technology:	LV SV LC
z/OS V1R10	MEDT	X'858000'	Media type	LV SV LC
z/OS V1R10	ORIA	X'86E8A0'	Input action	LC
z/OS V1R10	ORII	X'86E8A8'	Input IGNORE condition (BY)	LC
z/OS V1R10	ORIR	X'86E8B8'	Input REJECT condition (BY)	LC
z/OS V1R10	OROA	X'86EA00'	Output action	LC
z/OS V1R10	OROI	X'86EA08'	Output IGNORE condition (BY)	LC
z/OS V1R10	OROR	X'86EA18'	Output REJECT condition (BY)	LC
z/OS V1R10	ORTP	X'86EF08'	Type of open rule entry	LC
z/OS V1R10	ORVS	X'86EF80'	Volume range start	LC
z/OS V1R10	ORVL	X'86EF85'	Volume serial number, specific or generic	LC
z/OS V1R10	ORVE	X'86EF8F'	Volume range end	LC
z/OS V1R10	PTNA	X'87DB00'	NOSMT action for partition entry	LC
z/OS V1R10	PTNL	X'87DB0C'	Location name	LC
z/OS V1R10	PTSA	X'87EB80'	SMT action for partition entry	LC
z/OS V1R10	PTTP	X'87EBA8'	Type of partition entry	LC
z/OS V1R10	PTVS	X'87EC00'	Volume range start	LC
z/OS V1R10	PTVL	X'87EC08'	Volume serial number, specific or generic	LC
z/OS V1R10	PTVE	X'87EC0F'	Volume range end	LC
z/OS V1R10	SSM	X'8A2000'	SMF security record type	LC
z/OS V1R10	USEM	X'8AE000'	Volume usage (KB)	LV SV(e)
z/OS V1R10	USE6	X'8AE030'	Volume usage factor	LV SV(e)
z/OS V1R10	VACT	X'8B0000'	VRSMIN action	LC
z/OS V1R10	VCAP	X'8B0B00'	Volume/Media capacity	LV SV(e) LC
z/OS V1R10	VDRA	X'8B2800'	VRSDROP action	LC

Table 104. Structured field introducers (continued)

Release	SFI name	SFI number	Data Description	Subcommands
z/OS V1R10	VDRC	X'8B2802'	VRSDROP count	LC
z/OS V1R10	VDRP	X'8B280F'	VRSDROP percent	LC
z/OS V1R10	VREA	X'8BD500'	VRSRETAIN action:	LC
z/OS V1R10	VREC	X'8BD502'	VRSRETAIN count	LC
z/OS V1R10	VREP	X'8BD50F'	VRSRETAIN percent	LC
z/OS V1R10	WORM	X'8C4300'	Volume is WORM:	LV, SV (e)
z/OS V1R10	XDRA	X'8C5D00'	EXPDTDROP action:	LC
z/OS V1R10	XDRC	X'8C5D02'	EXPDTDROP count	LC
z/OS V1R10	XDRP	X'8C5D0F'	EXPDTDROP percent	LC
z/OS V1R10	X300	X'8C7802'	UX300 installation exit status	LC

## Utilities

Table 105 lists changes to DFSMSrmm utilities. For detailed information about DFSMS utilities, see *z/OS DFSMSrmm Implementation and Customization Guide*.

Table 105. DFSMSrmm: Summary of changes to utilities

Utility name	Release	Description	Reason for change
EDGBKUP	z/OS V1R10	<b>Changed:</b> Added information for the new SYSIN File for EDGBKUP  Added information for new EDGBKUP BACKUP(COPY)	DFSMSrmm forward recovery support.  Create a logical data set copy of the control data set and optionally, a backup of the journal.
EDGSPLCS	z/OS V1R10	<b>Changed:</b> Added new Q value for INDD input file.	Support for concurrent processing within a library.

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## DFSMStvs summary of interface changes

There are no new or changed interfaces for DFSMStvs in z/OS V1R12 and V1R11.





## Chapter 11. DFSORT summary of interface changes

Table 106 summarizes the DFSORT interface changes. See *z/OS DFSORT Installation and Customization* and *z/OS DFSORT Application Programming Guide* for more detailed information.

Table 106. Summary of changed DFSORT interfaces

Interface_type	Release	Description	Reason for change
Command	z/OS V1R12	<b>Updated:</b> A new MOWRK installation and run-time option allows you to specify whether memory object storage can be used for intermediate work space or as an extension of main storage, as appropriate, or only as an extension of main storage.	Improved performance
Command	z/OS V1R12	<b>Updated:</b> A new DYNAPCT installation and run-time option allows you to specify additional work data sets to be allocated with zero space. DFSORT only extends these data sets when necessary to complete a sort application. The availability of these additional work data sets can improve reliability in situations where the disk work space requirements are larger than expected.	Improved reliability
Data set	z/OS V1R12	<b>Updated:</b> DFSORT now supports EAS-eligible data set types on Extended Address Volumes to the extent that z/OS supports these data sets.	Extended address volume (EAV) support
Data set	z/OS V1R12	<b>Updated:</b> A program that invokes DFSORT, ICETOOL or ICEGENER can dynamically allocate input, output and work data sets using the options for XTLOT, uncaptured UCBs, and DSAB above 16 megabyte virtual. These data sets are supported to the extent that z/OS supports them.	XTLOT, uncaptured UCBs and DSAB above 16 megabyte virtual support

## DFSORT

## Chapter 12. Distributed File Service summary of interface changes

In addition to the Distributed File Service interfaces described in this topic, you should also review Chapter 3, “Summary of changes to SYS1.PARMLIB,” on page 7 and Chapter 5, “Summary of changes to SYS1.SAMPLIB,” on page 13. This topic summarizes the new and changed interface components of Distributed File Service (DFS/SMB and zFS).

### zFS

The zFS interfaces described in this topic are:

- “zFS APIs”
- “zFS commands” on page 162
- “zFS system commands” on page 164
- “zFS data sets” on page 165

### zFS APIs

Table 107 lists new and changed zFS APIs.

Table 107. Summary of new and changed zFS APIs

API	Release	Description	Reason for change
Attach Aggregate	z/OS V1R11	<b>Changed:</b> zFS multi-file system Release update aggregates cannot be attached in a shared file system environment.	Release update
Clone File System	z/OS V1R11	<b>Changed:</b> The API restricts FS_ID2 usage. When FS_ID2 is used, if you specify the z/OS UNIX file system name (fsid_mtname), you cannot specify the zFS file system name (fsid_name), or the aggregate name (fsid_aggrname).	Release update
Create File System	z/OS V1R11	<b>Changed:</b> The API restricts FS_ID2 usage. When FS_ID2 is used, if you specify the z/OS UNIX file system name (fsid_mtname), you cannot specify the zFS file system name (fsid_name), or the aggregate name (fsid_aggrname).	Release update
Delete File System	z/OS V1R11	<b>Changed:</b> When using FS_ID2 as input, you cannot specify the file system with the z/OS UNIX file system name (fsid_mtname) because the file system cannot be mounted. Instead, you must use the zFS file system name (fsid_name).	Release update
	z/OS V1R11	<b>Changed:</b> The API restricts FS_ID2 usage. When FS_ID2 is used, if you specify the z/OS UNIX file system name (fsid_mtname), you cannot specify the zFS file system name (fsid_name), or the aggregate name (fsid_aggrname).	Release update
List Aggregate Status (Version 2)	z/OS V1R11	<b>New:</b> Flag, AS_SYSPLEXAWARE, has been added to indicate if the aggregate is sysplex-aware.	Release update

## Distributed File Service

Table 107. Summary of new and changed zFS APIs (continued)

API	Release	Description	Reason for change
List File System Names (Version 2)	z/OS V1R11	<b>Changed:</b> The API restricts FS_ID2 usage. When FS_ID2 is used, if you specify the z/OS UNIX file system name (fsid_mtname), you cannot specify the zFS file system name (fsid_name), or the aggregate name (fsid_aggrname).	Release update
List File System Status	z/OS V1R11	<b>Changed:</b> The API restricts FS_ID2 usage. When FS_ID2 is used, if you specify the z/OS UNIX file system name (fsid_mtname), you cannot specify the zFS file system name (fsid_name), or the aggregate name (fsid_aggrname).	Release update
pfscctl (BPX1PCT)	z/OS V1R11	<b>Changed:</b> Query vnode_cache_limit (227) and set vnode_cache_limit (226) are no longer available configuration commands.	Release update
Rename File System	z/OS V1R11	<b>Changed:</b> The API restricts FS_ID2 usage. When FS_ID2 is used, if you specify the z/OS UNIX file system name (fsid_mtname), you cannot specify the zFS file system name (fsid_name), or the aggregate name (fsid_aggrname).	Release update
Statistics Kernel Information	z/OS V1R11	<b>Changed:</b> The kl_time field has been updated.	Release update
Statistics Metadata Cache Information	z/OS V1R11	<b>Changed:</b> The reserve areas in the format have been updated.	Release update
Set File System Quota	z/OS V1R11	<b>Changed:</b> The API restricts FS_ID2 usage. When FS_ID2 is used, if you specify the z/OS UNIX file system name (fsid_mtname), you cannot specify the zFS file system name (fsid_name), or the aggregate name (fsid_aggrname).	Release update
	z/OS V1R10	<b>Changed:</b> The restriction of issuing this function against a compatibility mode aggregate is enforced.	Release update

## zFS commands

Table 108 identifies changes to zFS commands. For detailed information about these commands, see *z/OS Distributed File Service zSeries File System Administration*.

Table 108. Summary of new and changed zFS commands.

zFS Command	Release	Description	Reason for change
mount	z/OS V1R11	<b>Changed:</b> NOREADAHEAD should be not be specified unless under the direction of IBM Service.	Release update
	z/OS V1R11	<b>Changed:</b> An unmount issued against a zFS mounted file system is denied if the aggregate is quiesced, cloning (or the clone is being deleted), or growing unless unmount force is specified.	Release update <b>Note:</b> This also applies to V1R9 and V1R10 when APAR OA25026 is applied and sysplex_admin_level=2.

Table 108. Summary of new and changed zFS commands. (continued)

zFS Command	Release	Description	Reason for change
zfsadm aggrinfo	z/OS V1R11	<b>Changed:</b> New lines are added to the output of this command to display information about whether the aggregate is read-write (R/W) or read-only (R/O); a mounted compatibility mode aggregate (COMP), a multi-file system aggregate or an attached compatibility mode aggregate (MULT); the aggregate is currently quiesced (QUIESCED), disabled (DISABLED), or both. <b>Note:</b> zfsadm aggrinfo displays an attached compatibility mode aggregate as MULT because it is not mounted.	Release update
	z/OS V1R11	<b>Changed:</b> zFS multi-file system aggregates cannot be attached in a share file system environment. An attached zFS compatibility mode aggregate will still display as MULT because it is not mounted. but it is understood to be a compatibility mode aggregate.	Release update
zfsadm attach	z/OS V1R11	<b>Changed:</b> In z/OS V1R11 and above, you cannot attach a zFS multi-file system aggregate in a sysplex shared file system environment. You can attach a zFS compatibility mode aggregate (a zFS aggregate that contains one read-write file system and possibly a backup (.bak) file system) in any environment.	Release update
zfsadm clone	z/OS V1R11	<b>Changed:</b> With the zfsadm clone command, the administrator can make a read-only clone of a file system in the same data set. Only the metadata is copied (pointers to the data blocks), not the actual data. It is not a substitute for an offline copy of the file system for media failure recovery.	Documentation update to improve clarity
	z/OS V1R11	<b>New:</b> There are a series of rules to follow when using this command. For information about all of these rules, see <i>z/OS Distributed File Service zSeries File System Administration</i> .	Documentation update to improve clarity
zfsadm config	z/OS V1R11	<b>New:</b> You can now specify these additional options: <ul style="list-style-type: none"> <li>• -client_cache_size</li> <li>• -client_reply_storage</li> <li>• -file_threads</li> <li>• -token_cache_size</li> </ul>	Sysplex-aware zFS
	z/OS V1R11	<b>Changed:</b> The -vnode_cache_limit size parameter is now ignored.	Release update

## Distributed File Service

Table 108. Summary of new and changed zFS commands. (continued)

zFS Command	Release	Description	Reason for change
zfsadm configquery	z/OS V1R11	<p><b>New:</b> You can now specify these additional options:</p> <ul style="list-style-type: none"> <li>• -client_cache_size</li> <li>• -client_reply_storage</li> <li>• -file_threads</li> <li>• -syslevel</li> <li>• -sysplex_filesys_sharemode</li> <li>• -token_cache_size</li> </ul> <p><b>Note:</b> You can ignore the values for -client_cache_size, -client_reply_storage, -file_threads, and -token_cache_size when zFS is running non-sysplex aware. No storage is obtained even though a value might be reported.</p>	Sysplex-aware zFS
	z/OS V1R11	<p><b>Changed:</b> The -sysplex_state option now displays the following values:</p> <ul style="list-style-type: none"> <li>• Two (2), when zFS is running in a sysplex-aware environment. This is normal for V1R11.</li> <li>• Three (3), when zFS is running in a sysplex-aware environment with sysplex=filesystems.</li> </ul>	Sysplex-aware zFS
	z/OS V1R11	<p><b>Changed:</b> The -vnode_cache_limit_size parameter is now ignored.</p>	Release update
zfsadm setquota	z/OS V1R10	<p><b>Changed:</b> The restriction of issuing this function against a compatibility mode aggregate is enforced.</p>	Release update

## zFS system commands

Table 109 on page 165 identifies changes to system commands for zFS. For detailed information about these changes to system commands, see *z/OS Distributed File Service zSeries File System Administration*.

Table 109. Summary of new and changed zFS system commands.

System command	Release	Description	Reason for change
modify zfs process	z/OS V1R11	<b>New:</b> You can now query specific reports and reset the counters of the following options: <ul style="list-style-type: none"> <li>• KN</li> <li>• VM</li> <li>• LFS</li> <li>• LOCK</li> <li>• STOR</li> <li>• FILE</li> <li>• STKM</li> <li>• CTKC</li> <li>• SVI</li> <li>• ALL</li> </ul>	Release update
	z/OS V1R11	<b>New:</b> When a problem with zFS is suspected, as directed by IBM support, you can now issue the nvalidate option to initiate namespace validation on the system where the command is entered.	Sysplex-aware zFS

## zFS data sets

Table 110 lists new and changed zFS data sets.

Table 110. Summary of new and changed zFS data sets

zFS data sets	Release	Description	Reason for change
IOEFSPRM	z/OS V1R11	<b>New:</b> There is a new recommendation to use aggrfull to give a more accurate view of free space.	Release update
		<b>New:</b> The following new options are available: <ul style="list-style-type: none"> <li>• client_cache_size</li> <li>• client_reply_storage</li> <li>• file_threads</li> <li>• sysplex</li> <li>• sysplex_admin_level</li> <li>• sysplex_filesys_sharemode</li> <li>• token_cache_size</li> </ul>	Sysplex-aware zFS
		<b>Changed:</b> The following options have changed: <ul style="list-style-type: none"> <li>• The default for client_reply_storage has changed from 40 M to 10 M.</li> <li>• The description of the sysplex processing option has been updated.</li> <li>• The vnode_cache_limit size option is now ignored.</li> </ul>	Release update

### SMB

The SMB interfaces described in this topic are:

- “SMB commands”
- “SMB system commands”
- “SMB environment variables”
- “SMB operating system support” on page 167

### SMB commands

Table 111 lists new SMB commands. For detailed information about these commands, see *z/OS Distributed File Service SMB Administration* or *z/OS Distributed File Service SMB Administration*.

Table 111. Summary of new and changed SMB commands.

SMB Command	Release	Description	Reason for change
dfssyntax	z/OS V1R10	<b>New:</b> The dfssyntax command automatically checks the syntax of the /opt/dfslocal/home/dfskern/envar environment variable file, unless another file is specified.	New for V1R10

### SMB system commands

Table 112 lists new SMB system commands. For detailed information about these commands, see *z/OS Distributed File Service SMB Administration* or *z/OS Distributed File Service SMB Administration*.

Table 112. Summary of new and changed SMB system commands.

System command	Release	Description	Reason for change
modify dfs process	z/OS V1R11	<b>New:</b> The dfskern daemon parameter of the send command can be further modified using the trace parameter.	New trace enhancements for V1R11

### SMB environment variables

Table 113 lists the new and changed environment variables. For details, see *z/OS Distributed File Service SMB Administration* or *z/OS Distributed File Service SMB Administration*.

Table 113. Summary of new and changed SMB environment variable.

SMB environment variable	Release	Description	Reason for change
_IOE_EXPORT_TIMEOUT	z/OS V1R12	<b>Changed:</b> The expected value has changed.	Release update
_IOE_SMB_PROTOCOL_LEVEL	z/OS V1R12	<b>Changed:</b> The expected value has changed.	Release update
_IOE_WIRE_CODEPAGE	z/OS V1R12	<b>Changed:</b> The SMB server does not support translation of double-byte character set (DBCS) data.	Release update
_IOE_TRACE_TABLE_SIZE	z/OS V1R11	<b>New:</b> Specifies the size, in bytes, of the DFSKERN trace table.	New trace function for V1R11



Table 113. Summary of new and changed SMB environment variable. (continued)

SMB environment variable	Release	Description	Reason for change
_IOE_USE_PTHREAD_SECURITY	z/OS V1R11	<b>New:</b> Specifies the SMB server to dynamically recognize client security permission. Setting to <i>ON</i> results in security updates becoming active without restarting DFSKERN.	New security option for V1R11
_IOE_HANG_DETECT_DUMP_LIMIT	z/OS V1R10	<b>New:</b> Specifies the maximum number of dumps for the hang detector to take.	New hang detect function for V1R10
_IOE_HANG_DETECT_INTERVAL	z/OS V1R10	<b>New:</b> Specifies the interval, in seconds, for which hangs are checked.	New hang detect function for V1R10
_IOE_HANG_DETECT_OENODE_TIMEOUT	z/OS V1R10	<b>New:</b> Specifies the period, in seconds, an oenode must be hung before it is detected. When zero is specified, the hang detect function is off.	New hang detect function for V1R10
_IOE_HANG_DETECT_THREAD_TIMEOUT	z/OS V1R10	<b>New:</b> Specifies the period, in seconds, a thread must wait before it is detected as a hung thread. When zero is specified, the hang detect function is off.	New hang detect function for V1R10
_IOE_SMB_TRANSPORTS	z/OS V1R10	<b>New:</b> Specifies whether SMB uses the TCP DIRECT mode (port 445) or NETBIOS mode (port 139).	New support for both modes in V1R10

## SMB operating system support

Table 114 lists the new operating systems supported by SMB. For details, see *z/OS Distributed File Service SMB Administration*/*z/OS Distributed File Service SMB Administration*.

Table 114. Summary of new operating systems supported by SMB.

Operating System	Release	Description	Reason for change
Windows Vista Business and Windows Vista Enterprise	z/OS V1R11	<b>New:</b> SMB now supports Windows Vista Business and Windows Vista Enterprise.	New operating system support for V1R11

## Distributed File Service

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## Chapter 13. HLASM summary of interface changes

High Level Assembler (HLASM) is a base element of z/OS. Interface changes relating to the HLASM language are described in the following sections:

- “Features”
- “Assembler options”
- “Statements”
- “User exits” on page 170

The HLASM Toolkit is an optional feature of z/OS. There are no interface changes to the HLASM Toolkit interface for z/OS V1R11 and z/OS V1R10.

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### HLASM

This section describes interface changes relating to HLASM.

#### Features

Table 115 lists the changes to Assembler features. For more information, see *HLASM Programmer's Guide*.

Table 115. Summary of new and changed Assembler options

Feature	Release	Description	Reason for change
Linux	z/OS V1R10	<b>New feature:</b> High Level Assembler for Linux on System z <sup>®</sup> Feature added.	New release.

#### Assembler options

Table 116 lists the changes to Assembler options. For more information, see *HLASM Programmer's Guide*.

Table 116. Summary of new and changed Assembler options

Option	Release	Description	Reason for change
OPTABLE	z/OS V1R10	<b>New option:</b> ZS4 added.	Part of R5 service stream. This is z/OS V1R10 update.
MACHINE	z/OS V1R10	<b>New options:</b> zSeries-4 and zS4 added.	New release.
WORKFILE	z/OS V1R10	Reinstates the utility file (SYSUT1 in z/OS) that was removed from the base R5 product.	Part of R5 service stream.

#### Statements

Table 117 lists the changes to HLASM instructions and statements. For more detailed information, see:

- *HLASM Programmer's Guide*
- *HLASM Language Reference*

Table 117. Summary of new and changed HLASM statements

Statement	Release	Description	Reason for change
ACONTROL	z/OS V1R10	<b>New option:</b> OPTABLE option added to list of allowable options in ACONTROL statement.	Release update

## HLASM

Table 117. Summary of new and changed HLASM statements (continued)

Statement	Release	Description	Reason for change
DC, DS	z/OS V1R10	<b>New constants:</b> SY and QY constants added to allow creation of long displacement fields (20-bit signed displacement)	Release update
Machine instructions	z/OS V1R10	<b>New suffix processing:</b> :MAC or :ASM suffix now accepted to direct the resolution of the opcode.	Release update

## User exits

Table 118 lists the new and updated HLASM user exits. For more information, see *HLASM Programmer's Guide*.

Table 118. Summary of new and changed HLASM user exits

User exit	Release	Description	Reason for change
HSI	z/OS V1R10	<b>New field:</b> Field added to user exit interface for Host Services interface.	Release update

## Chapter 14. IBM Tivoli Directory Server summary of interface changes

This chapter contains new and changed interfaces for:

- “Configuration options”
- “Utilities” on page 172
- “Client application programming routines” on page 174

### Configuration options

Table 119 lists the new and changed IBM Tivoli Directory Server (IBM TDS) configuration options. See *IBM Tivoli Directory Server Administration and Use for z/OS* for more detailed information.

Table 119. Summary of new and changed IBM Tivoli Directory Server (IBM TDS) configuration options

Configuration option	Release	Description	Reason for change
database	z/OS V1R11	Updated to support new CDBM backend	Advanced replication support
enableResources	z/OS V1R11	<b>New</b>	RACF resource profile support
listen	z/OS V1R11	Updated because of APAR OA30666.	Release update
logFileFilter	z/OS V1R12	<b>New</b>	Activity logging support
logFileRollover	z/OS V1R12	<b>New</b>	Activity logging support
logFileRolloverDirectory	z/OS V1R12	<b>New</b>	Activity logging support
logFileRolloverSize	z/OS V1R12	<b>New</b>	Activity logging support
logFileRolloverTOD	z/OS V1R12	<b>New</b>	Activity logging support
nativeUpdateAllowed	z/OS V1R12	Updated to support password policy	Password policy support
pwEncryption	z/OS V1R12	Updated to support salted SHA (SSHA)	Salted SHA (SSHA) support
pwSearchOutput	z/OS V1R12	Updated to support salted SHA (SSHA)	Salted SHA (SSHA) support
secretEncryption	z/OS V1R11	Updated to include the encryption of the <b>ibm-replicaKeyPwd</b> and <b>ibm-slappedMasterPw</b> attribute values	Advanced replication support

## Tivoli Directory Server

Table 119. Summary of new and changed IBM Tivoli Directory Server (IBM TDS) configuration options (continued)

Configuration option	Release	Description	Reason for change
serverCompatLevel	z/OS V1R12	Updated to include a server compatibility level of 6 that allows ACL filters, password policy, salted SHA (SSHA) password hashing, and usage of additional schema syntaxes and matching rules	Password policy, salted SHA (SSHA), and ACL filters, and schema syntaxes and matching rules support
	z/OS V1R11	<b>New</b>	Advanced replication support
useAdvancedReplication	z/OS V1R11	<b>New</b>	Advanced replication support
wlmExcept	z/OS V1R11	<b>New</b>	WLM support

## Utilities

Table 120 lists the new and changed IBM Tivoli Directory Server (IBM TDS) utilities.

Table 120. Summary of new and changed IBM TDS utilities

Utility	Release	Description	Reason for change
db2pwdn	z/OS V1R12	<ol style="list-style-type: none"> <li>Updated to send the <b>PasswordPolicy</b> control on simple, CRAM-MD5, and DIGEST-MD5 authentication mechanisms</li> <li>Updated to send the <b>PasswordPolicy</b> control on update operations</li> </ol>	Password policy support
dsconfig	z/OS V1R12	Updated to support new configuration options	Password policy and activity log support
	z/OS V1R11	Updated to support new configuration options	Advanced replication support
ds2ldif	z/OS V1R12	Updated to support password policy and salted SHA (SSHA)	Password policy support and salted SHA (SSHA) support
	z/OS V1R11	<ul style="list-style-type: none"> <li>Updated to support the unloading of encrypted <b>ibm-slapedMasterPw</b> and <b>ibm-replicaKeyPw</b> attribute values.</li> <li>Updated to support the unloading of the <b>replicateOperationalAttributes</b> control values</li> <li>Updated to support advanced replication filtered unloading</li> </ul>	Advanced replication support

Table 120. Summary of new and changed IBM TDS utilities (continued)

Utility	Release	Description	Reason for change
Idapadd	z/OS V1R12	<ol style="list-style-type: none"> <li>Updated to send the <b>PasswordPolicy</b> control on simple, CRAM-MD5, and DIGEST-MD5 authentication mechanisms</li> <li>Updated to send the <b>PasswordPolicy</b> control on update operations</li> </ol>	Password policy support
	z/OS V1R11	Updated to support the <b>Do Not Replicate</b> and the <b>Server Administration</b> controls	Advanced replication support
Idapchangepwd	z/OS V1R12	<b>New:</b> Allows modifications or changes of <b>userPassword</b> attribute values in an entry	Password policy support
Idapcompare	z/OS V1R12	<ol style="list-style-type: none"> <li>Updated to send the <b>PasswordPolicy</b> control on simple, CRAM-MD5, and DIGEST-MD5 authentication mechanisms</li> <li>Updated to send the <b>PasswordPolicy</b> control on update operations</li> </ol>	Password policy support
Idapdelete	z/OS V1R12	Updated to send the <b>PasswordPolicy</b> control on simple, CRAM-MD5, and DIGEST-MD5 authentication mechanisms	Password policy support
	z/OS V1R11	Updated to support the <b>Do Not Replicate</b> and the <b>Server Administration</b> controls	Advanced replication support
Idapdiff	z/OS V1R12	<ol style="list-style-type: none"> <li>Updated to send the <b>PasswordPolicy</b> control on simple, CRAM-MD5, and DIGEST-MD5 authentication mechanisms</li> <li>Updated to send the <b>PasswordPolicy</b> control on compare and update operations</li> </ol>	Password policy support
	z/OS V1R11	<b>New</b>	Advanced replication support
Idapexop	z/OS V1R12	Updated to support the <b>Account status</b> , <b>Effective password policy</b> , and <b>GetEffectiveACL</b> extended operations	Password policy, salted SHA (SSHA), and access control filter support
	z/OS V1R11	<b>New</b>	Advanced replication support

## Tivoli Directory Server

Table 120. Summary of new and changed IBM TDS utilities (continued)

Utility	Release	Description	Reason for change
ldapmodify	z/OS V1R12	<ol style="list-style-type: none"> <li>Updated to send the <b>PasswordPolicy</b> control on simple, CRAM-MD5, and DIGEST-MD5 authentication mechanisms</li> <li>Updated to send the <b>PasswordPolicy</b> control on update operations</li> </ol>	Password policy support
	z/OS V1R11	Updated to support the <b>Do Not Replicate</b> and the <b>Server Administration</b> controls	Advanced replication support
ldapmodrdn	z/OS V1R12	Updated to send the <b>PasswordPolicy</b> control on simple, CRAM-MD5, and DIGEST-MD5 authentication mechanisms	Password policy support
	z/OS V1R11	Updated to support the <b>Do Not Replicate</b> and the <b>Server Administration</b> controls	Advanced replication support
ldapsearch	z/OS V1R12	Updated to send the <b>PasswordPolicy</b> control on simple, CRAM-MD5, and DIGEST-MD5 authentication mechanisms	Password policy support
ldif2ds	z/OS V1R12	Updated to support password policy and salted SHA (SSHA) support	Password policy and salted SHA (SSHA) support
	z/OS V1R11	Updated to support the <b>replicateOperationalAttributes</b> control in input LDIF files	Advanced replication support

## Client application programming routines

Table 121 lists the new and changed LDAP client application programming routines. See *IBM Tivoli Directory Server Client Programming for z/OS* for more detailed information.

Table 121. Summary of new and changed LDAP client application programming routines

Routine name	Release	Description	Reason for change
ldap_add_control()	z/OS V1R11	<b>New</b>	Release update
ldap_get_lderrno()	z/OS V1R11	<b>New</b>	Release update
ldap_parse_pwdpolicy_response()	z/OS V1R12	<b>New</b>	Password policy support
ldap_pwdpolicy_err2string()	z/OS V1R12	<b>New</b>	Password policy support



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## Chapter 15. ICKDSF summary of interface changes

This chapter describes the ICKDSF interface “Commands” on page 175.

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### Commands

Command name	Release	Description	Reason for change
INIT	z/OS V1R12	<b>Updated:</b> New keyword NODSEXIST requests that volumes that contain data sets other than the index data set or VVDS should not to be initialized.	To prevent the accidental initialization of volumes that contain data sets.
FLASHCPY ESTABLISH	z/OS V1R10	<b>Updated:</b> New keyword PRESERVEMIRROR indicates the handling of the request based on whether the specified target is a PPRC primary device.	To support FlashCopy Preserve Mirror.
FLASHCPY QUERY RELATIONS	z/OS V1R10	<b>Updated:</b> New information was added to the Relations Information Table that gives the preferred mirror status.	To support FlashCopy Preserve Mirror.
FLASHCPY WITHDRAW	z/OS V1R10	<b>Updated:</b> New keyword FORCE indicates whether the withdraw of a mirrored relationship should be withdrawn immediately instead of initiating a background copy.	To support FlashCopy Preserve Mirror.

**ICKDSF**

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## Chapter 16. Infoprint Server summary of interface changes

The Infoprint Server interfaces described in this chapter are:

- “Application programming interface” on page 178
- “Configuration files” on page 178
- “Environment variables” on page 178
- “Exits” on page 178
- “Filters” on page 179
- “Infoprint Central” on page 179
- “ISPF panels” on page 179
- “JCL parameters” on page 179
- “Job attributes” on page 180
- “Printer Inventory attributes” on page 180
- “RACF security classes” on page 180
- “SMF type 6 record for IP PrintWay” on page 180
- “/usr/lpp/Printsrv/samples directory” on page 181
- “z/OS UNIX commands” on page 181

## Application programming interface

Table 122 lists the changes to the Infoprint Server application programming interface. For more information, see *z/OS Infoprint Server Customization*.

Table 122. Summary of Infoprint Server application programming interface changes

Function or data structure	Release	Description	Reason for change
DocumentInfo	z/OS V1R12	<b>Updated:</b> Field high_size was added to this data structure.	Support for large files (>2GB)
GetAPIVersionNumber	z/OS V1R12	<b>New:</b> This function returns the version number of the API.	Support for large files (>2GB)

## Configuration files

There are no new or changed Infoprint Server configuration files.

## Environment variables

Table 123 lists the new and changed environment variables that Infoprint Server uses. For more information, see *z/OS Infoprint Server Customization*.

Table 123. Summary of new and changed Infoprint Server environment variables

Environment variable	Release	Description	Reason for change
AOP_MVS_RETURN_CODES	PTF for z/OS V1R9 - V1R11	<b>New:</b> Returns MVS return codes (0, 4, 8) from a transform instead of UNIX return codes (0, 1).	Support for Infoprint Transforms to AFP V2.2  APAR 32228
AOPLIMIT_DOCS	z/OS V1R12	<b>New:</b> Limits the number of documents that Infoprint Central displays.	Support for large number of documents
AOPLIMIT_JOBS	z/OS V1R12	<b>New:</b> Limits the number of print jobs that Infoprint Central displays.	Support for large number of documents
LIBPATH	z/OS V1R12	<b>Updated:</b> Specifies the IBM XML Toolkit V1.10 libraries.	Support for XML Toolkit V1.10
JAVA_HOME	PTF for z/OS V1R8 - V1R11	<b>Updated:</b> For Infoprint Central, this variable specifies the location of Java 5.0 or 6.0 files. For IPP Server, specifies the location of Java 6.0 files.	Java 6.0 support  APAR 28720

## Exits

Table 124 lists the new and changed Infoprint Server exits. For more information, see *z/OS Infoprint Server Customization*.

Table 124. Summary of new and changed Infoprint Server exits

Exits	Release	Description	Reason for change
IP PrintWay Response Notification exit	z/OS V1R12	<b>Updated:</b> IP PrintWay™ extended mode now supports this exit. In previous releases, only IP PrintWay basic mode supported this exit.	Enhancements to IP PrintWay extended mode.

## Filters

There are no new or changed Infoprint Server filters.

## Infoprint Central

Table 125 lists the new and changed fields in Infoprint Central. For more information, see the Infoprint Central help system.

Table 125. Summary of new and changed Infoprint Central fields

Field	Release	Description	Reason for change
<b>Fail on error</b>	PTF for z/OS V1R9 - V1R11	<b>New:</b> Indicates whether the transform to AFP fails when data stream errors or warnings occur.	Support for Infoprint Transforms to AFP V2.2 APAR 32228
<b>Send messages on failure</b>	PTF for z/OS V1R8 - V1R11	<b>New:</b> Indicates whether AFP Download Plus sends all messages to the download receiver when it cannot send an output data set.	AFP Download Plus support APAR 27068
<b>Send separator pages</b>	PTF for z/OS V1R8 - V1R11	<b>New:</b> Indicates whether AFP Download Plus sends the job and data set separator pages for each output data set to the download receiver.	AFP Download Plus support APAR 27068
<b>Trailer error page</b>	PTF for z/OS V1R9 - V1R11	<b>New:</b> Indicates whether the transform to AFP writes messages to a trailer error page when data stream errors or warnings occur.	Support for Infoprint Transforms to AFP V2.2 APAR 32228

## ISPF panels

Table 126 lists the new and changed Infoprint Server ISPF panels. For more information, see the ISPF help system.

Table 126. Summary of new and changed Infoprint Server ISPF panels

ISPF panel	Release	Description	Reason for change
PSF FSA, AFP Download Plus	PTF for z/OS V1R8 - V1R11	<b>Updated:</b> This panel displays new fields <b>Send messages on failure</b> and <b>Send separator pages</b> .	AFP Download Plus support APAR 27068
Printer definition	PTF for z/OS V1R9 - V1R11	<b>Updated:</b> This panel displays new fields <b>Fail on error</b> and <b>Trailer error page</b> .	Support for Infoprint Transforms to AFP V2.2 APAR 32228

## JCL parameters

There are no new and changed JCL parameters for Infoprint Server.

## Job attributes

Table 127 lists the new and changed Infoprint Server job attributes. For more information, see *z/OS Infoprint Server Operation and Administration*.

Table 127. Summary of new and changed Infoprint Server job attributes

Attribute	Release	Description	Reason for change
<b>fail-on-transform-error</b>	PTF for z/OS V1R9 - V1R11	<b>New:</b> Indicates whether the transform to AFP fails when data stream errors or warnings occur.	Support for Infoprint Transforms to AFP V2.2 APAR 32228
<b>jes-form-length</b>	PTF for z/OS V1R8 - V1R11	<b>New:</b> Indicates the paper length.	Job submission enhancement APAR 32228
<b>trailer-transform-error-page</b>	PTF for z/OS V1R9 - V1R11	<b>New:</b> Indicates whether the transform to AFP writes messages to a trailer error page when data stream errors or warnings occur.	Support for Infoprint Transforms to AFP V2.2 APAR 32228

## Printer Inventory attributes

Table 128 lists the new and changed attributes that can be specified in the Printer Inventory. For more information, see *z/OS Infoprint Server Operation and Administration*.

Table 128. Summary of new and changed Infoprint Server Printer Inventory attributes

Attribute	Release	Description	Reason for change
<b>fail-on-transform-error</b>	PTF for z/OS V1R9 - V1R11	<b>New:</b> Indicates whether the transform to AFP fails when data stream errors or warnings occur.	Support for Infoprint Transforms to AFP V2.2 APAR 32228
<b>send-messages-on-failure</b>	PTF for z/OS V1R8 - V1R11	<b>New:</b> Indicates whether AFP Download Plus sends all messages to the download receiver when it cannot send an output data set.	AFP Download Plus support APAR 27068
<b>send-separator-pages</b>	PTF for z/OS V1R8 - V1R11	<b>New:</b> Indicates whether AFP Download Plus sends the job and data set separator pages for each output data set to the download receiver.	AFP Download Plus support APAR 27068
<b>trailer-transform-error-page</b>	PTF for z/OS V1R9 - V1R11	<b>New:</b> Indicates whether the transform to AFP writes messages to a trailer error page when data stream errors or warnings occur.	Support for Infoprint Transforms to AFP V2.2 APAR 32228

## RACF security classes

There are no new or changed RACF classes or profiles for Infoprint Server.

## SMF type 6 record for IP PrintWay

There are no new or changed SMF type 6 record fields for Infoprint Server.

---

## /usr/lpp/Printsrv/samples directory

There are no new or changed RACF classes or profiles for Infoprint Server.

---

## z/OS UNIX commands

Table 129 lists the new and changed z/OS UNIX commands provided by Infoprint Server. For more information, see *z/OS Infoprint Server Operation and Administration*.

Table 129. Summary of new and changed z/OS UNIX commands for Infoprint Server

Command	Release	Description	Reason for change
pidu	z/OS V1R12	<b>Updated:</b> The <b>display-fully</b> command is new. It displays the attributes of a printer definition and all its included components.	Release update

## Infoprint Server



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## Chapter 17. Integrated Security Services summary of interface changes

This chapter contains new and changed interfaces for:

- Enterprise Identity Mapping (EIM)
  - “Utilities”
- Network Authentication Service
  - “APIs”
  - “Configuration options”
  - “Environment variables”

---

### Enterprise Identity Mapping (EIM) summary of interface changes

This section summarizes the new and changed EIM interfaces.

#### Commands

There are no new or changed commands for z/OS V1R9 and z/OS V1R8.

#### Utilities

There are no new or changed utilities for z/OS V1R9 and z/OS V1R8.

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### Network Authentication Service summary of interface changes

#### APIs

There are no new or changed APIs for z/OS V1R10 and z/OS V1R9.

#### Configuration options

There are no new or changed configuration options for z/OS V1R10 and z/OS V1R9.

#### Environment variables

There are no new or changed environment variables for z/OS V1R10 and z/OS V1R9.



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## Chapter 18. ISPF summary of interface changes

The ISPF interfaces described in this chapter are:

- “ISPF system commands” on page 185
- “ISPF primary commands” on page 185
- “ISPF line commands” on page 185
- “ISPF installation-wide exits” on page 185
- “ISPF file-tailoring skeletons” on page 185
- “ISPF configuration table keywords” on page 186
- “ISPF panel language” on page 186
- “ISPF panels” on page 186
- “ISPF services” on page 186
- “Load modules” on page 186
- Chapter 19, “ISPF variables,” on page 187
- Chapter 20, “ISPF DTL tags,” on page 189

The SCLM interfaces described in this chapter are:

- Chapter 21, “SCLM line commands,” on page 191
- Chapter 22, “SCLM macros,” on page 193
- Chapter 23, “SCLM panels,” on page 195
- Chapter 24, “SCLM services,” on page 197
- Chapter 25, “SCLM translators,” on page 199
- Chapter 26, “SCLM variables,” on page 201

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### ISPF system commands

There are no new or changed ISPF system commands for z/OS V1R12 and z/OS V1R11.

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### ISPF primary commands

There are no new or changed ISPF primary commands for z/OS V1R12 and z/OS V1R11.

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### ISPF line commands

There are no new or changed ISPF line commands in z/OS V1R12 and z/OS V1R11.

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### ISPF installation-wide exits

There are no new or changed ISPF installation-wide exits for z/OS V1R12 and z/OS V1R11.

---

### ISPF file-tailoring skeletons

There are no new or changed ISPF file-tailoring skeletons for z/OS V1R12 and z/OS V1R11.

---

## ISPF configuration table keywords

There are no new or changed ISPF configuration table keywords for z/OS V1R12 and z/OS V1R11.

---

## ISPF panel language

There are no new or changed ISPF panel language statements for z/OS V1R12 and z/OS V1R11.

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## ISPF panels

There are no new or changed ISPF panels for z/OS V1R12 and z/OS V1R11.

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## ISPF services

There are no new or changed ISPF services for z/OS V1R12 and z/OS V1R11.

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## Load modules

There are no new or changed load modules for the TSO/ISPF Client Gateway for z/OS V1R12 and z/OS V1R11.

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## Chapter 19. ISPF variables

There are no new or changed ISPF variables for z/OS V1R12 and z/OS V1R11.



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## Chapter 20. ISPF DTL tags

There are no new or changed SCLM line commands for z/OS V1R12 and z/OS V1R11.





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## Chapter 21. SCLM line commands

There are no new or changed SCLM line commands for z/OS V1R12 and z/OS V1R11.



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## Chapter 22. SCLM macros

There are no new or changed SCLM macros for z/OS V1R12 and z/OS V1R11.



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## Chapter 23. SCLM panels

There are no new or changed SCLM panels for z/OS V1R12 and z/OS V1R11.



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## Chapter 24. SCLM services

There are no new or changed SCLM services for z/OS V1R12 and z/OS V1R11.





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## Chapter 25. SCLM translators

There are no new or changed SCLM translators for z/OS V1R12 and z/OS V1R11.



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## Chapter 26. SCLM variables

There are no new or changed SCLM variables for z/OS V1R12 and z/OS V1R11.



## Chapter 27. JES2 summary of interface changes

In addition to the interface changes included in this chapter, updates to JES2 might have resulted in SYS1.PARMLIB and SYS1.SAMPLIB member changes. See Chapter 3, “Summary of changes to SYS1.PARMLIB,” on page 7 and Chapter 5, “Summary of changes to SYS1.SAMPLIB,” on page 13 for those changes.

The JES2 interfaces described in this chapter are:

- “Commands”
- “Control blocks” on page 204
- “ENF records” on page 204
- “Initialization statements” on page 205
- “Installation exits” on page 205
- “Macros” on page 206
- “SSI function codes” on page 208

### Commands

Table 130 lists the new and changed JES2 commands. See *z/OS JES2 Commands* for more detailed information.

Table 130. Summary of new and changed JES2 Commands

Interface_type	Release	Description	Reason for change
\$ACTIVATE	z/OS V1R11	<b>New command.</b>	APPC job filtering through extended status API
\$C O Job	z/OS V1R11	<b>Changed command:</b> Two new keywords TPJOBID and TPJOBN are added.	APPC job filtering through extended status API
\$D ACTIVATE	z/OS V1R11	<b>New command.</b>	APPC job filtering through extended status API
\$D CKPTSPACE	z/OS V1R12	<b>Changed command:</b> New parameter BERTUSE added.	Display the number of BERTs used by each control block type
\$D EXIT	z/OS V1R11	<b>Changed command:</b> The parameters description is updated.	Release update
\$D O Job	z/OS V1R11	<b>Changed command:</b> Two new keywords TPJOBID and TPJOBN are added.	APPC job filtering through extended status API
\$D OPTsdef	z/OS V1R12	<b>Changed command:</b> New parameter COLD_START_MODE added.	Display checkpoint mode used to initialize cold starts
\$D SPOOLDEF	z/OS V1R12	<b>Changed command:</b> New parameter CYL_MANAGED added.	MAS members can allow a SPOOL volume on cylinder-managed storage
\$E JOB	z/OS V1R12	<b>Changed command:</b> The <b>Stc</b> and <b>Tsu</b> parameters were removed.	Removed parameters for restarting tasks and users
\$O Job	z/OS V1R11	<b>Changed command:</b> Two new keywords TPJOBID and TPJOBN are added.	APPC job filtering through extended status API
\$P O Job	z/OS V1R11	<b>Changed command:</b> Two new keywords TPJOBID and TPJOBN are added.	APPC job filtering through extended status API

Table 130. Summary of new and changed JES2 Commands (continued)

Interface_type	Release	Description	Reason for change
\$P XEQ	z/OS V1R11	<b>Changed command:</b> Command description is updated.	Release update
\$\$ Job	z/OS V1R11	<b>Changed command:</b> Command description is updated.	Release update
\$\$ JOB	z/OS V1R12	<b>Changed command:</b> Processing considerations updated.	Clarify when the command will be rejected
\$\$ SPOOL	z/OS V1R11	<b>Changed command:</b> One new keyword SPACE is added.	EAV R2 Toleration: JES2 Support
\$T O Job	z/OS V1R11	<b>Changed command:</b> Two new keywords TPJOBID and TPJOBN are added.	APPC job filtering through extended status API
\$T JOBDEF	z/OS V1R12	<b>Changed command:</b> Parameter JOBNUM updated.	Clarify BERT management
\$T OUTDEF	z/OS V1R12	<b>Changed command:</b> Parameter JOENUM updated.	Clarify BERT management
\$T PRTnnnn and \$T Rnnnn.PRm	z/OS V1R12	<ol style="list-style-type: none"> <li><b>Changed command:</b> New parameter CCTL added.</li> <li><b>Changed command:</b> New parameter MODIFY added.</li> <li><b>Changed command:</b> Parameter CLass   Queue updated.</li> </ol>	<ol style="list-style-type: none"> <li>CCTL added to display carriage control characters</li> <li>MODIFY added to change control mode for an active printer</li> <li>CLass   Queue changed to support 36 output classes</li> </ol>
\$T PUNnn and \$T Rnnnn.PUm	z/OS V1R12	<b>Changed command:</b> New parameter CCTL added.	CCTL added to display carriage control characters
\$T SPOOLDEF	z/OS V1R11	<b>Changed command:</b> The parameter description is updated.	Release update; APPC job filtering through extended status API
\$T SPOOLDEF	z/OS V1R12	<b>Changed command:</b> New parameter CYL_MANAGED added.	MAS members can allow a SPOOL volume on cylinder-managed storage

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## Control blocks

There are no new or changed JES2 control blocks for z/OS V1R12 or z/OS V1R11.

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## ENF records

Table 131 lists the new and changed ENF records for JES2. See *z/OS JES2 Initialization and Tuning Reference* for more information.

Table 131. Summary of new and changed ENF codes for JES2

ENF Code	Release	Description	Reason for change
70	z/OS V1R11	<b>New code.</b>	SDSF Assist
77	z/OS V1R12	<b>Parameter updated:</b> BERTNUM updated for CKPTSPACE.	Specify number of BERTs to add to checkpoint record
236	z/OS V1R12	<b>New parameter:</b> COLD_START_MODE added to OPTsdef.	Specify checkpoint mode for cold starts

## Initialization statements

Table 132 lists the new and changed JES2 initialization statements. See *z/OS JES2 Initialization and Tuning Reference* for more information.

Table 132. Summary of new and changed JES2 Initialization Statements

Initialization Statement	Release	Description	Reason for change
BUFDEF	z/OS V1R11	<b>Changed initialization statement:</b> Two parameters BELOWBUF and EXTBUF are updated.	Release update
CKPTDEF	z/OS V1R12	<b>Changed parameter:</b> VERSIONS=(NUMBER=nn).	Specify maximum number of checkpoint data copies to maintain
CKPTSPACE	z/OS V1R12	<b>Changed parameter:</b> BERTNUM.	Specify number of BERTs to add to checkpoint record
OPTsdef	z/OS V1R12	<b>New parameter:</b> COLD_START_MODE.	Specify checkpoint mode for cold starts
PCEDEF	z/OS V1R11	<b>Changed initialization statement:</b> Three parameters CNVTNUM, OUTNUM, and PURGENUM are updated.	Release update
PRT	z/OS V1R12	<b>Changed parameter:</b> CLass I QUEUE.	Specify up to a maximum of 36 output classes
SPOOLDEF	z/OS V1R11	<b>Changed initialization statement:</b> One parameter LARGEDS is updated.	Release update

## Installation exits

Table 133 lists the new and changed JES2 installation exits. See *z/OS JES2 Installation Exits* for more information.

Table 133. Summary of new and changed JES2 Installation Exits

Exit	Release	Description	Reason for change
Exit 1	z/OS V1R11	<b>Changed installation exit:</b> The "Register contents when Exit 1 gets control" part is updated.	APPC job filtering through extended status API
Exit 2	z/OS V1R12	<b>Changed installation exit:</b> The "Register contents on entry to exit 2" part is updated.	X002OJNM description updated
Exit 14	z/OS V1R11	<b>Changed installation exit:</b> The "Programming considerations" part is updated.	Release update
	z/OS V1R12	<b>Changed installation exit:</b> The "Programming considerations" part is updated.	Programming sensitive to duplicate jobnames
Exit 15	z/OS V1R11	<b>Changed installation exit:</b> The "Contents of registers on entry to Exit 15" part is updated.	APPC job filtering through extended status API
Exit 38	z/OS V1R11	<b>Changed installation exit:</b> The "Register contents when Exit 38 gets control" part is updated.	APPC job filtering through extended status API
Exit 46	z/OS V1R11	<b>Changed installation exit:</b> The "Register contents when Exit 46 gets control" part is updated.	APPC job filtering through extended status API
Exit 52	z/OS V1R12	<b>Changed installation exit:</b> The "Register contents on entry to Exit 52" part is updated.	X052OJNM description updated

Table 133. Summary of new and changed JES2 Installation Exits (continued)

Exit	Release	Description	Reason for change
Exit 56	z/OS V1R11	<b>Changed installation exit:</b> The "Register contents when Exit 56 gets control" part is updated.	APPC job filtering through extended status API

## Macros

Table 134 lists the new and changed JES2 macros. See *z/OS JES2 Macros* for more information.

Table 134. Summary of new and changed JES2 Macros

Macro	Release	Description	Reason for change
\$\$ADD	z/OS V1R11	<b>Changed macro:</b> The keyword JOE is changed to JOA; a new keyword RETJOA is added; two keywords WORK and CHAR are deleted.	APPC job filtering through extended status API
\$\$ALCHK	z/OS V1R11	<b>Changed macro:</b> The keyword JOE is changed to JOA and keyword QUECKPT is deleted.	APPC job filtering through extended status API
\$\$BLD	z/OS V1R11	<b>Changed macro:</b> The keyword JOES is updated and the keyword JOA is added.	APPC job filtering through extended status API
\$\$BUSY	z/OS V1R11	<b>Changed macro:</b> Descriptions of some keywords are updated and two new keywords CHKPT and SETDEVID are added.	APPC job filtering through extended status API
\$\$CHK	z/OS V1R11	<b>Changed macro:</b> Description of keyword JOE is updated.	APPC job filtering through extended status API
\$\$DISPRO	z/OS V1R11	<b>Changed macro:</b> A new keyword FREEJOA is added and three keywords ENF, IOT, and PQE are deleted.	APPC job filtering through extended status API
\$\$JOE	z/OS V1R11	<b>Changed macro:</b> A new keyword MODE is added; environment and descriptions of some keywords are updated.	APPC job filtering through extended status API
\$\$JWEL	z/OS V1R11	<b>Changed macro:</b> Description of keyword WORK is updated.	APPC job filtering through extended status API
\$\$MOD	z/OS V1R11	<b>Changed macro:</b> Description of keyword JOE is updated.	APPC job filtering through extended status API
\$\$PUT	z/OS V1R11	<b>Changed macro:</b> A new keyword FREEJOA is added and three keywords ENF, IOT, and PQE are deleted.	APPC job filtering through extended status API
\$\$REM	z/OS V1R11	<b>Changed macro:</b> Descriptions of some keywords are updated.	APPC job filtering through extended status API
\$\$REP	z/OS V1R11	<b>Changed macro:</b> A new keyword JOA is added; two keywords WORK and CHAR are deleted; the keyword REMJOE is updated.	APPC job filtering through extended status API
\$\$TJEV	z/OS V1R11	<b>Changed macro:</b> Descriptions of some keywords are updated.	APPC job filtering through extended status API
\$\$CALL	z/OS V1R11	<b>Changed macro:</b> Two new keywords PARM0G and PARM1G are added; description of keyword LINK1 and Programming Considerations are updated.	Release update



Table 134. Summary of new and changed JES2 Macros (continued)

Macro	Release	Description	Reason for change
\$DILBERT	z/OS V1R11	<b>Changed macro:</b> Two new keywords SPECIAL and QSUSE are added and descriptions of keywords are updated.	APPC job filtering through extended status API
\$DISTERR	z/OS V1R11	<b>Changed macro:</b> A new keyword MQTR is added.	Release update
\$DOGBERT	z/OS V1R11	<b>Changed macro:</b> Two new keywords COMPLETE and MOREBERTS are added.	Release update
\$DOGCAT	z/OS V1R11	<b>Changed macro:</b> Two new keywords MOREBERTS and WAIT are added.	Release update
\$DOGDJB	z/OS V1R11	<b>Changed macro:</b> Three new keywords CACHE, MOREBERTS, and WAIT are added; descriptions of some keywords are updated.	Release update
\$DOGJOE	z/OS V1R11	<b>New macro.</b>	APPC job filtering through extended status API
\$DOGJQE	z/OS V1R11	<b>Changed macro:</b> Description of keyword ACTION is updated.	Release update
\$DOGWSCQ	z/OS V1R11	<b>Changed macro:</b> Two new keywords MOREBERTS and WAIT are added.	Release update
\$ENTRY	z/OS V1R11	<b>Changed macro:</b> A new keyword RETADDR is added and descriptions of some keywords are updated.	Release update
\$GETMAIN	z/OS V1R11	<b>Changed macro:</b> Description of keyword OWNER is updated.	Release update
\$JBIDBLD	z/OS V1R11	<b>Changed macro:</b> Description of keyword JOBNUM is updated.	Release update
\$LOGMSG	z/OS V1R12	<b>Changed macro:</b> Description of keyword MSGAREA is updated.	Description update
\$PUTABLE	z/OS V1R11	<b>Changed macro:</b> Two keywords LMT and REFRESH are added.	Release update
\$QBUSY	z/OS V1R11	<b>Changed macro:</b> Description of keyword SETDEVID is updated.	Release update
\$QMOD	z/OS V1R11	<b>Changed macro:</b> Two new keywords OLD_JOBCLASS and OLD_SRVCLASS are added.	Release update
\$RETABLE	z/OS V1R11	<b>Changed macro:</b> A new keyword LMT is added.	Release update
\$SCAN	z/OS V1R12	<b>Changed macro:</b> Return codes are updated. Environment is updated.	PRESCAN return codes added Description update
\$SCANB	z/OS V1R11	<b>Changed macro:</b> Description of keyword TYPE is updated.	Description correction
\$SCANCOM	z/OS V1R12	<b>Changed macro:</b> Environment is updated.	Commands must have a trailing blank space
\$SCANTAB	z/OS V1R12	<b>Changed macro:</b> Description of keywords CLEANUP and PRESCAN are updated. Environment is updated.	Description updates

## JES2

Table 134. Summary of new and changed JES2 Macros (continued)

Macro	Release	Description	Reason for change
\$TOKENSR	z/OS V1R11	<b>Changed macro:</b> A new keyword CBADDR is added and descriptions of some keywords are updated.	Release update
\$TRACK	z/OS V1R11	<b>Changed macro:</b> Descriptions of some keywords are updated.	Release update
\$VERTAB	z/OS V1R11	<b>Changed macro:</b> A new keyword MQTRFLD is added and description of keyword MTTRFLD is updated.	Release update

## SSI function codes

Table 135 lists the new and changed JES2 function codes. See *z/OS MVS Using the Subsystem Interface* for more information.

Table 135. Summary of new and changed JES2 Function Codes

SSI Function Code	Release	Description	Reason for change
70	z/OS V1R11	<b>Changed SSI function code:</b> Parameters description is updated to support client tokens.	Release update
79	z/OS V1R11	<b>Changed SSI function code.</b> Supports selection by transaction job name and transaction job id.	APPC job filtering through extended status API
	z/OS V1R12	SSS2RENF updated.	Description updated
80	z/OS V1R11	<b>Changed SSI function code.</b> Supports selection by transaction job name and transaction job id; returns transaction information (job name, job id and owner) within the terse SYSOUT section.	APPC job filtering through extended status API
	z/OS V1R12	<b>Changed SSI function code.</b> Fields updated.	Descriptions updated
82	z/OS V1R11	<b>New SSI function code.</b>	SDSF Assist
	z/OS V1R12	<b>Changed SSI function code:</b> Parameters descriptions are updated.	Descriptions updated
83	z/OS V1R12	<b>New SSI function code.</b>	JES device information services

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## Chapter 28. JES3 summary of interface changes

In addition to the interface changes included in this chapter, updates to JES3 might have resulted in SYS1.PARMLIB and SYS1.SAMPLIB member changes. See Chapter 3, “Summary of changes to SYS1.PARMLIB,” on page 7 and Chapter 5, “Summary of changes to SYS1.SAMPLIB,” on page 13 for those changes.

The JES3 interfaces described in this chapter are:

- “Commands”
- “Data areas”
- “Diagnostic codes”
- “Executable macros” on page 210
- “Initialization statements” on page 210
- “SMF records” on page 210
- “SSI function codes” on page 210

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### Commands

Table 136 lists the new and changed JES3 commands. See *z/OS JES3 Commands* for more detailed information.

Table 136. Summary of new and changed JES3 commands

Command	Release	Description	Reason for change
*CALL,NJEROUT	z/OS V1R11	<b>Changed command:</b> The syntax diagram and parameter description are updated.	Release update
*CANCEL, <i>netserv</i>	z/OS V1R12	<b>New command:</b> Stops communication by the <i>netserv</i> on all sockets.	Release update
*CANCEL,TCP	z/OS V1R12	<b>Changed command:</b> Stops the connection to a node in addition to a socket.	Release update
*MODIFY,NJE	z/OS V1R11	<b>Changed command:</b> The syntax diagram and parameter description are updated.	Release update
*MODIFY,Q	z/OS V1R12	<b>Changed command:</b> New CYL and TRK parameters.	Identify cylinder and defective track
*RESTART,NJEROUT	z/OS V1R11	<b>Changed command:</b> The syntax diagram and parameter description are updated.	Release update
*START,NJEROUT	z/OS V1R11	<b>Changed command:</b> The syntax diagram and parameter description are updated.	Release update

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### Data areas

There are no new or changed JES3 data areas for z/OS V1R12 or z/OS V1R11.

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### Diagnostic codes

Table 137 on page 210 lists the new and changed JES3 diagnostic codes. See *z/OS JES3 Diagnosis Reference* for a complete list and explanation of JES3 dump codes. See *z/OS MVS System Codes* for a complete list and explanation of system codes.

Table 137. Summary of new and changed JES3 diagnostic codes

Code	Release	Description	Reason for change
DM047	z/OS V1R12	<b>Changed code:</b> An updated DM code.	Description update
DM678	z/OS V1R11	<b>New code:</b> A new DM code.	Release update
DM679	z/OS V1R11	<b>New code:</b> A new DM code.	Release update
DM764	z/OS V1R11	<b>Changed code:</b> Two new reason codes X'14' and X'18' are added.	Release update

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## Executable macros

Table 138 lists the new and changed executable macros. See *z/OS JES3 Customization* for more detailed information.

Table 138. Summary of new and changed JES3 executable macros

Executable macro	Release	Description	Reason for change
AGETMAIN	z/OS V1R11	<b>Changed macro:</b> A new parameter CLEAR with options YES   NO is added to indicate whether the storage should be cleared.	Release update
IATUX72	z/OS V1R11	<b>Changed macro:</b> The parameter description and programming considerations are updated.	Release update
IATXGCL	z/OS V1R12	<b>Changed macro:</b> The parameter NAVAIL description and Return Codes are updated.	Description updates

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## Initialization statements

Table 139 lists the new and changed initialization statements. See *z/OS JES3 Initialization and Tuning Reference* for more detailed information.

Table 139. Summary of new and changed JES3 initialization statements

Statement	Release	Description	Reason for change
CLASS	z/OS V1R11	<b>Changed statement:</b> The parameter description is updated.	Release update
BADTRACK	z/OS V1R12	<b>Changed parameters:</b> The parameter descriptions are updated.	Description update

---

## SMF records

There are no new or changed JES3 SMF records for z/OS V1R12 or z/OS V1R11. See *z/OS MVS System Management Facilities (SMF)* for a complete explanation of SMF records.

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## SSI function codes

Table 140 lists the new and changed JES3 function codes. See *z/OS MVS Using the Subsystem Interface* for more information.

Table 140. Summary of new and changed JES3 Function Codes

SSI Function Code	Release	Description	Reason for change
70	z/OS V1R11	<b>Changed SSI function code:</b> JES3 support has been added for this SSI.	Release update

Table 140. Summary of new and changed JES3 Function Codes (continued)

SSI Function Code	Release	Description	Reason for change
82	z/OS V1R11	<b>New SSI function code:</b> JES Properties with sub-functions that return information about SPOOL, NJE Nodes, Initiators, the JESplex, and Classes.	Release update
	z/OS V1R12	<b>Changed SSI function code:</b> Parameters descriptions are updated.	Descriptions updated
83	z/OS V1R12	<b>New SSI function code.</b>	JES device information services



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## Chapter 29. Language Environment summary of interface changes

The Language Environment® interfaces described in this chapter are:

- “Application-writer interfaces”
- “C/C++ Run-Time Library APIs”
- “C/C++ Run-Time Library feature test macros”
- “Compiler-writer interfaces”
- “Data areas” on page 214
- “Environment variables” on page 215
- “Event handler calls” on page 216
- “Macros” on page 216
- “Run-time options” on page 216
- “Utilities” on page 217

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### Application-writer interfaces

No new or changed Language Environment application-writer interfaces (AWIs) in z/OS V1R12, V1R11, or z/OS V1R10. For more information, see *z/OS Language Environment Programming Reference*.

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### C/C++ Run-Time Library APIs

For more information about C/C++ Run-Time Library APIs, see Summary of Changes for C/C++ Run-Time Library Reference in *z/OS XL C/C++ Run-Time Library Reference*.

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### C/C++ Run-Time Library feature test macros

For more information about C/C++ Run-Time Library feature test macros, see Summary of Changes for C/C++ Run-Time Library Reference in *z/OS XL C/C++ Run-Time Library Reference*.

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### Compiler-writer interfaces

Table 141 lists the new and changed Language Environment compiler-writer interfaces (CWIs). For more information, see *z/OS Language Environment Vendor Interfaces*.

Table 141. Summary of new and changed Language Environment CWIs

CWI	Release	Description	Reason for change
CEEGOTO	z/OS V1R12	<b>Changed:</b> Displays high register information in the XPLINK extended format label variable–resume area.	High register support.
CEEPLOD	z/OS V1R12	<b>Changed:</b> The mod_size parameter no longer returns module lengths greater than 16 MB.	Support for the RTLS function has been removed.
CEEPCB_LOAD	z/OS V1R12	<b>Changed:</b> Reason code 5 no longer issued.	Support for the RTLS function has been removed.

## Language Environment

Table 141. Summary of new and changed Language Environment CWIs (continued)

CWI	Release	Description	Reason for change
CEETBCK	z/OS V1R11	<b>Changed:</b> New example added.	Usability
CEE3RSUM	z/OS V1R10	<b>Changed:</b> Updated with modification to the <i>resume_info</i> parameter.	Save stack pointer
CEEMRCM	z/OS V1R10	<b>Changed:</b> Added usage notes for the CEECAA_SAVSTACK and CEECAA_SAVSTACK_ASYNC fields.	Save stack pointer
__le_debug_set_resume_mch()	z/OS V1R10	<b>Changed:</b> Added usage notes for the CEELCA_SAVSTACK and CEELCA_SAVSTACK_ASYNC fields.	Save stack pointer

## Data areas

Table 142 lists the new and changed Language Environment data areas. For more information, see *z/OS Language Environment Vendor Interfaces*.

Table 142. Summary of new and changed Language Environment data areas

Data area	Release	Description	Reason for change
CEEMCH	z/OS V1R12	<b>Changed:</b> Updated to display high register information.	High register support.
CEEEOCB	z/OS V1R12	<b>Changed:</b> Support for the RTLS function has been removed.	Support for the RTLS function has been removed.
PCB	z/OS V1R12	<b>Changed:</b> Support for the RTLS function has been removed.	Support for the RTLS function has been removed.
CEECAA	z/OS V1R11	<b>Changed:</b> Added one new field to indicate ERTLI CICS extended register interface in effect: CEECAACICS_EXT_REG.	CICS AFP support
CEEMCH	z/OS V1R11	<b>Changed:</b> Altered the Flags field in the Machine State Block diagram and changed the layout of the Machine State Block starting at offset 384 (180).	CICS AFP Support
CEEEOCB	z/OS V1R11	<b>Changed:</b> Updated OCB mapping in support of new suboptions added to the HEAPCHK run-time option.	Heap pools serviceability
CEECAA	z/OS V1R10	<b>Changed:</b> Added two new fields where the stack pointer can be saved: CEECAA_SAVSTACK and CEECAA_SAVSTACK_ASYNC.	Save stack pointer
CEELCA	z/OS V1R10	<b>Changed:</b> Added two new fields where the stack pointer can be saved: CEELCA_SAVSTACK and CEELCA_SAVSTACK_ASYNC.	Save stack pointer
CEEMCH	z/OS V1R10	<b>Changed:</b> Updated with new fields that were added to CEEMCH.COPY - INT_SF, INT_SF_VALID, SAVSTACK, SAVSTACK_ASYNC, and SAVSTACK_ASYNC_PTR.	Save stack pointer
CEEEOCB	z/OS V1R10	<b>Changed:</b> Updated OCB mapping.	Heap pools performance



## Environment variables

Table 143 lists the new and changed Language Environment environment variables. For more information, see *z/OS XL C/C++ Programming Guide*.

Table 143. Summary of new and changed Language Environment environment variables

Environment Variable	Release	Description	Reason for change
_BPXK_AUTOCVT	z/OS V1R12	<b>Changed:</b> An restriction has been added that automatic text conversion can only take place between IBM-1047 and ISO8859-1 code sets.	Service update
_BPXK_CCSDS	z/OS V1R12	<b>Changed:</b> An restriction has been added that automatic text conversion can only take place between IBM-1047 and ISO8859-1 code sets.	Service update
_CEE_ENVFILE_COMMENT	z/OS V1R12	<b>New:</b> Defines the comment character to be checked for when reading records from a file	Service update
_CEE_REALLOC_CONTROL	z/OS V1R12	<b>New:</b> Added for control improvements in the processing of the realloc() C/C++ function to provide the ability to more efficiently use storage.	realloc() control support
_EDC_FLUSH_STDOUT_PIPE	z/OS V1R12	<b>New:</b> Flushes the <b>stdout</b> stream when the <b>stdin</b> stream is being read. Both <b>stdin</b> and <b>stdout</b> must be pipes.	Service update
_EDC_FLUSH_STDOUT_SOCKET	z/OS V1R12	<b>New:</b> Flushes the <b>stdout</b> stream when the <b>stdin</b> stream is being read. Both <b>stdin</b> and <b>stdout</b> must be sockets.	Service update
_EDC_PTHREAD_YIELD_MAX	z/OS V1R12	<b>New:</b> Allows applications to specify a maximum wait time other than the 32 millisecond default.	pthread_yield() and sched_yield() max time delay support
_POSIX_TMPNAM	z/OS V1R12	<b>New:</b> Determines if the tmpnam() function produces an MVS data set name or a UNIX file name when the POSIX(ON) run-time option has been specified.	Service update
_EDC_CONTEXT_GUARD	z/OS V1R11	<b>New:</b> Allows the user to control the method used to handle the guard page for AMODE 64 user context stacks.	Customer requirement
_EDC_IO_TRACE	z/OS V1R11	<b>New:</b> Indicates which files to perform file I/O tracing on, the level of detail to provide for file I/O tracing, and the trace buffer size to use for each file.	File I/O Tracing
_CEE_ENVFILE	z/OS V1R10	<b>Changed:</b> Added additional information for how to use with a file in the UNIX file system and added restriction for VBS data set.	PK47163
_CEE_ENVFILE_S	z/OS V1R10	<b>Changed:</b> Added additional information for how to use with a file in the UNIX file system and added restriction for VBS data set.	PK47163

### Event handler calls

Table 144 lists the new and changed Language Environment event handler calls. For more information, see *z/OS Language Environment Vendor Interfaces*.

Table 144. Summary of new and changed Language Environment event handler calls

Event	Release	Description	Reason for change
POSIX fork() imminent	z/OS V1R12	<b>Changed:</b> A second parameter, <code>thread_id</code> , has been added.	<code>pthread_yield()</code> and <code>sched_yield()</code> max time delay support.
Debug event 171	z/OS V1R11	<b>Changed:</b> New argument for POSIX fork() imminent event.	Capability
Event Code 24	z/OS V1R10	<b>Changed:</b> Added the new parameter <code>interrupt_flags</code> and its description.	Save stack pointer

### Macros

Table 145 lists the new and changed Language Environment macros. For more information, see *z/OS Language Environment Vendor Interfaces* and *z/OS Language Environment Programming Guide*.

Table 145. Summary of new and changed Language Environment macros

Macro	Release	Description	Reason for change
CEEENTRY	z/OS V1R11	<b>Changed:</b> Add the RMODE and AMODE keywords.	Customer requirement
CEEFETCH	z/OS V1R11	<b>Changed:</b> Add the ENTRYPT and FTCHINFO keywords and SCOPE=PROCESS option.	Customer requirement
CEEFTCH	z/OS V1R11	<b>New:</b> Generate mapping for the FTCHINFO storage area information provided by CEEFETCH.	Customer requirement
CEEGLOB	z/OS V1R11	<b>New:</b> Generate 5 global assembler variables to match the information CEEGPID returns.	Customer requirement
CEEPPA	z/OS V1R11	<b>Changed:</b> Add the SERVICE keyword	Customer requirement

### Run-time options

Table 146 lists the new and changed Language Environment run-time options. For more information, see *z/OS Language Environment Programming Reference*. For V1R12, see the *z/OS Language Environment Customization*.

Table 146. Summary of new and changed Language Environment run-time options

Run-time option	Release	Description	Reason for change
All run-time options	z/OS V1R12	<b>New:</b> Added the OVR and NONOVR attributes, which specify whether the run-time options can be overridden.	Parmlib enhancements
HEAPCHK	z/OS V1R11	<b>Changed:</b> Added 4 new suboptions.	Heap pools serviceability
ALL31	z/OS V1R10	<b>Changed:</b> Updated the parameter, OFF.	Usability

Table 146. Summary of new and changed Language Environment run-time options (continued)

Run-time option	Release	Description	Reason for change
CEEROPT <b>Note:</b> CEEROPT is a run-time options load module.	z/OS V1R10	<b>Changed:</b> Supported in all environments, not just CICS and LRR.	Customer requirement
CELQROPT <b>Note:</b> CELQROPT is a run-time options load module.	z/OS V1R10	<b>New:</b> Used to set region-specific Language Environment run-time options that are different from the installation or system level defaults.	Customer requirement
HEAPPOOLS	z/OS V1R10	<b>Changed:</b> Updated the parameters, usage notes, performance considerations, and examples.	Heap pools performance
HEAPPOOLS64	z/OS V1R10	<b>Changed:</b> Updated the parameters, usage notes, performance considerations, and examples.	Heap pools performance

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## Utilities

Table 147 lists the new and changed Language Environment utilities. For more information, see *z/OS Language Environment Customization*, *z/OS Language Environment Programming Guide*, and *z/OS Language Environment Debugging Guide*.

Table 147. Summary of new and changed Language Environment utilities

Utility	Release	Description	Reason for change
CEEPRMCC	z/OS V1R10	<b>New:</b> Under z/OS batch, reads and parses the CEEPRMxx member for syntax errors.	Customer requirement
CEEPRMCK	z/OS V1R10	<b>New:</b> Under TSO, reads and parses the CEEPRMxx member for syntax errors.	Customer requirement

## Language Environment

## Chapter 30. RMF summary of interface changes

This chapter describes the Resource Measurement Facility (RMF™) interface “SMF records.”

### SMF records

Table 148 lists the new and updated SMF records. See *z/OS RMF User's Guide* for more detailed information.

Table 148. Summary of new and changed RMF SMF records

SMF record	Release	Description	Reason for change
Type 70 (RMF Processor Activity)	z/OS V1R12	<b>Multiple updates in subtype 1:</b> <ul style="list-style-type: none"> <li>the ASID Data Area section,</li> <li>the CPU Data section,</li> <li>and the CPU Control section have been enhanced.</li> </ul>	Release update
	z/OS V1R11	<b>Multiple updates:</b> <ul style="list-style-type: none"> <li>In subtype 1, the PR/SM™ Local Processor Data section has been enhanced.</li> <li>In subtype 1, the CPU Control section has been enhanced.</li> <li>In subtype 2, the Cryptographic Coprocessor Data section has been enhanced.</li> </ul>	Release update
Type 71 (RMF Paging Activity)	z/OS V1R11	<b>New fields:</b> Measurements about the number of GETMAIN and fix requests for storage, about the number of frames handled by these requests, as well as measurements about first and non-first reference faults are provided in the Paging Data section.	Release update
Type 72 (RMF Workload Activity and Storage Data)	z/OS V1R12	<b>New fields:</b> In subtype 3, the Workload Manager Control section is extended.	Release update
	z/OS V1R11	<b>New fields:</b> In subtype 3, the Service/Report Class Period Data section is extended.	Release update
Type 74 (RMF Activity of Several Resources)	z/OS V1R12	<b>Changed fields:</b> <ul style="list-style-type: none"> <li>In subtype 5, the Raid Rank/Extent Pool Data section has been changed.</li> <li>In subtype 8, the following sections have been changed: <ul style="list-style-type: none"> <li>Extent Pool Statistics</li> <li>Rank Statistics</li> <li>Rank Array Data</li> <li>Control Data</li> <li>Link Statistics</li> </ul> </li> </ul>	Release update

**RMF**

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## Chapter 31. SDSF summary of interface changes

In addition to the interface changes included in this chapter, updates to SDSF might have resulted in SYS1.PARMLIB and SYS1.SAMPLIB member changes. See Chapter 3, “Summary of changes to SYS1.PARMLIB,” on page 7 and Chapter 5, “Summary of changes to SYS1.SAMPLIB,” on page 13 for those changes.

The SDSF interfaces described in this chapter are:

- “Programming interfaces”
- Commands and action characters
- Panels
- User exits
- SAF resources

---

### Programming interfaces

This topic describes new and changed programming interfaces.

#### Java

Table 149 describes the changes for SDSF's support of the Java programming language. See *z/OS SDSF Operation and Customization* for more detailed information.

Table 149. Summary of changes for Java

Change	Release	Description	Reason for change
Support for Java	z/OS V1R12	<b>Change:</b> SDSF adds support for the Java programming language.	Release update

#### REXX

Table 150 and Table 151 list the changes for SDSF's support of the REXX programming language. See *z/OS SDSF Operation and Customization* for more detailed information.

Table 150. Summary of changes for REXX commands

Command	Release	Description	Reason for change
ISFLOG	z/OS V1R12	<b>New command:</b> Access the SYSLOG.	Release update
ISFACT	z/OS V1R11	<b>Changed command:</b> Allows multiple actions or column modifications to be performed with a single ISFACT command.	Release update
isfreset()	z/OS V1R11	<b>New command:</b> Provides a quick reset of all special variables.	Release update
ISFSLASH	z/OS V1R11	<b>New command:</b> Simplifies entering system commands.	Release update

Table 151. Summary of changes for REXX special variables

Special Variable	Release	Description	Reason for change
ISFCKLIM	z/OS V1R12	<b>New special variable:</b> Limits the rows on the CKH panel.	Release update

## SDSF

Table 151. Summary of changes for REXX special variables (continued)

Special Variable	Release	Description	Reason for change
ISFDATE	z/OS V1R12	<b>New special variable:</b> Sets the date format for special variables.	Release update
ISFLINE	z/OS V1R12	<b>New special variable:</b> Contains the result of a browse request.	Release update
ISFLINELIM	z/OS V1R12	<b>New special variable:</b> Limits the number of ISFLINE variables.	Release update
ISFLOGSTARTTIME	z/OS V1R12	<b>New special variable:</b> Specifies the starting time for records returned by the ISFLOG command.	Release update
ISFLOGSTARTDATE	z/OS V1R12	<b>New special variable:</b> Specifies the starting date for records returned by the ISFLOG command.	Release update
ISFLOGSTOPTIME	z/OS V1R12	<b>New special variable:</b> Specifies the ending time for records returned by the ISFLOG command.	Release update
ISFLOGSTOPDATE	z/OS V1R12	<b>New special variable:</b> Specifies the ending date for records returned by the ISFLOG command.	Release update
ISFLRECL	z/OS V1R12	<b>New special variable:</b> Contains the logical record length for the allocated data set.	Release update
ISFRECFM	z/OS V1R12	<b>New special variable:</b> Contains the record format for the allocated data set.	Release update
ISFSYSID	z/OS V1R12	<b>New special variable:</b> Specifies the member to be processed by the ISFLOG command.	Release update
ISFULOG	z/OS V1R11	<b>Changed special variable:</b> Now includes authorization messages.	Release update

## Commands and action characters

Table 152 lists the new and changed commands and action characters. See the SDSF online help for more detailed information. For commands that are specific to SDSF REXX execs, see “REXX” on page 221.

Table 152. Summary of new and changed SDSF commands and action characters

Function	Release	Description	Reason for change
L	z/OS V1R12	<b>New action character:</b> Displays the history of a check that is selected on the CK panel.	Release update
AFD LOGSTAMP	z/OS V1R11	<b>Changed command:</b> Log stamps generated with the AFD LOGSTAMP command are slightly different when the logical log is used for the SYSLOG panel.	Release update
H	z/OS V1R11	<b>Changed command:</b> Can be modified, with a new custom property in ISFPARMS, so that a generic character is automatically appended to a job name entered with the command. For example, the command H GREER would be converted to H GREER*.	Release update



Table 152. Summary of new and changed SDSF commands and action characters (continued)

Function	Release	Description	Reason for change
ST	z/OS V1R11	<b>Changed command:</b> Can be modified, with a new custom property in ISFPARMS, so that a generic character is automatically appended to a job name entered with the command. For example, the command ST GREER would be converted to ST GREER*.	Release update

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## Panels

Table 153 lists the changes to SDSF panels. See *z/OS SDSF Operation and Customization* for more detailed information.

Table 153. Summary of new and changed SDSF panels

Panel	Release	Description	Reason for change
CKH	z/OS V1R12	<b>New panel:</b> Shows the history of a check that is selected on the CK panel.	Release update
CK	z/OS V1R11	<b>Changed panel:</b> New columns show REXX input and output data sets. The Parameters column is now overtypeable.	Release update
DA	z/OS V1R11	<b>Changed panel:</b> New columns show zIIP usage and an LPAR view of CPU usage for each system.	Release update
LOG	z/OS V1R11	<b>Changed panel:</b> There are minor formatting changes related to SDSF's presentation of the SYSLOG when the logical log is used.	Release update
ULOG	z/OS V1R11	<b>Changed panel:</b> Authorization messages, specifically, messages that come back as a result of message return on RACROUTE AUTH calls, are now included in the user session log (ULOG). In the REXX environment, the messages are included in the ISFULOG stem variable.	Release update

## User exits

Table 154 lists the changes to the SDSF user exit routine. See *z/OS SDSF Operation and Customization* for more detailed information.

Table 154. Summary of changes to the SDSF user exit routine

User exit	Release	Description	Reason for change
Initialization	z/OS V1R12	<b>New flags:</b> <ul style="list-style-type: none"> <li>• UPROFLG2.UPRO2IDJ controls the rows that are shown on the initiator panel by default.</li> <li>• UPROFLG2.UPRO2OVW controls the lines shown on the OPERLOG panel.</li> <li>• UPRCKLIM sets the default maximum number of instances for a check for IBM Health Checker for z/OS that will be read from the logstream for the CKH panel.</li> <li>• UPROFLG2.UPRO2DF8 controls how device names are formatted on the PR panel.</li> </ul>	Release update
Initialization	z/OS V1R11	<b>New flags:</b> <ul style="list-style-type: none"> <li>• UPRO1HDX specifies that the HASPINDEX-based SYSLOG is to be used even though the logical SYSLOG is available.</li> <li>• UPRO1RCV causes the SAF authorization check to the logical SYSLOG to always succeed.</li> <li>• UPRO1GHO appends a generic pattern-matching character to a jobname specified with the H command, unless the prefix already ends with a generic character or is already the maximum length (8 characters).</li> <li>• UPRO1GST appends a generic pattern-matching character to a jobname specified with the ST command, unless the prefix already ends with a generic character or is already the maximum length (8 characters).</li> </ul>	Release update

## SAF resources

Table 155 lists the new and changed SAF resources related to SDSF. See *z/OS Planning for Multilevel Security and the Common Criteria* and *z/OS SDSF Operation and Customization* for more detailed information.

Table 155. Summary of new and changed SAF resources

SAF resource	Release	Description	Reason for change
Miscellaneous	z/OS V1R12	<b>Changes for JES3:</b> The PR panel now shows JES3 data. When running SDSF in the JES3 environment, you must use SAF to provide SDSF security. Some resources that are unique to the JES3 environment are used.	Release update
Miscellaneous	z/OS V1R11	<b>Changes for JES3:</b> The JC, JP, SP, JDS (Job Data Set) and OD (Output Descriptors) panels now show JES3 data. When running SDSF in the JES3 environment, you must use SAF to provide SDSF security. Some resources that are unique to the JES3 environment are used.	Release update
	z/OS V1R11	<b>Change:</b> A new SAF resource controls access to the JES logical log that is used for the LOG panel. The resource is +MASTER+.SYSLOG.SYSTEM.sysid in the JESSPOOL class. READ access is required. This resource is in addition to the ISFCMD.ODSP.SYSLOG resource in the SDSF class that was already used.	Release update

**SDSF**

## Chapter 32. Security Server summary of interface changes

In addition to the interface changes included in this chapter, updates to Security Server have resulted in SYS1.SAMPLIB member changes. See Chapter 5, “Summary of changes to SYS1.SAMPLIB,” on page 13 for those changes.

The Security Server interfaces described in this chapter are:

- “Callable services” on page 227
- “Class descriptor table (CDT)” on page 228
- “Commands” on page 229
- “Data areas” on page 233
- “Database templates” on page 236
- “Exits” on page 237
- “Macros” on page 237
- “Panels” on page 238
- “SMF records” on page 240
- “Utilities” on page 242

### Callable services

Table 156 lists the new and changed RACF callable services. See *z/OS Security Server RACF Callable Services* for more detailed information.

Table 156. Summary of new and changed RACF callable services

Callable service name	Release	Description	Reason for change
IRRSCH00 (R_cacheserv)	z/OS V1R11	Updated with new function code and parameters for managing an extended read/write cache.	Distributed identity filters
IRRSDL00 (R_data1ib)	z/OS V1R12	<ul style="list-style-type: none"> <li>• Updated with two new private key types X'00000006' and X'00000007' to accommodate Diffie-Hellman(DH) and Elliptic Curve Cryptography(ECC) key types in the DataGetFirst and DataGetNext functions.</li> <li>• Updated with new attribute flag CDDL(X)_ATT_SET_MIN_SERIAL to indicate that the last used serial number field (CERTLUER) is to be incremented to at least the input serial number parameter.</li> </ul>	<ul style="list-style-type: none"> <li>• Keys generated with elliptic curve cryptography (ECC) algorithms</li> <li>• PKI resiliency</li> </ul>
	z/OS V1R11	Updated with new attribute flag CDDL(X)_ATT_SKIPAUTH for bypassing authorization checks.	Program signing and verification. Also, APARs OA26109 and OA26110.
IRRSEQ00 (R_admin)	z/OS V1R11	Updated for extraction of general resource profiles.	LDAP resource support
	z/OS V1R10	<ul style="list-style-type: none"> <li>• Updated to show a restriction on the number of operands affecting the CSDATA segment on a single command.</li> <li>• Updated to expand the password envelope retrieval information to include password phrase envelope retrieval.</li> </ul>	<ul style="list-style-type: none"> <li>• Custom fields</li> <li>• Password phrase enveloping</li> </ul>

## Security Server

Table 156. Summary of new and changed RACF callable services (continued)

Callable service name	Release	Description	Reason for change
IRRSGM00 (getGMAP)	z/OS V1R11	Updated to enable automatic assignment of z/OS UNIX group identifiers.	Automatic user and group identifier support
IRRSIA00 (initACEE)	z/OS V1R11	Updated with new parameter IDID_area, which is the name of a fullword containing the address of a distributed identity data structure (IDID)	Distributed identity filters
IRRSIU00 (initUSP)	z/OS V1R11	Updated to enable automatic assignment of z/OS UNIX user and group identifiers.	Automatic user and group identifier support
IRRSPS00 (R_PgmSignVer)	z/OS V1R11	<b>New:</b> Provides the functions required to apply a digital signature to a z/OS program object, and to verify such a signature.	Program signing and verification. Also, APARs OA26109 and OA26110.
IRRSPIX00 (R_PKIServ)	z/OS V1R12	<ul style="list-style-type: none"> <li>The ModifyCerts function has been updated to include the following new action codes:                             <ul style="list-style-type: none"> <li>– Create CRLs</li> <li>– Post Certs</li> </ul> </li> <li>New reason and return codes added to the ModifyCerts function.</li> <li>Added new parameter, CustomExt and updated parameters AltDomain, AltEmail, AltIPAddr, and AltURI.</li> <li>Added new parameter, KeyAlg, and updated KeySize in GENCERT.</li> </ul> <p>Added new entry in REQDETAILS Sumlist for SHA256 and SHA512 fingerprints.</p>	<ul style="list-style-type: none"> <li>• PKI resiliency</li> <li>• PKI Services</li> <li>• Keys generated with elliptic curve cryptography (ECC) algorithms</li> </ul>
	z/OS V1R11	Updated with new user function QRECOVER for getting a list of certificates whose key pairs were generated by PKI services under a particular email address and pass phrase.	PKI key generation support
	z/OS V1R10	<ul style="list-style-type: none"> <li>• Updated to show new parameters.</li> <li>• Updated to show AltIPAddr field in CertPlist can now specify an IP address in IPv6 format.</li> </ul>	<ul style="list-style-type: none"> <li>• PKI Services</li> <li>• IPv6 support</li> </ul>
IRRSUM00 (getUMAP)	z/OS V1R11	Updated to enable automatic assignment of z/OS UNIX user identifiers.	Automatic user and group identifier support

## Class descriptor table (CDT)

Table 157 on page 229 lists new and changed RACF classes in the class descriptor table (CDT), ICHRRCDX, which is supplied by IBM. To find the details associated with the CDT entry for each class, see *z/OS Security Server RACROUTE Macro Reference*.

The class name is part of the programming interface for the RACROUTE and ICHEINTY macros. For more information about these macros, see *z/OS Security Server RACROUTE Macro Reference* and *z/OS Security Server RACF Macros and Interfaces*.

Table 157. Summary of new and changed classes

Class name	Release	Description	Reason for change
CFIELD	z/OS V1R10	<b>New:</b> Contains profiles that define the installation's custom fields.	Custom fields
GXCSEKEY	z/OS V1R11	<b>New:</b> Resource group class for the XCSFKEY class.	APAR OA26468
IDIDMAP	z/OS V1R11	<b>New:</b> Contains distributed identity filters created with the RACMAP command.	Distributed identity filters
KERBLINK	z/OS V1R12	Updated to control which users are authorized to use the SKRDKDC started procedure to decrypt service tickets for a given principal.	Support for Network Authentication Service
RACFEVNT	z/OS V1R10	Updated to support enveloping for password phrases.	Password phrase enveloping
RACFHC	z/OS V1R10	<b>New:</b> Used by IBM Health Checker for z/OS. Contains profiles that list the resources to check for each installation-defined health check.	Support for IBM Health Checker for z/OS
RACHCMBR	z/OS V1R10	<b>New:</b> Used by IBM Health Checker for z/OS. Member class for the RACFHC class.	Support for IBM Health Checker for z/OS
RIMS	z/OS V1R10	<b>New:</b> Used by IMS™. Controls Open Transaction Manager Access (OTMA) transaction pipes (TPIPEs).	APAR OA23226
XCSFKEY	z/OS V1R11	<b>New:</b> Controls the use of ICSF cryptographic keys.	APAR OA26468
XFACILIT	z/OS V1R11	Updated to include SIGNAL=YES.	APAR OA24793

## Commands

Table 158 lists the new and changed RACF commands. See *z/OS Security Server RACF Command Language Reference* for more detailed information.

Table 158. Summary of changed RACF commands

Command name	Release	Description	Reason for change
ADDGROUP	z/OS V1R10	The CSDATA operand is added.	Custom fields
ADDUSER	z/OS V1R10	The CSDATA operand is added.	Custom fields
ALTGROUP	z/OS V1R10	The CSDATA operand is added.	Custom fields
ALTUSER	z/OS V1R10	<ul style="list-style-type: none"> <li>The CSDATA operand is added.</li> <li>Authorization processing is updated for resetting passwords and password phrases and for resuming user IDs.</li> </ul>	<ul style="list-style-type: none"> <li>Custom fields</li> <li>Resetting RACF passwords</li> </ul>
DELUSER	z/OS V1R11	Support is added to prevent deletion of a user profile when the user is associated with a distributed mapping profile in the IDIDMAP class.	Distributed identity filters
LISTGRP	z/OS V1R10	The CSDATA operand is added.	Custom fields
LISTUSER	z/OS V1R10	<ul style="list-style-type: none"> <li>The CSDATA operand is added.</li> <li>A new value called KEY FROM is added to the KERB segment listing.</li> <li>Authorization processing is updated for listing user IDs.</li> <li>Listed information is updated to support password phrase enveloping.</li> </ul>	<ul style="list-style-type: none"> <li>Custom fields</li> <li>Support for z/OS Network Authentication Service</li> <li>Resetting RACF passwords</li> <li>Password phrase enveloping</li> </ul>

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Table 158. Summary of changed RACF commands (continued)

Command name	Release	Description	Reason for change
RACDCERT	z/OS V1R12	<ul style="list-style-type: none"> <li>• The following functions are updated to support certificates generated with elliptic curve cryptography (ECC) algorithms:               <ul style="list-style-type: none"> <li>– ADD</li> <li>– BIND</li> <li>– CHECKCERT</li> <li>– GENCERT</li> <li>– GENREQ</li> <li>– IMPORT</li> <li>– LIST</li> <li>– REKEY</li> </ul> </li> <li>• The following functions are updated to support certificates with long distinguished names:               <ul style="list-style-type: none"> <li>– ADD</li> <li>– ALTER</li> <li>– DELETE</li> <li>– GENCERT</li> <li>– LIST</li> <li>– MAP</li> </ul> </li> <li>• The following functions are updated to support certificate validity periods that extend beyond the year 2041:               <ul style="list-style-type: none"> <li>– ADD</li> <li>– CHECKCERT</li> <li>– GENCERT</li> <li>– IMPORT</li> <li>– LIST</li> <li>– REKEY</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Keys generated with elliptic curve cryptography (ECC) algorithms</li> <li>• Long distinguished names. Also, APAR OA30560.</li> <li>• Long certificate validity periods. Also, APAR OA30951.</li> </ul>
	z/OS V1R11	<ul style="list-style-type: none"> <li>• The FROMICSF operand is added to GENCERT function.</li> <li>• Support for UTF-8 and BMP characters is updated for multiple functions.</li> </ul>	<ul style="list-style-type: none"> <li>• Public key algorithm (PKA) enhancements for ICSF</li> <li>• Support for UTF-8 and BMP characters</li> </ul>
	z/OS V1R10	<ul style="list-style-type: none"> <li>• The following functions are updated to support certificates containing RSA PCICC keys up to 4096 bits in length:               <ul style="list-style-type: none"> <li>– ADD</li> <li>– GENCERT</li> <li>– IMPORT</li> <li>– REKEY</li> </ul> </li> <li>• The following functions are updated to support certificates with IPv6 format in the IP address field of the subjectAltName extension.               <ul style="list-style-type: none"> <li>– GENCERT</li> <li>– CHECKCERT</li> <li>– LIST</li> </ul> </li> <li>• The following functions are updated to support migration of certificates with ICSF private keys from one system to another.               <ul style="list-style-type: none"> <li>– ADD</li> <li>– IMPORT</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Increased cryptographic key size</li> <li>• IPv6 format addressing</li> <li>• ICSF key migration</li> </ul>



Table 158. Summary of changed RACF commands (continued)

Command name	Release	Description	Reason for change
RACMAP	z/OS V1R11	<b>New:</b> The RACMAP command is added to create, delete, and list distributed identity filters.	Distributed identity filters
RALTER	z/OS V1R12	The SYMCPACFWRAP suboperand is added to the ICSF operand.	Support of ICSF encrypted symmetric keys and CP Assist for Cryptographic Function (CPACF). Also, APAR OA29193.
	z/OS V1R11	<ul style="list-style-type: none"> <li>• The ICSF operand is added with the following suboperands:               <ul style="list-style-type: none"> <li>– ASYMUSAGE</li> <li>– SYMEXPORTABLE</li> <li>– SYMEXPORTCERTS</li> <li>– SYMEXPORTKEYS</li> </ul> </li> <li>• The SIGVER operand is added with the following suboperands:               <ul style="list-style-type: none"> <li>– SIGVER</li> <li>– FAILLOAD</li> <li>– SIGAUDIT</li> </ul> </li> <li>• Support is added for the APPLDATA value RACF-INITSTATS(DAILY) in an APPL class profile.</li> <li>• Support is added for the APPLDATA value in the BPX.UNIQUE.USER profile in the FACILITY class.</li> </ul>	<ul style="list-style-type: none"> <li>• ICSF segment for general resource profiles</li> <li>• Program signing and verification. Also, APARs OA26109 and OA26110.</li> <li>• Logon statistics suppression</li> <li>• Automatic UID and GID assignment in callable services</li> </ul>
	z/OS V1R10	<ul style="list-style-type: none"> <li>• The CFDEF and NOCFDEF operands are added. The suboperands of the CFDEF operand are as follows:               <ul style="list-style-type: none"> <li>– FIRST</li> <li>– HELP</li> <li>– LISTHEAD</li> <li>– MAXLENGTH</li> <li>– MAXVALUE</li> <li>– MINVALUE</li> <li>– MIXED</li> <li>– OTHER</li> </ul> </li> <li>• The PASSWORD operand is updated to support Kerberos realm passwords of up to 128 characters in length.</li> </ul>	<ul style="list-style-type: none"> <li>• Custom fields</li> <li>• Support for z/OS Network Authentication Service</li> </ul>

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Table 158. Summary of changed RACF commands (continued)

Command name	Release	Description	Reason for change
RDEFINE	z/OS V1R12	The SYMCPACFWRAP suboperand is added to the ICSF operand.	Support of ICSF encrypted symmetric keys and CP Assist for Cryptographic Function (CPACF). Also, APAR OA29193.
	z/OS V1R11	<ul style="list-style-type: none"> <li>The ICSF operand is added with the following suboperands: <ul style="list-style-type: none"> <li>– ASYMUSAGE</li> <li>– SYMEXPORTABLE</li> <li>– SYMEXPORTCERTS</li> <li>– SYMEXPORTKEYS</li> </ul> </li> <li>The SIGVER operand is added with the following suboperands: <ul style="list-style-type: none"> <li>– SIGVER</li> <li>– FAILLOAD</li> <li>– SIGAUDIT</li> </ul> </li> <li>Support is added for the APPLDATA value RACF-INITSTATS(DAILY) in an APPL class profile.</li> <li>Support is added for the APPLDATA value in the BPX.UNIQUE.USER profile in the FACILITY class.</li> </ul>	<ul style="list-style-type: none"> <li>ICSF segment for general resource profiles</li> <li>Program signing and verification. Also, APARs OA26109 and OA26110.</li> <li>Logon statistics suppression</li> <li>Automatic UID and GID assignment in callable services</li> </ul>
	z/OS V1R10	<ul style="list-style-type: none"> <li>The CFDEF operand is added with the following suboperands: <ul style="list-style-type: none"> <li>– FIRST</li> <li>– HELP</li> <li>– LISTHEAD</li> <li>– MAXLENGTH</li> <li>– MAXVALUE</li> <li>– MINVALUE</li> <li>– MIXED</li> <li>– OTHER</li> </ul> </li> <li>The PASSWORD operand is updated to support Kerberos realm passwords of up to 128 characters in length.</li> </ul>	<ul style="list-style-type: none"> <li>Custom fields</li> <li>Support for z/OS Network Authentication Service</li> </ul>
RDELETE	z/OS V1R12	The NOGENERIC operand is added.	Improved RACF serviceability
RLIST	z/OS V1R12	<ul style="list-style-type: none"> <li>Support is added for the new SYMCPACFWRAP suboperand of the ICSF operand.</li> <li>Support is added for the new UNUSABLE indicator in the listing of certain discrete profiles.</li> </ul>	<ul style="list-style-type: none"> <li>Support of ICSF encrypted symmetric keys and CP Assist for Cryptographic Function (CPACF). Also, APAR OA29193.</li> <li>Improved RACF usability</li> </ul>
	z/OS V1R11	<ul style="list-style-type: none"> <li>The ICSF operand is added.</li> <li>The SIGVER operand is added.</li> </ul>	<ul style="list-style-type: none"> <li>ICSF segment for general resource profiles</li> <li>Program signing and verification. Also, APARs OA26109 and OA26110.</li> </ul>
	z/OS V1R10	Support is added for the new CFDEF segment.	Custom fields
SEARCH	z/OS V1R12	Support is added for the new UNUSABLE indicator in the listing of certain discrete profiles.	Improved RACF usability

Table 158. Summary of changed RACF commands (continued)

Command name	Release	Description	Reason for change
SET	z/OS V1R12	<ul style="list-style-type: none"> <li>The GENERICANCHOR operand and the GENERICANCHOR suboperand of the TRACE operand are added.</li> <li>The CLASS and USERID suboperands of the TRACE operand are added.</li> </ul>	<ul style="list-style-type: none"> <li>Generic profile performance</li> <li>Improved RACF serviceability</li> </ul>
SETROPTS	z/OS V1R11	Support is added to the INITSTATS operand to control logon statistics for applications that specify the APPL operand on the RACROUTE REQUEST=VERIFY macro.	Logon statistics suppression
	z/OS V1R10	<ul style="list-style-type: none"> <li>Authorization processing for the MINCHANGE operand is updated.</li> <li>Processing for the WARNING option of the PASSWORD operand is updated to add support for password phrases.</li> </ul>	<ul style="list-style-type: none"> <li>Password resetting</li> <li>Password phrases</li> </ul>

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## Data areas

Table 159 lists the new and changed RACF data areas. See *z/OS Security Server RACF Data Areas* for more detailed information.

Table 159. Summary of new and changed RACF data areas

Data area name	Release	Description	Reason for change
ACEE	z/OS V1R11	<ul style="list-style-type: none"> <li>A new flag, ACEEDALY, has been added.</li> <li>New fields, ACEEIDID and ACEETIME have been added.</li> </ul>	<ul style="list-style-type: none"> <li>Logon statistics suppression</li> <li>Distributed identity filters</li> </ul>
AFC	z/OS V1R11	A new constant, AFC_UNAVAILABLE, has been added.	Automatic UID and GID assignment in callable services
CDXP	z/OS V1R10	Fields have been updated to provide programming interfaces for IRRVAF01 exit's verify processing.	Custom fields

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Table 159. Summary of new and changed RACF data areas (continued)

Data area name	Release	Description	Reason for change
COMP	z/OS V1R12	A new constant, CDDL_ATT_SET_MIN_SERIAL, has been added.	ICSF field support. Also, APAR OA29193.
	z/OS V1R11	<ol style="list-style-type: none"> <li>1. New PGSN constants have been added.</li> <li>2. New constants, ADMN_XTR_RESOURCE and ADMN_XTR_NEXT_RESOURCE have been added.</li> <li>3. New parameter, INTAIDID_AREA@ and a new flag, INTA_LAST_PARM_IDID, have been added.</li> <li>4. New constant CACH_LEN has been added.</li> <li>5. New constant, PKIS_QRECOVER, has been added for R_PKIServ callable service.</li> <li>6. New R_PKIServ function specific parameter lists for QREC PKIS_QREC_EYECATCH, PKIS_QREC_RESULTL_LEN, PKIS_QREC_RESULTL@, PKIS_QREC_NUMENTRIES, PKIS_QREC_CRIT_EMAIL@, and PKIS_QREC_CRIT_PASS@ have been added.</li> <li>7. PKIS_EXP_KEYID@ has been added.</li> <li>8. PKIS_MODC_REQUESTOREMAIL@ has been added.</li> </ol>	<ol style="list-style-type: none"> <li>1. Program signing and verification. Also, APARs OA26109 and OA26110.</li> <li>2. LDAP resource</li> <li>3. Distributed identity filters</li> <li>4. Distributed identity filters</li> <li>5. Key generation for PKI Services</li> <li>6. Key generation for PKI Services</li> <li>7. Key generation for PKI Services</li> <li>8. Key generation for PKI Services</li> </ol>
	z/OS V1R10	A new constant, ADMN_XTR_PPENV is added.	Password phrase support
COMX	z/OS V1R12	A new constant, CDDLX_ATT_SET_MIN_SERIAL, has been added.	ICSF field support. Also, APAR OA29193.
ENF2	z/OS V1R11	A new macro, IRRPENF2, has been added.	Distributed identity filters
FC	z/OS V1R11	New constant, IRRSPS00#, has been added.	Program signing and verification. Also, APARs OA26109 and OA26110.
FXAP	z/OS V1R11	New fields, ARFXAPRT, ARFXAPRL, and ARFXAPRF, have been added.	Profile name in authorization exits
GANC	z/OS V1R12	A new macro, IRRPGANC, has been added.	Generic profile performance
GAPL	z/OS V1R12	New fields, ATEMOBJS, ATEPRF64, and ATETMSTP, have been added.	Generic profile performance
GPRFL	z/OS V1R12	A new macro, IRRGPRFL, has been added.	Generic profile performance

Table 159. Summary of new and changed RACF data areas (continued)

Data area name	Release	Description	Reason for change
ICB	z/OS V1R12	Updated for new FMID HRF7770.	Release update
	z/OS V1R11	Updated for new FMID HRF7760.	Release update
	z/OS V1R10	Updated for new FMID HRF7750.	Release update
ICRX	z/OS V1R11	A new macro, IRRPICRX, has been added.	Distributed identity filters
IDID	z/OS V1R11	A new macro, IRRPIDID has been added.	Distributed identity filters
ISP	z/OS V1R12	A new field, RPEFSCPW, is added to RACRPE.	ICSF field support. Also, APAR OA29193.
OUSP	z/OS V1R11	New segment fields have been added.	ICSF segment for general resource profiles
RCVT	z/OS V1R12	<ol style="list-style-type: none"> <li>1. A new field, RCVTGANC, has been added.</li> <li>2. Updated RCVTVRMC to 7770 and a new constant RCVTVR71 has been added with that value.</li> </ol>	<ol style="list-style-type: none"> <li>1. Generic profile performance</li> <li>2. Release update</li> </ol>
	z/OS V1R11	<ol style="list-style-type: none"> <li>1. Updated RCVTVRMC to 7760 and a new constant RCVTVR60 has been added with that value.</li> <li>2. New programming interfaces, RCVTDNL and RCVTRL, have been added.</li> <li>3. A new field, RCVTGENT, has been added.</li> </ol>	<ol style="list-style-type: none"> <li>1. Release update</li> <li>2. Distributed identity filters</li> <li>3. Profile name in authorization exits</li> </ol>
	z/OS V1R10	<ul style="list-style-type: none"> <li>• <b>New:</b> RCVTCFLD has been added</li> <li>• Updated RCVTVRMC to 7750 and a new constant RCVTVR50 has been added with that value.</li> </ul>	<ul style="list-style-type: none"> <li>• Custom fields</li> <li>• Release update</li> </ul>
RCXP	z/OS V1R11	A new field, RCXAPROF, has been added.	Profile name in authorization exits
R IPL	z/OS V1R11	New HRF7760 parameters for INIT, INITPRMA, INITIDID, INITICRX, and INITENDA have been added.	Distributed identity filters
RIXP	z/OS V1R11	<b>New:</b> RIXIDID and RIXICRX have been added.	Distributed identity filters
RXTW	z/OS V1R12	New fields, EXTWRTAS and EXTWRTAD, have been added	Improved RACF serviceability
SAFP	z/OS V1R12	Constant, SAFPRL7A (with a value of 20) was added and constant SAFPCURR has been changed to the same value (20).	Release update
	z/OS V1R11	Constant, SAFPRL60 (with a value of 19) was added and constant SAFPCURR has been changed to the same value (19).	Release update
	z/OS V1R10	Constant, SAFPRL50 (with a value of 18) was added and constant SAFPCURR has been changed to the same value (18).	Release update

## Database templates

Table 160 lists the new and changed RACF database templates. See *z/OS Security Server RACROUTE Macro Reference* or *z/OS Security Server RACF Macros and Interfaces* for more detailed information.

Table 160. Summary of RACF database template changes

Segment name	Release	Description of change	Reason for change
<b>General template</b>			
BASE	z/OS V1R11	The DIDCT, DIDLABL, DIDUSER, DIDRNAME, DIDRSVD1, and DIDRSVD2 fields are added.	Distributed identity filters
CERTDATA	z/OS V1R12	<ul style="list-style-type: none"> <li>The descriptions of the CERTSTRT and CERTEND fields are updated.</li> <li>The CERTPRVT field is updated to include additional key types.</li> </ul>	<ul style="list-style-type: none"> <li>Long certificate validity periods. Also, APAR OA30951.</li> <li>Keys generated with elliptic curve cryptography (ECC) algorithms</li> </ul>
CFDEF	z/OS V1R10	<b>New:</b> The CFDEF segment is added.	Custom fields
COMBINATION	z/OS V1R11	The DIDLIST1 field is added.	Distributed identity filters
ICSF	z/OS V1R12	The CSFSCPW field is added.	Support of ICSF encrypted symmetric keys and CP Assist for Cryptographic Function (CPACF). Also, APAR OA29193.
	z/OS V1R11	<b>New:</b> The ICSF segment is added.	Release update
KERB	z/OS V1R10	The ENCRYPT field is added.	Release update
SIGVER	z/OS V1R11	<b>New:</b> The SIGVER segment is added.	Release update
<b>Group template</b>			
CSDATA	z/OS V1R10	<b>New:</b> The segment CSDATA is added.	Custom fields
<b>User template</b>			
BASE	z/OS V1R11	The LJTIME and LJDATE fields are updated.	Logon statistics suppression
	z/OS V1R11	The DMAPCT, DMAPLABL, DMAPNAME, DMAPRSV1, and DMAPRSV2 fields are added.	Distributed identity filters
COMBINATION	z/OS V1R11	The DMAPLST1 field is added.	Distributed identity filters
CSDATA	z/OS V1R10	<b>New:</b> The CSDATA segment is added.	Custom fields
KERB	z/OS V1R10	The ENCRYPT field is added.	Release update
<b>Connect template</b>			
BASE	z/OS V1R11	The LJTIME and LJDATE fields are updated.	Logon statistics suppression

## Exits

Table 161 lists the new and changed RACF exits. See *z/OS Security Server RACF System Programmer's Guide* for more detailed information.

Table 161. Summary of new and changed RACF exits

Exit name	Release	Description	Reason for change
ICHRFX02	z/OS V1R11	Updated to reflect additional data sent to the exit.	Support for profile names in authorization exits
ICHRFX04	z/OS V1R11	Updated to reflect additional data sent to the exit.	Support for profile names in authorization exits
IRRVAF01	z/OS V1R10	<b>New:</b> The new custom field validation exit provides an exit point for the ADDUSER and ALTUSER commands, and ADDGROUP and ALTGROUP commands, when a field in the CSDATA segment is specified.	Custom fields

## Macros

Table 162 lists the new and changed RACF macros. See *z/OS Security Server RACF Macros and Interfaces* or *z/OS Security Server RACROUTE Macro Reference* for more detailed information.

Table 162. Summary of changed executable RACF macros

Macro name	Release	Description	Reason for change
ICHEACTN	z/OS V1R12	Updated to accept the RELEASE=7770 keyword.	Release update
	z/OS V1R11	Updated to accept the RELEASE=7760 keyword.	Release update
	z/OS V1R10	Updated to accept the RELEASE=7750 keyword.	Release update
ICHEINTY	z/OS V1R12	<ul style="list-style-type: none"> <li>Updated to accept the RELEASE=7770 keyword.</li> <li>The INDEX parameter is added.</li> </ul>	<ul style="list-style-type: none"> <li>Release update</li> <li>Generic profile performance</li> </ul>
	z/OS V1R11	Updated to accept the RELEASE=7760 keyword.	Release update
	z/OS V1R10	Updated to accept the RELEASE=7750 keyword.	Release update
ICHETEST	z/OS V1R12	Updated to accept the RELEASE=7770 keyword.	Release update
	z/OS V1R11	Updated to accept the RELEASE=7760 keyword.	Release update
	z/OS V1R10	Updated to accept the RELEASE=7750 keyword.	Release update
RACROUTE	z/OS V1R12	Updated to accept the RELEASE=7770 keyword.	Release update
	z/OS V1R11	Updated to accept the RELEASE=7760 keyword.	Release update
	z/OS V1R10	Updated to accept the RELEASE=7750 keyword.	Release update

## Panels

Table 163 lists the new and changed RACF panels. Some panels may be updated by more than one release enhancement. The first part of the panel number indicates the type of panel that is affected:

- ICHH** Displays help information that is related to a panel or a task that you are performing
- ICHM** Displays message information that is related to a panel or a task that you are performing
- ICHP** Allows you to enter information such as a user ID or profile name

Table 163. Summary of new and changed RACF panels

Panel number	Release	Description	Reason for change	
<b>ICHH714</b> <b>ICHPB81</b>	ICHHB81	z/OS V1R12	Updated to support long distinguished names	Long distinguished names. Also, APAR OA30560.
<b>ICHP21A</b>	ICHP22A	z/OS V1R12	Updated to support ICSF encrypted symmetric keys	Support of ICSF encrypted symmetric keys and CP Assist for Cryptographic Function (CPACF). Also, APAR OA29193.
<b>ICHC76</b> <b>ICHP76</b> <b>ICHPB71A</b> <b>ICHH716</b> <b>ICHH747</b>	ICHCB71 ICHPB71 ICHH715 ICHH719 ICHHB01A	z/OS V1R12	Updated to support elliptic curve cryptography	Keys generated with elliptic curve cryptography (ECC) algorithms
<b>ICHH23</b>	ICHP23	z/OS V1R12	Updated to allow for the specification of the NOGENERIC option	Improved RACF serviceability
<b>ICHH717</b>		z/OS V1R12	Updated the range value to support long certificate validity periods	Long certificate validity periods. Also, APAR OA30951.
<b>ICHH21PS</b> <b>ICHHC18</b> <b>ICHP22Q</b> <b>ICHS21Q</b>	ICHH21Q ICHP21Q ICHR22P	z/OS V1R11	<b>New:</b> Added to support program signing and verification	Program signing and verification. Also, APARs OA26109 and OA26110.
<b>ICHCB71A</b> <b>ICHH22S</b> <b>ICHH22S2</b> <b>ICHHS06</b> <b>ICHP21S</b> <b>ICHP22S1</b>	ICHH21S ICHH22S1 ICHHI04 ICHH716A ICHP22S ICHP22S2	z/OS V1R11	<b>New:</b> Added to support ICSF segment for general resource profiles	ICSF segment for general resource profiles
<b>ICHH21A</b> <b>ICHH28</b> <b>ICHP21A</b> <b>ICHP28</b> <b>ICHP42</b> <b>ICHS22</b>	ICHH22A ICHM21 ICHP22A ICHP41A ICHS21 ICHS28	z/OS V1R11	Updated to support program signing and verification	Program signing and verification. Also, APARs OA26109 and OA26110.



Table 163. Summary of new and changed RACF panels (continued)

Panel number		Release	Description	Reason for change
<b>ICHCB71</b> <b>ICHH22A</b> <b>ICHH716</b> <b>ICHHT71</b> <b>ICHM22</b> <b>ICHM73</b> <b>ICHP22A</b> <b>ICHP73</b> <b>ICHPB70</b> <b>ICHPB71A</b>	ICHH21A ICHH28 ICHHT70 ICHM21 ICHM41 ICHP21A ICHP28 ICHP76 ICHPB71	z/OS V1R11	Updated to support ICSF segment for general resource profiles	ICSF segment for general resource profiles
<b>ICHH21A</b> <b>ICHH28</b> <b>ICHH32</b> <b>ICHH41A1</b> <b>ICHM21</b> <b>ICHP00</b> <b>ICHP21A</b> <b>ICHP21PC</b> <b>ICHP21PN</b> <b>ICHP22A</b> <b>ICHP28</b> <b>ICHP32</b> <b>ICHP41</b> <b>ICHP42</b> <b>ICHP48</b>	ICHH22A ICHH31 ICHH38 ICHH42A1 ICHM41 ICHP00SM ICHP21P ICHP21PH ICHP215 ICHP22P ICHP31 ICHP38 ICHP41A1 ICHP42A1 ICHR22P	z/OS V1R10	Updated to support custom fields	Custom fields
<b>ICHH21CF</b> <b>ICHH21PC</b> <b>ICHH21PN</b> <b>ICHH41CF</b> <b>ICHH41T1</b> <b>ICHP21P</b> <b>ICHP21PH</b> <b>ICHP22P</b> <b>ICHP41T1</b>	ICHH21P ICHH21PH ICHH22P ICHH41T ICHHC02 ICHP21PC ICHP21PN ICHP41T	z/OS V1R10	<b>New:</b> Added to support custom fields	Custom fields
<b>ICHH404</b> <b>ICHH54B</b> <b>ICHH54D</b> <b>ICHHP13</b>	ICHH54AX ICHH54C ICHHE02	z/OS V1R10	Updated to support password phrase enveloping	Password phrase enveloping
<b>ICHH21F</b> <b>ICHHE02</b> <b>ICHP22F</b>	ICHH22F ICHP21F	z/OS V1R10	Updated to support Kerberos password phrase	Kerberos password phrase
<b>ICHH7A</b>	ICHPB71	z/OS V1R10	Updated to support IPv6	IPv6 support
<b>ICHH715</b>		z/OS V1R10	Updated to support 4096-bit key	4096-bit key support

## SMF records

Table 164 lists the new and changed RACF SMF records. See *z/OS Security Server RACF Macros and Interfaces* and *z/OS Security Server RACF Auditor's Guide* for more detailed information.

Table 164. Summary of new and changed RACF SMF records

Record type	Event code/field name	Release	Description	Reason for change						
Type 80	All event codes, except 68(44), 71(47), 79(4F), 81(51), 82(52), and 85(55)	z/OS V1R11	Added relocate sections 424 and 425.	Distributed identity filters						
	Event code 66(42)	z/OS V1R12	Added the following bit definitions for byte 2:  <table border="0"> <tr> <td><b>Bit</b></td> <td><b>Keyword specified</b></td> </tr> <tr> <td>0</td> <td>NISTECC</td> </tr> <tr> <td>1</td> <td>BPECC</td> </tr> </table>	<b>Bit</b>	<b>Keyword specified</b>	0	NISTECC	1	BPECC	Keys generated with elliptic curve cryptography (ECC) algorithms
	<b>Bit</b>	<b>Keyword specified</b>								
	0	NISTECC								
	1	BPECC								
	Event code 69(45)	z/OS V1R12	Added relocate sections 426, 427, and 428.	PKI Services						
			z/OS V1R11	Added relocate sections 422, 424, and 425.	PKI Services					
	Event code 70(46)	z/OS V1R11	Added relocate sections 421, 424, and 425.	PKI Services						
	Event code 72(48)	z/OS V1R11	Added relocate sections 421, 424, and 425.	PKI Services						
	Event code 73(49)	z/OS V1R12	Added relocate sections 427 and 428.	PKI Services						
	Event code 74(4A)	z/OS V1R11	Added relocate sections 423, 424, and 425.	PKI Services						
	Event code 83(53)	z/OS V1R12	Added relocate sections 427 and 428.	PKI Services						
	Event code 86(56)	z/OS V1R11	<b>New:</b> Added to support R_PgmSignVer.	Program signing and verification. Also, APARs OA26109 and OA26110.						
Event code 87(57)	z/OS V1R11	<b>New:</b> Added to support RACMAP.	Distributed identity filters							
Event code 88(58)	z/OS V1R11	<b>New:</b> Added to support AUTOPROF.	Automatic UID and GID assignment in callable services							
Event code 89(59)	z/OS V1R11	<b>New:</b> Added to support RPKIQREC.	PKI Services							

Table 164. Summary of new and changed RACF SMF records (continued)

Record type	Event code/field name	Release	Description	Reason for change
Type 80 (continued)	Table of extended-length relocate section variable data	z/OS V1R12	<b>New:</b> 426(1AA), 427(1AB), and 428(1AC)	<ul style="list-style-type: none"> <li>Keys generated with elliptic curve cryptography (ECC) algorithms</li> <li>PKI Services</li> </ul>
		z/OS V1R11	Updated: 318(13E), 319(13F), 340(154), 341(155), 342(156), 346(15A), 347(15B), 348(15C), 349(15D), 350(15E), 351(15F), 357(165), 358(166), 359(167), 363(16B), 373(175), 375(177), 376(178), 377(179), 378(17A), 388(184), and 391(187) to support events code 83, 85, and 89.	PKI Services
			<b>New:</b> 409(199), 410(19A), 412(19C), 413(19D), 414(19E), 415(19F), 416(1A0), 417(1A1), 418(1A2), 419(1A3), 420(1A4), 421(1A5), 422(1A6), and 423(1A7)	<ul style="list-style-type: none"> <li>Program signing and verification. Also, APARs OA26109 and OA26110.</li> <li>Distributed identity filters</li> <li>Automatic UID and GID assignment in callable services</li> <li>PKI Services</li> </ul>
	SMF80VRM	z/OS V1R12	Updated for FMID 7770.	Release update
		z/OS V1R11	Updated for FMID 7760.	Release update
		z/OS V1R10	Updated for FMID 7750.	Release update
	Type 81	RINI_FLD_VAL_EXIT	z/OS V1R10	<b>New:</b> Added to support the IRRVAF01 field validation exit.
SMF81VRM		z/OS V1R12	Updated for FMID 7770.	Release update
		z/OS V1R11	Updated for FMID 7760.	Release update
		z/OS V1R10	Updated for FMID 7750.	Release update
Type 83	Security events	z/OS V1R11	<b>New:</b> Added subtypes 5 and 6	Support for WebSphere® Application Server and Tivoli Key Lifecycle Manager
			Added relocate sections 14(E) and 15(F) for subtypes 2 and above.	Distributed identity filters
		z/OS V1R10	<b>New:</b> Added subtypes 3 and 4	Custom fields
	SMF83VRM	z/OS V1R12	Updated for FMID 7770.	Release update
		z/OS V1R11	Updated for FMID 7760.	Release update
		z/OS V1R10	Updated for FMID 7750.	Release update

## Utilities

Table 165 lists the new and changed RACF utilities. For information about the IRRDBU00 and IRRRID00 utilities, see *z/OS Security Server RACF Security Administrator's Guide*. For information about the IRRADU00 utility, see *z/OS Security Server RACF Auditor's Guide*. For more information about other RACF utilities, see *z/OS Security Server RACF System Programmer's Guide*.

Table 165. Summary of new and changed RACF utilities

Utility name	Release	Description	Reason for change
IRRADU00	z/OS V1R12	<ul style="list-style-type: none"> <li>Updated to unload updated SMF type 80 records event codes 69, 73, and 83.</li> <li>A new <b>Writing your own Application</b> subsection has been added</li> <li>Logical record lengths have been modified for OUTDD, XMLFORM DD, and XMLOUT DD.</li> <li>An attention notice has been added to IRRADU00 examples.</li> </ul>	<ul style="list-style-type: none"> <li>PKI Services</li> <li>A reminder that IRRADU00 output can change with new releases of z/OS or when service is applied.</li> <li>The extension of the blocksize of the IRRADU00 data set. This occurs when a record grows beyond the current LRECL size.</li> <li>Reduce confusion regarding SMF utility's use of parameter called OUTDD.</li> </ul>
	z/OS V1R11	<ul style="list-style-type: none"> <li>Updated to unload SMF type 80 records event code 88.</li> <li>Updated to unload SMF Type 83 subtype 5 and 6 records.</li> </ul>	<ul style="list-style-type: none"> <li>Automatic UID and GID assignment in callable services</li> <li>Support for WebSphere Application Server and Tivoli Key Lifecycle Manager</li> </ul>
IRRDBU00	z/OS V1R12	<ul style="list-style-type: none"> <li>Updated to support the updated CERTPRVT field of the CERTDATA segment of the general template.</li> <li>Updated to support the new CSFSCPW field of the ICSF segment in the general template.</li> </ul>	<ul style="list-style-type: none"> <li>Keys generated with elliptic curve cryptography (ECC) algorithms</li> <li>Support of ICSF encrypted symmetric keys and CP Assist for Cryptographic Function (CPACF). Also, APAR OA29193.</li> </ul>
	z/OS V1R11	<ul style="list-style-type: none"> <li>Updated to support the ICSF segment for general resource profiles.</li> <li>Updated to support the SIGVER segment in general resource profiles.</li> <li>Updated to support identity mapping fields in the base segments of user and general resource profiles.</li> </ul>	<ul style="list-style-type: none"> <li>ICSF segment for general resource profiles</li> <li>Program signing and verification. Also, APARs OA26109 and OA26110.</li> <li>Distributed identity filters</li> </ul>
	z/OS V1R10	Updated to support the CSDATA segment in user and group profiles, and the CFDEF segment in general resource profiles.	Custom fields
IRRRID00	z/OS V1R11	Updated to create RACMAP DELMAP commands to clean up IDIDMAP profiles and to locate residual user IDs in IDIDMAP profiles.	Distributed identity filters
	z/OS V1R10	Updated to detect profiles in the FACILITY class that contain a user ID or group ID as a qualifier in the profile name.	Password resetting

## Chapter 33. SMP/E summary of interface changes

In addition to the interface changes included in this chapter, updates to SMP/E have resulted in SYS1.SAMPLIB member changes. See Chapter 5, “Summary of changes to SYS1.SAMPLIB,” on page 13 for those changes.

The SMP/E interfaces described in this chapter are:

- “Commands”
- “Data sets and files” on page 244
- “Exits” on page 244
- “Macros” on page 244
- “Modification control statements (MCS)” on page 244
- “Panels” on page 245
- “Programming interfaces” on page 248
- “Service routines” on page 248

### Commands

Table 166 lists the new and changed SMP/E commands. See *SMP/E Commands* for more detailed information about these commands.

Table 166. Summary of new and changed SMP/E commands

Command	Release	Description	Reason for change
ACCEPT	SMP/E V3R5	<ul style="list-style-type: none"> <li>• <b>Changed:</b> EXSRCID and SOURCEID operands</li> <li>• <b>New:</b> FIXCAT operand</li> </ul>	Release update
APPLY	SMP/E V3R5	<ul style="list-style-type: none"> <li>• <b>Changed:</b> EXSRCID and SOURCEID operands</li> <li>• <b>New:</b> FIXCAT operand</li> </ul>	Release update
GZONEMERGE	SMP/E V3R4	<b>Changed:</b> enhanced support for RECEIVE ORDER processing	Release update
JCLIN	SMP/E V3R5	<b>Changed:</b> Miscellaneous changes.	Release update
LIST	SMP/E V3R5	<ul style="list-style-type: none"> <li>• <b>Changed:</b> EXSRCID and SOURCEID operands</li> <li>• <b>New:</b> HOLDFIXCAT operand</li> </ul>	Release update
	SMP/E V3R4	<b>New:</b> ORDER operand	Release update
RECEIVE	SMP/E V3R4	<b>New:</b> ORDER operand	Release update
REJECT	SMP/E V3R5	<b>Changed:</b> SOURCEID operand	Release update
REPORT MISSINGFIX	SMP/E V3R5	<b>New:</b> command to determine whether any FIXCAT APARs exist that are applicable but are not installed yet, and whether any SYSMODs are available to satisfy the missing FIXCAT APARs	Release update
UCLIN	SMP/E V3R5	<b>New:</b> FIXCAT operand	Release update
	SMP/E V3R4	<b>Changed:</b> enhanced support for deleting ORDER entries from the global zone	Release update
UNLOAD	SMP/E V3R5	<b>Changed:</b> EXSRCID and SOURCEID operands	Release update

Table 166. Summary of new and changed SMP/E commands (continued)

Command	Release	Description	Reason for change
ZONEEDIT	SMP/E V3R5	<b>Changed:</b> enhanced support for adding certain subentries to selected SMP/E entries in the same zone	Release update

## Data sets and files

Table 167 lists the changes to the SMP/E data sets and files for this release. See *SMP/E Reference* for more detailed information about these data sets and files.

Table 167. Summary of new and changed SMP/E data sets

Data set	Release	Description	Reason for change
CLIENT	SMP/E V3R4	<b>New:</b> <i>classpath</i> and <i>javadebugoptions</i> attributes and <HTTPPROXY> and <HTTPOCKSPROXY> sections for RECEIVE ORDER processing	Release update
ORDERSERVER	SMP/E V3R4	<b>New:</b> for RECEIVE ORDER processing	Release update
SMPCSI	SMP/E V3R4	<b>New:</b> ORDER entry in the global zone, and ORDERRET subentry on the OPTIONS entry in the global zone	Release update
SMPHRPT	SMP/E V3R5	<b>New:</b> for ACCEPT, APPLY, and RECEIVE processing	Release update

## Exits

There are no new or changed SMP/E exits for SMP/E V3R5 and SMP/E V3R4.

## Macros

There are no new or changed SMP/E macros for SMP/E V3R5 and SMP/E V3R4.

## Modification control statements (MCS)

Table 168 lists the changes to the SMP/E MCSs.

Table 168. Summary of new and changed SMP/E MCSs

Macro	Release	Description	Reason for change
++ASSIGN MCS	SMP/E V3R5	<b>Changed:</b> Enhanced support for long source IDs	Release update
++HOLD MCS	SMP/E V3R5	<b>New:</b> FIXCAT operand	Release update
++RELEASE MCS	SMP/E V3R5	<b>New:</b> FIXCAT operand	Release update

## Panels

Table 169 lists the new and changed SMP/E panels. Some panels may be updated by more than one release enhancement.

Table 169. Summary of new and changed SMP/E panels

Panel name	Release	Description	Reason for change
GIM@PRIM	SMP/E V3R4	Updated	Release update
GIMCGACA	SMP/E V3R5	Updated	Release update
GIMCGAPA	SMP/E V3R5	Updated	Release update
GIMCGFC	SMP/E V3R5	Updated	Release update
GIMCGHFC	SMP/E V3R5	Updated	Release update
GIMCGLST	SMP/E V3R4	Updated	Release update
GIMCGRD2	SMP/E V3R4	Deleted	Release update
GIMCGRDI	SMP/E V3R4	Deleted	Release update
GIMCGRPE	SMP/E V3R5	New	Release update
GIMCGRPS	SMP/E V3R5	Updated	Release update
GIMCGRV1	SMP/E V3R4	New	Release update
GIMCGRV2	SMP/E V3R4	New	Release update
GIMCGRV3	SMP/E V3R4	New	Release update
GIMCGRV4	SMP/E V3R4	New	Release update
GIMCGRV5	SMP/E V3R4	New	Release update
GIMCGRV5	SMP/E V3R5	Updated	Release update
GIMCGRVA	SMP/E V3R4	New	Release update
GIMCGRVE	SMP/E V3R4	Updated	Release update
GIMCGRVP	SMP/E V3R4	New	Release update
GIMCGRVZ	SMP/E V3R4	New	Release update
GIMCGSE	SMP/E V3R4	Updated	Release update
GIMCGSRC	SMP/E V3R5	Updated	Release update
GIMCGXSR	SMP/E V3R5	Updated	Release update
GIMDFHC2	SMP/E V3R5	Updated	Release update
GIMDFHC	SMP/E V3R5	New	Release update
GIMDFOC	SMP/E V3R5	Updated	Release update
GIMFCEN	SMP/E V3R5	New	Release update
GIMFCE	SMP/E V3R5	New	Release update
GIMFCEU	SMP/E V3R5	New	Release update
GIMFCEV	SMP/E V3R5	New	Release update
GIMHCAC	SMP/E V3R5	Updated	Release update
GIMHCAP	SMP/E V3R5	Updated	Release update
GIMHCBH	SMP/E V3R5	Updated	Release update
GIMHCFC2	SMP/E V3R5	Updated	Release update
GIMHCFC	SMP/E V3R5	Updated	Release update
GIMHCHF	SMP/E V3R5	Updated	Release update

Table 169. Summary of new and changed SMP/E panels (continued)

Panel name	Release	Description	Reason for change
GIMHCRP5	SMP/E V3R5	<b>New</b>	Release update
GIMHCRPS	SMP/E V3R5	<b>Updated</b>	Release update
GIMHCRPY	SMP/E V3R5	<b>New</b>	Release update
GIMHDHC2	SMP/E V3R5	<b>New</b>	Release update
GIMHDHC	SMP/E V3R5	<b>New</b>	Release update
GIMHFCEN	SMP/E V3R5	<b>New</b>	Release update
GIMHFCE	SMP/E V3R5	<b>New</b>	Release update
GIMHFCEU	SMP/E V3R5	<b>New</b>	Release update
GIMHFCEV	SMP/E V3R5	<b>New</b>	Release update
GIMHICA1	SMP/E V3R5	<b>Updated</b>	Release update
GIMHICB1	SMP/E V3R5	<b>Updated</b>	Release update
GIMHICD1	SMP/E V3R5	<b>Updated</b>	Release update
GIMHICE0	SMP/E V3R5	<b>Updated</b>	Release update
GIMHICF1	SMP/E V3R5	<b>Updated</b>	Release update
GIMHICVA	SMP/E V3R5	<b>Updated</b>	Release update
GIMHIFC2	SMP/E V3R5	<b>New</b>	Release update
GIMHIFC	SMP/E V3R5	<b>New</b>	Release update
GIMHIPA1	SMP/E V3R5	<b>Updated</b>	Release update
GIMHIPB0	SMP/E V3R5	<b>Updated</b>	Release update
GIMHIPD1	SMP/E V3R5	<b>Updated</b>	Release update
GIMHIPVA	SMP/E V3R5	<b>Updated</b>	Release update
GIMHIRDO	SMP/E V3R5	<b>New</b>	Release update
GIMHIXA1	SMP/E V3R5	<b>Updated</b>	Release update
GIMHIXA	SMP/E V3R5	<b>Updated</b>	Release update
GIMHIXE	SMP/E V3R5	<b>Updated</b>	Release update
GIMHIXH	SMP/E V3R5	<b>Updated</b>	Release update
GIMHIXJ	SMP/E V3R5	<b>Updated</b>	Release update
GIMHIXL	SMP/E V3R5	<b>New</b>	Release update
GIMHOC0	SMP/E V3R5	<b>Updated</b>	Release update
GIMHOH0	SMP/E V3R5	<b>Updated</b>	Release update
GIMHQ011	SMP/E V3R5	<b>Updated</b>	Release update
GIMHQ226	SMP/E V3R5	<b>Updated</b>	Release update
GIMHQ27A	SMP/E V3R5	<b>New</b>	Release update
GIMHQ28A	SMP/E V3R5	<b>Updated</b>	Release update
GIMHQ28B	SMP/E V3R5	<b>Updated</b>	Release update
GIMHQ28C	SMP/E V3R5	<b>New</b>	Release update
GIMHQI00	SMP/E V3R5	<b>Updated</b>	Release update
GIMHQI1H	SMP/E V3R5	<b>Updated</b>	Release update
GIMHQI27	SMP/E V3R5	<b>Updated</b>	Release update
GIMHQI28	SMP/E V3R5	<b>Updated</b>	Release update



Table 169. Summary of new and changed SMP/E panels (continued)

Panel name	Release	Description	Reason for change
GIMHRDPO	SMP/E V3R5	Updated	Release update
GIMHXA3B	SMP/E V3R5	Updated	Release update
GIMHXC1	SMP/E V3R5	Updated	Release update
GIMHXD1	SMP/E V3R5	New	Release update
GIMHXM1	SMP/E V3R5	New	Release update
GIMHXO1	SMP/E V3R5	Updated	Release update
GIMHXO2A	SMP/E V3R5	New	Release update
GIMHXO2	SMP/E V3R5	Updated	Release update
GIMHXO4	SMP/E V3R5	Updated	Release update
GIMHXQ2	SMP/E V3R5	Updated	Release update
GIMHXQ3	SMP/E V3R5	Updated	Release update
GIMHXT1	SMP/E V3R5	New	Release update
GIMISACA	SMP/E V3R5	Updated	Release update
GIMISACB	SMP/E V3R5	Updated	Release update
GIMISACD	SMP/E V3R5	Updated	Release update
GIMISACE	SMP/E V3R5	Updated	Release update
GIMISACF	SMP/E V3R5	Updated	Release update
GIMISACV	SMP/E V3R5	Updated	Release update
GIMISAPA	SMP/E V3R5	Updated	Release update
GIMISAPB	SMP/E V3R5	Updated	Release update
GIMISAPD	SMP/E V3R5	Updated	Release update
GIMISAPV	SMP/E V3R5	Updated	Release update
GIMISEXA	SMP/E V3R5	Updated	Release update
GIMISEXE	SMP/E V3R5	Updated	Release update
GIMISEXH	SMP/E V3R5	Updated	Release update
GIMISEXJ	SMP/E V3R5	Updated	Release update
GIMISEXL	SMP/E V3R5	Updated	Release update
GIMISFC	SMP/E V3R5	New	Release update
GIMISIDC	SMP/E V3R5	Updated	Release update
GIMISIDF	SMP/E V3R5	Updated	Release update
GIMISIDN	SMP/E V3R5	Updated	Release update
GIMISIDO	SMP/E V3R5	Updated	Release update
GIMISIDS	SMP/E V3R5	Updated	Release update
GIMISIDT	SMP/E V3R5	Updated	Release update
GIMODELC	SMP/E V3R4	New	Release update
GIMODELC	SMP/E V3R5	Updated	Release update
GIMODELP	SMP/E V3R5	New	Release update
GIMODLCP	SMP/E V3R4	New	Release update
GIMORDPO	SMP/E V3R4	New	Release update
GIMQIT11	SMP/E V3R4	Updated	Release update

Table 169. Summary of new and changed SMP/E panels (continued)

Panel name	Release	Description	Reason for change
GIMQIT1H	SMP/E V3R5	<b>Updated</b>	Release update
GIMQIT26	SMP/E V3R5	<b>Updated</b>	Release update
GIMQIT31	SMP/E V3R4	<b>New</b>	Release update
GIMQIX31	SMP/E V3R4	<b>New</b>	Release update
GIMQU1PO	SMP/E V3R4	<b>Updated</b>	Release update
GIMQU2PO	SMP/E V3R4	<b>Updated</b>	Release update
GIMQUSE1	SMP/E V3R4	<b>Updated</b>	Release update
GIMQUSE2	SMP/E V3R4	<b>Updated</b>	Release update
GIMQUSE3	SMP/E V3R5	<b>Updated</b>	Release update
GIMQUSEB	SMP/E V3R5	<b>Updated</b>	Release update
GIMQUSEC	SMP/E V3R4	<b>Updated</b>	Release update
GIMRCCU	SMP/E V3R5	<b>Updated</b>	Release update
GIMRCFU	SMP/E V3R5	<b>Updated</b>	Release update
GIMRCOT	SMP/E V3R5	<b>Updated</b>	Release update
GIMRCPDI	SMP/E V3R5	<b>Updated</b>	Release update
GIMRCPUI	SMP/E V3R5	<b>Updated</b>	Release update
GIMWHLDF	SMP/E V3R5	<b>New</b>	Release update
GIMWHRPT	SMP/E V3R5	<b>New</b>	Release update
GIMWNETR	SMP/E V3R5	<b>New</b>	Release update
GIMWNFO	SMP/E V3R5	<b>New</b>	Release update
GIMWORDP	SMP/E V3R5	<b>New</b>	Release update
GIMWRCVO	SMP/E V3R5	<b>New</b>	Release update
GIMWREDO	SMP/E V3R5	<b>New</b>	Release update
GIMWREPM	SMP/E V3R5	<b>New</b>	Release update
GIMWT340	SMP/E V3R4	<b>Updated</b>	Release update
GIMWT350	SMP/E V3R5	<b>Updated</b>	Release update
GIMWTLSI	SMP/E V3R5	<b>New</b>	Release update
GIMWTUTA	SMP/E V3R5	<b>New</b>	Release update
GIMWTUUT	SMP/E V3R5	<b>New</b>	Release update
GIMWZED	SMP/E V3R5	<b>New</b>	Release update

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## Programming interfaces

There are no new or changed SMP/E programming interfaces for SMP/E V3R5 and SMP/E V3R4.

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## Service routines

There are no new or changed SMP/E service routines for SMP/E V3R5 and SMP/E V3R4.

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## Chapter 34. TSO/E summary of interface changes

In addition to the message and interface changes included in this chapter, updates to TSO/E might have resulted in SYS1.MACLIB, SYS1.PARMLIB and SYS1.SAMPLIB member changes. See Chapter 2, “Summary of changes to SYS1.MACLIB,” on page 5, Chapter 3, “Summary of changes to SYS1.PARMLIB,” on page 7 and Chapter 5, “Summary of changes to SYS1.SAMPLIB,” on page 13 for those changes.

The TSO/E interfaces described in this chapter are:

- Commands
- Macros
- Panels

---

### Commands

Table 170 lists the updated commands. See *z/OS TSO/E Command Reference* for more detailed information.

Table 170. Summary of changed TSO/E commands

Command	Release	Description	Reason for change
ALLOCATE	z/OS V1R12	<b>Updated:</b> The operand DSNTYPE has been updated for the ALLOCATE command.	Release update
LINK	z/OS V1R12	<b>Updated:</b> The description of the COMPAT operand for the LINK command has been updated to add new values.	Release update
	z/OS V1R11	<b>Updated:</b> New option SIGN/NOSIGN has been added for the LINK command.	Release update
LISTALC	z/OS V1R12	<b>Updated:</b> The operand HISTORY has been updated for DSORG for the LISTALC command.	Release update
LOGON	z/OS V1R11	<b>Updated:</b> New PARMLIB option LOGONHERE(ON) allows users to RECONNECT to their TSO/E session, even when the system does not detect a disconnected state and the user appears to be logged on. The default setting is ON.	Release update
PARMLIB	z/OS V1R10	<b>Updated:</b> New option LIST(LOGON) has been added for the PARMLIB LIST parameter.	Release update

## TSO/E

Table 170. Summary of changed TSO/E commands (continued)

Command	Release	Description	Reason for change
RECEIVE	z/OS V1R11	<b>Updated:</b> Before z/OS V1R9, TSO/E would allocate a data set during RECEIVE command processing without using the AVGREC option. In z/OS V1R9 and V1R10, TSO/E allocated a data set during RECEIVE command processing using the AVGREC option. As a result, the ISPF data set information panel displayed the size of the data set in bytes; before z/OS V1R9, the size of the data set was displayed in blocks or tracks. Now, in z/OS V1R11, the behavior is changed back to what it was in z/OS V1R8 and earlier.	Release update
TERMINAL	z/OS V1R12	<b>Updated:</b> Obsolete information about TCAM has been removed from TERMINAL command operands.	Release update

## Macros

Table 171 lists the new and changed macros.

Table 171. Summary of new and changed TSO/E macros

Macros	Release	Description	Reason for change
	z/OS V1R12	<b>Updated:</b> Changed the Execute and List Forms of TPG	Release update
GTERM	z/OS V1R11	<b>Updated:</b> Changed the TERMID description.	Release update
IKJTSVT	z/OS V1R11	<b>Updated:</b> Added new flag bit for the new TSO/E PARMLIB option LOGONHERE to TSVTFLG1 flag byte.	Release update
	z/OS V1R10	<b>Updated:</b> Adds new flag bits for the new TSO/E PARMLIB options to TSVTFLG1 flags.	Release update
INMTEXTU	z/OS V1R11	<b>Updated:</b> Added new text unit called INMEATTR.	Release update
IRXPARMB	z/OS V1R11	<b>Updated:</b> Added new flag bits ROSTORFL and ROSTORFL_MASK to support the read-only version of the REXX STORAGE function.	Release update
TPUT	z/OS V1R12	<b>Updated:</b> Added new return codes to the TPUT maro.	Release update
	z/OS V1R12	<b>Updated:</b> Changed the Execute, Standard and List Forms of TPUT.	Release update
TPG	z/OS V1R12	<b>Updated:</b> Added new return codes to the TPG maro.	Release update
	z/OS V1R12	<b>Updated:</b> Changed the Execute and List Forms of TPG.	Release update

## Panels

There are no new or changed TSO/E panels in z/OS V1R12 or z/OS V1R11. Table 172 lists the new and changed TSO/E panels.

Table 172. Summary of new and changed TSO/E panels

Command	Release	Description	Reason for change
IKJLHENP	z/OS V1R10	<b>Updated:</b> Logon help panel for both logon panels in uppercase English.	Release update
IKJLHENU	z/OS V1R10	<b>Updated:</b> Logon help panel for both logon panels in mixed-case English.	Release update
IKJLHENP	z/OS V1R10	<b>New:</b> Logon panel for password phrases in uppercase English, or ENP.	Release update
IKJLQENU	z/OS V1R10	<b>New:</b> Logon panel for password phrases in mixed-case English, or ENU.	Release update

TSO/E

## Chapter 35. XL C/C++ summary of interface changes

### Compiler options

Table 173 lists the new and updated XL C/C++ compiler options. See *z/OS XL C/C++ User's Guide* for more detailed information.

Table 173. Summary of new and changed XL C/C++ compiler options

Compiler option	Release	Description	Reason for change
LANGLVL(AUTOTYPE DEDUCTION)	z/OS V1R12	<b>New value:</b> When LANG(AUTOTYPEDEDUCTION) is in effect, you do not need to specify a type when declaring a variable. Instead, the compiler deduces the type of an auto variable from the type of its initializer expression.	Release update
LANGLVL(C99LONG LONG)	z/OS V1R12	<b>New value:</b> When LANG(C99LONGLONG) is in effect, the C++ compiler provides the C99 long long with IBM extensions feature.	Release update
LANGLVL(C99PRE PROCESSOR)	z/OS V1R12	<b>New value:</b> When LANG(C99PREPROCESSOR) is in effect, C99 and C++0x compilers provide a common preprocessor interface, which can ease the porting of C source files to the C++ compiler and avoid preprocessor compatibility issues.	Release update
LANGLVL(DECLTYPE)	z/OS V1R12	<b>New value:</b> When LANG(DECLTYPE) is in effect, decltype can be used on an expression to get the resultant type of that expression, which might be type dependent.	Release update
LANGLVL(DELEGATING CTORS)	z/OS V1R12	<b>New value:</b> When LANG(DELEGATINGCTORS) is specified, you can concentrate common initializations and post initializations in one constructor, which improves the readability and maintainability of the program.	Release update
LANGLVL(EXTENDED INTEGERSAFE)	z/OS V1R12	<b>New value:</b> With this option, if a decimal integer literal that does not have a suffix containing u or U cannot be represented by the long long int type, you can decide whether to use the unsigned long long int to represent the literal.	Release update
LANGLVL(INLINE NAMESPACE)	z/OS V1R12	<b>New value:</b> When you specify the LANGLVL(INLINENAMESPACE) option, members of the inline namespace can be defined and specialized as if they were also members of the enclosing namespace.	Release update
LANGLVL(STATIC_ ASSERT)	z/OS V1R12	<b>New value:</b> When LANGLVL(STATIC_ASSERT) is set, a severe error message for compile time assertions is issued on failure.	Release update
LANGLVL(VARIADIC TEMPLATES)	z/OS V1R12	<b>New value:</b> When LANGLVL(VARIADICTEMPLATES) is set, you can define class and function templates that have any number (including zero) of parameters.	Release update

## XL C/C++

Table 173. Summary of new and changed XL C/C++ compiler options (continued)

Compiler option	Release	Description	Reason for change
NAMEMANGLING(zOS V1R12_ANSI)	z/OS V1R12	<b>New value:</b> NAMEMANGLING(zOSV1R12_ANSI) is compatible with z/OS XL C++ V1R12 link modules that were created with NAMEMANGLING(ANSI) or #pragma namemangling(ansi).	Release update
TARGET(zOSV1R12)	z/OS V1R12	<b>New value:</b> TARGET(zOSV1R12) generates object code to run under z/OS Version 1 Release 12 and subsequent releases.	Release update
EPILOG(EXTERN)	z/OS V1R11	<b>New value:</b> If the EPILOG option is specified with the EXTERN suboption or without any suboption, the epilog applies to all functions that have external linkage in the compilation unit.	Release update
EPILOG(ALL)	z/OS V1R11	<b>New value:</b> If the EPILOG option is specified with the ALL suboption, the epilog also applies to static functions defined in the compilation unit.	Release update
LANGLVL(EXTENDED0X)	z/OS V1R11	<b>New value:</b> LANGLVL(EXTENDED0X) is created to compile code using all the features of the new version of the C++ standard (C++0x) that are implemented in IBM XL C/C++ for z/OS V1R11. (This option applies to the C++ compiler only.) <b>Note:</b> C++0x is a new version of the standard for the C++ programming language. This is a draft standard and has not been officially adopted in its entirety. Note that future levels of support for this standard are likely to change. The implementation of this language level is based on IBM's interpretation of the draft C++0x standard, and is subject to change at any time without notice. IBM will make no attempt to maintain compatibility with earlier releases, in source or binary, of the new C++0x LANGLVL suboptions (their names or their semantics) and therefore they should not be relied on as a stable programming interface.	Release update
LANGLVL(EXTENDED FRIEND)	z/OS V1R11	<b>New value:</b> LANGLVL(EXTENDED FRIEND) supports the new version of the C++ standard (C++0x). It enables extended friend declarations which relax rules governing friend declarations for ease of use. (This option applies to the C++ compiler only.)	Release update
LANGLVL(EXTERN TEMPLATE)	z/OS V1R11	<b>New value:</b> LANGLVL(EXTERN TEMPLATE) supports the new version of the C++ standard (C++0x). It enables explicit instantiation declarations which provide the user the ability to suppress implicit instantiation of template specializations or members of the same. (This option applies to the C++ compiler only.)	Release update
LANGLVL(DEPENDENT BASELOOKUP)	z/OS V1R11	<b>New value:</b> LANGLVL(DEPENDENTBASELOOKUP) controls whether the name lookup rules for a template base class of dependent type defined in the Technical Corrigendum 1 (TC1) of the C++ Standard apply. (This option applies to the C++ compiler only.)	Release update



Table 173. Summary of new and changed XL C/C++ compiler options (continued)

Compiler option	Release	Description	Reason for change
-M [ <i>source_file</i> ]	z/OS V1R11	<b>New option:</b> -M analyzes each source file to determine what dependency it has on other files and places this information into an output file. <i>source_file</i> is the name of an xlc source file.	Release update
-MF [ <i>file</i> ]	z/OS V1R11	<b>New option:</b> -MF is used in conjunction with -M and this option provides a path name of a file in which the compiler will display dependency information. <i>file</i> can be the file name, the target output path, or both the name and the target output path.	Release update
MAKEDEP	z/OS V1R11	<b>New option:</b> MAKEDEP analyzes each source file to determine what dependency it has on other files and places this information into an output file.	Release update
NAMEMANGLING(zOS V1R11_ANSI)	z/OS V1R11	<b>New value:</b> NAMEMANGLING(zOSV1R11_ANSI) is compatible with z/OS XL C++ V1R11 link modules that were created with NAMEMANGLING(ANSI) or #pragma namemangling(ansi).	Release update
NAMEMANGLING(zOS V1R10_ANSI)	z/OS V1R11	<b>New value:</b> NAMEMANGLING(zOSV1R10_ANSI) is compatible with z/OS XL C++ V1R10 link modules that were created with NAMEMANGLING(ANSI) or #pragma namemangling(ansi).	Release update
NAMEMANGLING(zOS V1R9_ANSI)	z/OS V1R11	<b>New value:</b> NAMEMANGLING(zOSV1R9_ANSI) is compatible with z/OS XL C++ V1R9 link modules that were created with NAMEMANGLING(ANSI) or #pragma namemangling(ansi).	Release update
NAMEMANGLING(zOS V1R8_ANSI)	z/OS V1R11	<b>New value:</b> NAMEMANGLING(zOSV1R8_ANSI) is compatible with z/OS XL C++ V1R8 link modules that were created with NAMEMANGLING(ANSI) or #pragma namemangling(ansi).	Release update
NAMEMANGLING(zOS V1R7_ANSI)	z/OS V1R11	<b>New value:</b> NAMEMANGLING(zOSV1R7_ANSI) is compatible with z/OS XL C++ V1R7 link modules that were created with NAMEMANGLING(ANSI) or #pragma namemangling(ansi).	Release update
NAMEMANGLING(OS V2R10)	z/OS V1R11	<b>New value:</b> NAMEMANGLING(OSV2R10) is compatible with the link modules created by OS/390 C++ V2R10 or previous versions, or with link modules that were created with NAMEMANGLING(COMPAT) or #pragma namemangling(compat).	Release update
PREFETCH	z/OS V1R11	<b>New option:</b> PREFETCH inserts prefetch instructions automatically where there are opportunities to improve code performance.	Release update
PROLOG(EXTERN)	z/OS V1R11	<b>New value:</b> If the PROLOG option is specified with the EXTERN suboption or without any suboption, the prolog applies to all functions that have external linkage in the compilation unit.	Release update
PROLOG(ALL)	z/OS V1R11	<b>New value:</b> If the PROLOG option is specified with the ALL suboption, the prolog also applies to static functions defined in the compilation unit.	Release update

## XL C/C++

Table 173. Summary of new and changed XL C/C++ compiler options (continued)

Compiler option	Release	Description	Reason for change
REPORT	z/OS V1R11	<b>New option:</b> REPORT produces pseudo-C code listing files that show how sections of code have been optimized in both compile and link phases, when IPA is active.	Release update
RTCHECK	z/OS V1R11	<b>New option:</b> RTCHECK generates compare-and-trap instructions that performs certain types of runtime checking.	Release update
SHOWMACROS	z/OS V1R11	<b>New option:</b> SHOWMACROS displays macro definitions to preprocessed output.	Release update
SKIPSRC	z/OS V1R11	<b>New option:</b> When a listing file is generated using the SOURCE option, SKIPSRC determines whether the source statements skipped by the compiler are shown in the source section of the listing file.	Release update
TARGET(zOSV1R11)	z/OS V1R11	<b>New value:</b> TARGET(zOSV1R11) generates object code to run under z/OS Version 1 Release 11 and subsequent releases.	Release update
WARN0X	z/OS V1R11	<b>New value:</b> WARN0X controls whether to inform users with messages about differences in their programs caused by the migration from C++98 standard to C++0x standard. (This option applies to the C++ compiler only.) <b>Note:</b> C++0x is a new version of the standard for the C++ programming language. This is a draft standard and has not been officially adopted in its entirety. The implementation of this language level is based on IBM's interpretation of the draft C++0x standard and is subject to change at any time without notice. IBM will make no attempt to maintain compatibility with earlier releases and therefore the C++0x language extension should not be relied on as a stable programming interface.	Release update

## Cataloged procedures

Table 174 lists the new and updated cataloged procedures. See *z/OS XL C/C++ User's Guide* for more detailed information.

Table 174. Summary of new and changed XL C/C++ cataloged procedures

Cataloged procedure	Release	Description	Reason for change
CDADBGLD	z/OS V1R11	<b>New procedure:</b> CDADBGLD opens all of the debug side files associated with the module and stores all of the functions, global variables, external types, and source files in a module map.	Release update

## Commands

Table 175 lists the new commands for the dbgld utility. See *z/OS XL C/C++ User's Guide* for more detailed information.

Table 175. Summary of dbgld commands

Command	Release	Description	Reason for change
dbgld [ <i>option</i> ]	z/OS V1R11	<b>New parameter:</b> <i>option</i> can be -c. It adds captured source from all source files that contain executable lines of code to the module map file.	Release update
dbgld [ <i>option</i> ]	z/OS V1R10	<b>New command:</b> dbgld creates a module map for debugging. <i>option</i> can be -v which writes the version information to stderr.	Release update
dbgld [ <i>option</i> ] file	z/OS V1R10	<b>New option:</b> file is the module name and may be: <ul style="list-style-type: none"> <li>• The absolute path name of a z/OS UNIX System Services file.</li> <li>• The relative path name of a z/OS UNIX System Services file.</li> <li>• A fully qualified MVS data set (PDS member).</li> </ul>	Release update



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## Chapter 36. z/OS UNIX summary of interface changes

In addition to the interface changes included in this chapter, updates to z/OS UNIX might have resulted in SYS1.PARMLIB and SYS1.SAMPLIB member changes. See Chapter 3, “Summary of changes to SYS1.PARMLIB,” on page 7 and Chapter 5, “Summary of changes to SYS1.SAMPLIB,” on page 13 for those changes.

The z/OS UNIX interfaces described in this chapter are:

- “Callable services”
- “Configuration files” on page 260
- “Daemons” on page 260
- “Data sets” on page 260
- “Environment variables” on page 260
- “FACILITY class profiles” on page 260
- “REXX execs” on page 260
- “Shell commands” on page 261
- “Syscall commands” on page 263
- “System commands” on page 263
- “TSO/E commands” on page 264

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### Callable services

Table 176 lists the new and changed z/OS UNIX callable services. For details, see *z/OS UNIX System Services Programming: Assembler Callable Services Reference*.

Table 176. Summary of new and changed callable services

Callable service	Release	Description	Reason for change
BPX1AIO, BPX4AIO	z/OS V1R11	<b>Updated:</b> This service includes new fields – Aio#Anr, AioLocSockAddrPtr and AioLocSockAddrLen – as well as new return codes and reason codes.	Support for asynchronous interface to the accept_and_recv (BPX1ANR) callable service.
BPX1ANR, BPX4ANR	z/OS V1R11	<b>Updated:</b> This service includes new return codes.	Support for asynchronous interface to the accept_and_recv (BPX1ANR) callable service.
BPX1BAS, BPX4BAS	z/OS V1R12	<b>New:</b> This service binds the socket descriptor to the best source address.	This callable service binds the best source address for the provided destination IP address to an AF_INET6 socket descriptor.
BPX1KIL, BPX4KIL	z/OS V1R11	<b>Updated:</b> This service includes new signal options.	Support for the new SIGTRACE function
BPX1LDX, BPX4LDX	z/OS V1R10	<b>New service:</b> This service loads an executable program by path name into the caller's process.	Loading from z/OS UNIX into selected storage areas

## z/OS UNIX

Table 176. Summary of new and changed callable services (continued)

Callable service	Release	Description	Reason for change
BPX1PWD, BPX4PWD	z/OS V1R10	<b>Changed parameters:</b> The names of the parameters Password_length, Password, New_Password_length, and New_Password have been changed to Pass_length, Pass, New_Pass_length, and New_Pass, respectively.	Password phrase support
BPX1SEC, BPX4SEC	z/OS V1R10	<b>Changed parameters:</b> The names of the parameters Password_length and Password have been changed to Pass_length and Pass, respectively.	Password phrase support
BPX1TLS, BPX4TLS	z/OS V1R10	<b>Changed parameters:</b> The names of the parameters Password_length and Password have been changed to Pass_length and Pass, respectively.	Password phrase support

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## Configuration files

There are no new or changed configuration files for z/OS V1R12 and z/OS V1R11.

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## Daemons

There are no new or changed z/OS UNIX daemons for z/OS V1R12 and z/OS V1R11.

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## Data sets

There are no new or changed z/OS UNIX data sets for z/OS V1R12 and z/OS V1R11.

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## Environment variables

There are no new or changed z/OS UNIX environment variables for z/OS V1R12 and z/OS V1R11.

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## FACILITY class profiles

Table 177 lists the new and changed z/OS UNIX resource profiles in the RACF FACILITY class. For details, see *z/OS UNIX System Services Planning*.

Table 177. Summary of new and changed z/OS UNIX resource profiles in the RACF FACILITY class

Class profile name	Release	Description	Reason for change
BPX.EXECMVS. <i>programname</i>	z/OS V1R12	<b>New profile:</b> Allows unauthorized callers of the execmvs callable service to pass an argument that is greater than 100 characters to an authorized program.	Security enhancement

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## REXX execs

There are no new or changed REXX execs for z/OS in z/OS V1R12 and z/OS V1R11.

## REXX functions

There are no new or changed REXX functions for z/OS in z/OS V1R12 and z/OS V1R11.

## Shell commands

Table 178 lists the new and changed shell commands. For details, see *z/OS UNIX System Services Command Reference*.

Table 178. Summary of new and changed shell commands

Command name	Release	Description	Reason for change
automount	z/OS V1R11	<b>Updated command:</b> Explanation added about automove attributions	Command clarification
	z/OS V1R12	<b>Updated command:</b> Release updates and removal of restriction that the zFS file system has to be a compatibility mode file system.	Command enhancement
bpxtrace	z/OS V1R11	<b>New command:</b> Activates or deactivates tracing for one or more processes.	Tracing enhancement
	z/OS V1R12	<b>Updated command:</b> Various updates have been made to the command.	Command update
c89	z/OS V1R12	<b>Updated command:</b> The <b>-l libname</b> option was added	Command update
chmount	z/OS V1R11	<b>New option:</b> The <b>-s</b> option remounts the file system but does not change the current mode.	LFS support for zFS
chtag	z/OS V1R12	<b>Updated command:</b> Various updates have been made to the command.	Command update
cp	z/OS V1R12	<b>Updated command:</b> Various updates have been made, including information about the record file format.	Command enhancement
dbgld	z/OS V1R11	<b>New option:</b> The <b>-c</b> option adds captured source files to the module map.	Command enhancement
	z/OS V1R12	<b>Updated command:</b> Various updates have been made to the command.	Command update
dbx and dbx subcommands	z/OS V1R11	<b>New option:</b> The <b>-exhaustive</b> option specifies that <b>whereis</b> is to search for symbols in all compile units.	Performance improvement
	z/OS V1R12	<b>Updated command and subcommands:</b> Various updates have been made to the command. A usage note has been added to the <b>dbx</b> commands <b>goto</b> and <b>gotoi</b> . The <b>unload</b> subcommand was also updated. The examples have been updated to include one for the <code>_CEE_RUNOPTS="test(all)"</code> environment variable.	Command update
extattr	z/OS V1R12	<b>New file format:</b> Support is added for the record file format.	Command enhancement

## z/OS UNIX

Table 178. Summary of new and changed shell commands (continued)

Command name	Release	Description	Reason for change
find	z/OS V1R11	<b>New rule:</b> When grouping primaries and operators using parentheses, you must escape the parentheses with the \ (backslash) character if the command is being executed in the shell environment.	Command clarification
fuser	z/OS V1R12	<b>New restriction:</b> A restriction has been added.	Command clarification
kill	z/OS V1R11	<b>Command update:</b> A new signal number has been added.	Tracing enhancement
	z/OS V1R12	<b>Command update:</b> The process to be killed must belong to the current user; however, any process can be killed by a superuser.	Command clarification
ls	z/OS V1R12	<b>New file format:</b> Updated to reflect record file format support.	Command enhancement
makedepend	z/OS V1R11	<b>New guideline:</b> Consider using the z/OS XL C/C++ -qmakedep compiler option instead.	Command update
mv	z/OS V1R12	<b>Command update:</b> Updated to reflect record file format support.	Command enhancement
pax	z/OS V1R12	<b>Command update:</b> Various updates have been made, including information about the record file format.	Command enhancement
ps	z/OS V1R11	<b>Command update:</b> A new value (T) has been added to the list of process attributes to indicate that tracing is active.	Tracing enhancement
rmdir	z/OS V1R12	<b>Command update:</b> Minor updates were made to the exit values documentation	Command clarification
skulker	z/OS V1R11	<b>Command update:</b> Updated the description section.	Command clarification
	z/OS V1R12	<b>New option:</b> The <b>-R</b> option specifies a recursive move through subdirectories to find both non-directory files and subdirectories that are equal to or older than the specified number of days. Other documentation updates have also been made, including an update to the restriction.	Command enhancement
su	z/OS V1R12	<b>Command update:</b> Additional information has been added.	Command update
tso	z/OS V1R12	<b>Command update:</b> Various documentation updates have been made.	Command update
tsocmd	z/OS V1R12	<b>New command:</b> Runs a TSO/E command from the shell (including authorized commands)	Release enhancements



Table 178. Summary of new and changed shell commands (continued)

Command name	Release	Description	Reason for change
unmount	z/OS V1R11	<b>New option:</b> The <b>-f</b> option indicates that the list of names to unmount are file system names instead of path names.	Command update.
xlc and XLC	z/OS V1R11	<b>New flag options:</b> Several new flag options have been added	Command enhancement

---

## Syscall commands

Table 179 lists new and changed syscall commands. For details, see *z/OS Using REXX and z/OS UNIX System Services*.

Table 179. Summary of new and changed z/OS UNIX syscall commands

Syscall commands	Release	Description	Reason for change
chattr	z/OS V1R12	<b>New predefined variables:</b> Two new predefined variables have been added: S_FFCRNL and S_FFRECORD.	Release updates
fchattr	z/OS V1R12	<b>New predefined variables:</b> Two new predefined variables have been added: S_FFCRNL and S_FFRECORD.	Release updates
fstat	z/OS V1R12	<b>New predefined variables:</b> Two new predefined variables have been added: S_FFCRNL and S_FFRECORD.	Release updates
stat	z/OS V1R12	<b>New predefined variables:</b> Two new predefined variables have been added: S_FFCRNL and S_FFRECORD.	Release updates

---

## System commands

Table 180 lists new and changed system commands that affect z/OS UNIX. For more information, see *z/OS MVS System Commands*.

For other elements that have z/OS UNIX command impacts, see the following sections:

- “UNIX commands” on page 67
- “z/OS UNIX commands” on page 181

Table 180. Summary of new and changed system commands for z/OS UNIX

System command	Release	Description	Reason for change
D GRS,ANALYZE	z/OS V1R12	The D GRS,ANALYZE operator command displays the latch identity for the system that the command is running in.	Release enhancement
MODIFY	z/OS V1R11	<b>New option:</b> The FORCE option replaces the failing sysplex root file system with the user-specified new sysplex root.	Release enhancement

## z/OS UNIX

Table 180. Summary of new and changed system commands for z/OS UNIX (continued)

System command	Release	Description	Reason for change
OMVS	z/OS V1R11	<b>Command update:</b> D OMVS,PSF now displays the following: <ul style="list-style-type: none"><li>• PFS-specific status information</li><li>• Address space name for colony PFSes</li></ul>	RAS enhancements
UNMOUNT	z/OS V1R11	<b>New option:</b> The SAMEMODE option for the REMOUNT parameter specifies that the file system is to be remounted without changing the mount mode.	LFS support for zFS
	z/OS V1R11	<b>Command update:</b> Information about remount has been added.	Command enhancement

---

## TSO/E commands

Table 181 lists the new and changed TSO/E commands that affect z/OS UNIX. For details, see *z/OS UNIX System Services Command Reference*.

Table 181. Summary of new and changed TSO/E commands

TSO/E commands	Release	Description	Reason for change
BPXBATCH	z/OS V1R12	Various updates have been made.	Command clarification
ISHELL	z/OS V1R12	Display updated to include the new record file format.	Record file format support
OGETX	z/OS V1R11	The following clarification has been added: This command uses the ISPF/PDF Edit facility.	Command enhancement
OHELP	z/OS V1R11	Command has been deleted because it is no longer supported.	Release change
OPUTX	z/OS V1R11	The following clarification has been added: This command uses the ISPF/PDF Edit facility.	Command clarification
UNMOUNT	z/OS V1R12	Additional information has been added.	Command update

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## Part 2. Summary of message changes



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## Chapter 37. z/OS V1R12 summary of message changes

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### BCP and DFSMS summary of message changes for z/OS V1R12

This section lists new, changed, and deleted messages for BCP, DFSMSdftp, DFSMSdss, DFSMSshsm, DFSMSrmm, and DFSMSstvs. It also lists new, changed, and deleted operator messages for RMF and TSO/E. (New, changed, and deleted non-operator messages for TSO/E are in “TSO/E summary of message changes for z/OS V1R11” on page 322.) All the messages in this section are grouped together, without distinction as to element or feature.

All messages for the BCP and DFSMS, as well as the operator messages for RMF and TSO/E, are documented in:

- *z/OS MVS System Messages, Vol 1 (ABA-AOM)*
- *z/OS MVS System Messages, Vol 2 (ARC-ASA)*
- *z/OS MVS System Messages, Vol 3 (ASB-BPX)*
- *z/OS MVS System Messages, Vol 4 (CBD-DMO)*
- *z/OS MVS System Messages, Vol 5 (EDG-GFS)*
- *z/OS MVS System Messages, Vol 6 (GOS-IEA)*
- *z/OS MVS System Messages, Vol 7 (IEB-IEE)*
- *z/OS MVS System Messages, Vol 8 (IEF-IGD)*
- *z/OS MVS System Messages, Vol 9 (IGF-IWM)*
- *z/OS MVS System Messages, Vol 10 (IXC-IZP)*

#### New

ADR054I  
ADR287I  
ADR502I  
ADR507W  
ADR508I  
ADR851I  
ADR852I  
AIR557I  
AMA583I  
ANTI1038E  
ANTR8801I  
ANTR8811I  
ANTR8814E  
ANTR8815E  
ANTR8817E  
ANTR8818E  
ANTR8819E  
ANTR8820E  
ANTR8822E  
ANTR8823E  
ANTR8824E  
ANTR8825E  
ANTR8826E  
ANTR8827E  
ANTR8828E  
ANTR8829E  
ANTR8830E

ANTR8831E  
ANTR8832E  
ANTR8833E  
ANTR8834E  
ANTR8835E  
ANTR8836E  
ANTR8837E  
ANTR8838E  
ANTR8839E  
ANTR8840E  
ANTR8841E  
ANTR8842E  
ANTR8843E  
ANTR8844E  
ANTR8845E  
ANTR8846E  
ANTR8847E  
ANTR8848E  
ANTR8849E  
ANTR8850E  
ANTR8851E  
ANTR8852E  
ANTR8853E  
ANTR8854E  
ANTR8855E  
ANTR8856E  
ANTR8857E  
ANTR8858E  
ANTR8859E  
ANTX5129E  
ANTX5130W  
ANTX5131W  
ANTX5132W  
ANTX5133E  
ANTX5134E  
ANTX5135W  
ANTX5136E  
ANTX5139E  
ANTX5140E  
ANTX5151E  
ANTX8144I  
ANTX8145I  
ANTX8147I  
ANTX8148I  
ANTX8149I  
ANTX8155I  
ANTX8158I  
ANTX8159I  
ANTX8160I  
ANTX8169I  
ANTX8170W  
ANTX8172I  
ANTX8173W  
ANTX8174W  
ANTX8175I  
ANTX8176I

ANTX8177W  
ANTQ8286I  
ANTQ8287I  
ANTQ8288I  
ANTQ8290I  
ANTP0160E  
ARC0687I  
ARC1069I  
ARC1636I  
ARC1806E  
ARC1813I  
ARC1839I  
ARC1845I  
ARC1846E  
ARC1848I  
ARC1850I  
ARC1851I  
ASA011I  
ASA111I  
ATR620I  
ATR621I  
ATR621I  
ATR623I  
ATR624I  
BPXM122I  
BPXM123E  
BPXH067I  
BPXH068E  
BPXH069I  
CBR6405D  
CBR9843I  
CNZ1050I  
CNZ2600I  
CNZ2601I  
CNZ2602I  
CNZ2603I  
CNZ2604I  
CNZ2605I  
CNZ2606I  
CNZ2607I  
CNZ2608I  
CNZ6002I  
CPO1190E  
CPO1191E  
CPO1192W  
CPO1193W  
CPO3056E  
CPO4250I  
CPO8058W  
CPO8059E  
CPO8060E  
CPO8061E  
CPO8063E  
CPO8065W  
CPO8071E  
CPO8072E

CPO8073E  
CPO8074E  
CPO8107E  
CPO8200W  
CPO8700E  
CPO8701E  
CPO8703E  
CPO8705E  
CPO9877W  
HIS032I  
HWI016I  
HWI017I  
HWI018I  
HZR0107I - HZR0202I  
IAR026I  
IDAT0001I - IDAT0013I  
IDC3180I  
IEA994I  
IEC136I  
IEC393I  
IEC988I  
IEE085I  
IEE255I  
IEE256I  
IEE745I  
IEE902I  
IEF032I  
IEF033I  
IEF384I  
IEFA102I  
IEFJ009E  
IEW2340I  
IEW2495E  
IEW2496E  
IEW2497W  
IFA723E  
IFA724E  
IFA780A  
IFA781I  
IFA782A  
IFA783I  
IFA784I  
IFA785E  
IFA786W  
IFA787E  
IFA788I  
IFA838I  
IFA839I  
IFA841I  
IFA842I  
IFA843I  
IGD01022I  
IGDH1000I  
IGDH1001E  
IOS530I  
IOS531I



IOS532I  
IOSHC100I - IOSHC106I  
IOSHM0310I  
IOSHM0311I  
IOSHM0313I  
IOSHM0314I  
IOSHM0315I  
IRA865I  
ISG376I  
ISN012E  
IWM064I  
IWM076I - IWM084I  
IXC347I  
IXC360I  
IXC362I  
IXC373I  
IXC391I  
IXC431I  
IXC467I  
IXC522I  
IXC533I  
IXC534I  
IXC544I  
IXC545I  
IXC546I  
IXC580I  
IXC582I  
IXC588I  
IXC590I  
IXC614I  
IXC615I  
IXC634I  
IXC635I  
IXC636I  
IXC640E  
IXCH0912I - IXCH0915I  
IXCH0923I

## Changed

ADR331E  
ADR347E  
ADR347E  
ADR447I  
ADR707E  
ADR835E  
ADR846E  
ADR970E  
ADR974I  
ADR985W  
AIR520I  
AIRH101E  
AIRH102I  
ANTU2500E  
ANTB5010E  
ANTA5107E  
ANTC5402E

ANTC5403E  
ANTE8008I  
ANTD8025I  
ANTV8107I  
ANTV8110I  
ANTV8114I  
ANTD8116I  
ANTR8133I  
ANTQ8213I  
ANTQ8243I  
ANTQ8255I  
ANTQ8257I  
ANTC8401I  
ANTC8402W  
ANTC8407I  
ANTC8414W  
ANTX5131W  
ANTX8149I  
ARC0024I  
ARC0036I  
ARC0185I  
ARC0260I  
ARC0381A  
ARC0434E  
ARC0509E  
ARC0535I  
ARC0550I  
ARC0734I  
ARC0744E  
ARC0749I  
ARC0751I  
ARC0752I  
ARC0761I  
ARC0811I  
ARC0814I  
ARC0951I  
ARC1001I  
ARC1128I  
ARC1151I  
ARC1158I  
ARC1179I  
ARC1220I  
ARC1283I  
ARC1299I  
ARC1311I  
ARC1320I  
ARC1329I  
ARC1334I  
ARC1356I  
ARC1802I  
ARC1805I  
ARC1806E  
ARC1812I  
ARC1819I  
ARC1820I  
ARC1822I

ARC1823I  
ARC1836I  
ARC6087I  
ARC6088E  
ARC6172E  
CBR1110I  
CBR1180I  
CBR1240I  
CBR2173I  
CBR3726I  
CBR3792E  
CBR3793I  
CBR3794A  
CBR3795I  
CBR3799E  
CBR6419I  
CBR6427I  
CEA602I  
CEA0600I  
CNZ0005I  
CPO3031W  
CSV531I  
CUN4026I  
EDG4055I  
EDG4056I  
HIS015I  
HIS019I  
HIS022I  
IDC0552I  
IDC0553I  
IDC3009I  
IDC3558I  
IEA062I - IEA072E  
IEA253I  
IEA265I  
IEA277I  
IEA911E  
IEC026I  
IEC133I  
IEC143I  
IEC145I  
IEC210I  
IEC161I  
IEC353I  
IEC512I  
IEC517A  
IEC521I  
IEC522I  
IEC705I  
IEE145I  
IEE174I  
IEE205I  
IEE241I  
IEE286I  
IEE345I  
IEE459I

IEE479W  
IEE677I  
IEE735I  
IEE756I  
IEE800D  
IEE967I  
IEF238D  
IEF361I  
IEF368I  
IEF433D  
IEF463I  
IEF731I  
IEF861I  
IEF863I  
IEFC001I  
IEFC002I  
IEFJ005I  
IEW2454W  
IEW2456E  
IEW2458W  
IEW2459W  
IEW2467E  
IEW2636S  
IEW2716S  
IEW2758S  
IEW2759S  
IEW2761S  
IEW2765S  
IEW2769S  
IEW2775S  
IEW2780E  
IEW2781E  
IEW2783E  
IEW2785S  
IEW2787E  
IEW2789I  
IEW2796S  
IEW2797S  
IEW2811I  
IEW2819W  
IEW2985W  
IEW2777S  
IFA718E  
IGD002I  
IGD031I  
IGD01015I  
IGD17163I  
IKJ608I  
IOSHM0303I  
IWM002I  
IWM025I  
IWM063I  
IXCH0110I  
IXCH0154I  
IXCH0253E - IXCH0256I  
IXCH0401E

IXCH0402I  
IXCH0440I  
IXCH0442I  
IXCH0444E  
IXCH0455I  
IXCH0456E  
IXCH0511I  
IXCH0512I  
IXCH0528I  
IXCH0530I - IXCH0532I  
IXG211E  
IXG282I  
IXL015I  
IXL041E  
IXL047I  
IXL048I  
IXL049E  
IXL050I  
IXL051E  
IXL150I

## Deleted

ARC0547I  
AXR0401I  
CNZZ006I  
CNZZ012I  
CNZZ013I  
CNZZ022I  
CNZZ026I  
CNZZ027I  
CNZZ028I  
CNZZ029I  
CNZZ101I  
CNZZ102I  
CNZZ103I  
CNZZ104I  
CNZZ418I  
CNZZ419I  
CNZZ420I  
CPO3914I  
CPO3915I  
CPO8055E  
CPO8062E  
CSV246I  
EDG0300I  
EDG0301I  
EDG0302I  
EDG0303D  
EDG0304I  
EDG0305I  
EDG0306I  
EDG2241E  
IEC516E  
IEE176I  
IEE177D  
IEE240I

IEF374I  
IEF376I  
IGF970E  
IRA700I

## Dump output messages

### New:

- BLS21040I
- BLS21041I
- BLS21042I
- BLS21047I
- BLS21048I
- BLS21049I

## MVS System Codes

### New:

- 50E
- 007

### Changed:

- 00C
- 01D
- 026
- 028
- 042
- 05C
- 077
- 08F
- 0B7
- 0F7
- 13C
- 18F
- 1FB
- 300
- 330
- 338
- 430
- 438
- 50D
- 6C5
- 730
- 738
- EC6
- 088
- 0A2
- 0B1

- D0D

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## CIM summary of message changes for z/OS V1R12

The messages for Common Information Model (CIM) are documented in *z/OS Common Information Model User's Guide*.

### New

CEZ03000E  
CFZ05000E  
CFZ08101E  
CFZ17205W  
CFZ20400E

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## Communications Server summary of message changes for z/OS V1R12

The messages for Communications Server are documented in:

- *z/OS Communications Server: IP Messages Volume 1 (EZA)*
- *z/OS Communications Server: IP Messages Volume 2 (EZB, EZD)*
- *z/OS Communications Server: IP Messages Volume 3 (EZY)*
- *z/OS Communications Server: IP Messages Volume 4 (EZZ, SNM)*
- *z/OS Communications Server: SNA Messages*

### New

EZA5132I  
EZA5135I  
EZA5213I  
EZA5215I  
EZB1059E  
EZBH010I  
EZBH011E  
EZBH012I  
EZBH013E  
EZD0030I  
EZD0031I  
EZD0047I  
EZD0048I  
EZD1158I  
EZD1159I  
EZD1311I  
EZD1374E  
EZD1375I  
EZD1376I  
EZD1377I  
EZD1378I  
EZD1379I  
EZD1381I  
EZD1382I  
EZD1383I  
EZD1384W  
EZD1385W  
EZD1386I  
EZD1387I  
EZD1388E

EZD1389I  
EZD1727I  
EZD1728I  
EZD1729I  
EZD1730I  
EZD1733I  
EZD1751I  
EZD1752I  
EZD1754I  
EZD1755I  
EZD1756I  
EZD1757I  
EZD1758I  
EZD1759I  
EZD1760I  
EZD1761I  
EZD1762I  
EZD1763I  
EZD1764I  
EZD1765I  
EZD1766I  
EZD1767I  
EZD1768I  
EZD1769I  
EZD1770I  
EZD1773I  
EZD1774I  
EZD1778I  
EZD1780I  
EZD1782I  
EZD1784I  
EZD1786I  
EZD1787I  
EZD1788I  
EZD1790I  
EZD1791I  
EZD1792I  
EZD1796I  
EZD1797I  
EZD1798I  
EZD1799I  
EZD1800I  
EZD1901I  
EZD1902I  
EZD1903I  
EZD1904E  
EZD1905I  
EZD1906I  
EZD1907I  
EZD1908I  
EZD1909I  
EZD1910I  
EZD1911I  
EZD1912I  
EZD1913I  
EZD1914I



EZD1915I  
EZD1916I  
EZD1917I  
EZD1918I  
EZD1919I  
EZD1920I  
EZD1921I  
EZD1923I  
EZD1926I  
EZD1927I  
EZD1928I  
EZD1929I  
EZD1930I  
EZD1931I  
EZD1941I  
EZD1942I  
EZD1943I  
EZD1944I  
EZD1945I  
EZD1946I  
EZD1947I  
EZD1948I  
EZD1949I  
EZD1950I  
EZD1951I  
EZD1952I  
EZD1953I  
EZD1954I  
EZD1955I  
EZD1956I  
EZD1957I  
EZD1958I  
EZD1961I  
EZD1962I  
EZD1963I  
EZD1964I  
EZD1965I  
EZD1966I  
EZD1967I  
EZD1968I  
EZD1969I  
EZD1970I  
EZD1971I  
EZD1972I  
EZD1973E  
EZD1980I  
EZD1981I  
EZD1982I  
EZD2011I  
EZD2012I  
EZD2013I  
EZYTE88I  
EZYTE89I  
EZZ0163I  
EZZ0164I  
EZZ0165I

EZZ0166I  
EZZ0749I  
EZZ0782I  
EZZ0783I  
EZZ0784I  
EZZ0785I  
EZZ0826I  
EZZ0827I  
EZZ0828I  
EZZ0829I  
EZZ0830I  
EZZ0831I  
EZZ0832I  
EZZ0833I  
EZZ0835I  
EZZ2394I  
EZZ2609I  
EZZ2874I  
EZZ2907I  
EZZ2908I  
EZZ2909I  
EZZ3027I  
EZZ7884I  
EZZ8256I  
EZZ9308E  
EZZ9309I  
EZZ9310I  
IST2274I  
IST2275I  
IST2276I  
IST2277I  
IST2278I  
IST2279I  
IST2280I  
IST2281I  
IST2282I  
IST2283I  
IST2284I  
IST2285I  
IST2286I  
IST2287I  
IST2288I  
IST2289I  
IST2290I  
IST2291I  
IST2292I  
IST2293I  
IST2294I  
IST2295I  
IST2296I  
IST2297I  
IST2300I  
IST2301I  
IST2306I  
IST2307I  
IST2308I

IST2311I  
IST2312I  
IST2313I  
IST2314I  
IST2315I  
IST2318I  
IST2323E  
IST2324I  
IST2325I  
IST2326I  
IST2327I  
IST2328I  
IST2329I  
IST2330I  
IST2331I  
IST2332I  
IST2333I  
IST2334I  
IST2335I  
IST2336I  
IST2337I  
IST2339I  
IST2340I  
IST2341I  
IST2342I  
IST2343I  
IST2348I  
IST2349I  
IST2350I  
IST2351I  
IST2352I  
IST2353I  
IST2354I  
IST2355I  
IST2356I  
IST2357I  
IST2358I  
IST2359I

## Changed

The following messages were changed in this release:

EZA5214I  
EZD1326I  
EZD1361I changed to EZD1361A  
EZD1726I  
EZY1289I  
EZY1302I  
EZYTE22I  
EZZ0056I  
EZZ0371I  
EZZ0372I  
EZZ0379I  
EZZ0824I  
EZZ6001I  
EZZ6002I

EZZ6003I  
EZZ6005I  
EZZ6006I  
EZZ6007I  
EZZ6008I  
EZZ6009I  
EZZ6010I  
EZZ6011I  
EZZ6012I  
EZZ6015I  
EZZ6017I  
EZZ6018I  
EZZ6020I  
EZZ6022I  
EZZ6023I  
EZZ6024I  
EZZ6026I  
EZZ6027I  
EZZ6028I  
EZZ6034I  
EZZ6035I  
EZZ6038I  
EZZ6039I  
EZZ6040I  
EZZ6041I  
EZZ6042I  
EZZ6043I  
EZZ6044I  
EZZ6045I  
EZZ6046I  
EZZ6047I  
EZZ6048I  
EZZ6049I  
EZZ6060I  
EZZ6061I  
EZZ6064I  
EZZ6065I  
EZZ6080I  
EZZ6081I  
EZZ6082I  
EZZ6083I  
EZZ6084I  
EZZ6085I  
EZZ6086I  
EZZ6088I  
EZZ6089I  
EZZ6091I  
EZZ6092I  
EZZ6093I  
EZZ6094I  
EZZ6095I  
EZZ6096I  
EZZ6097I  
EZZ6098I  
EZZ6099I  
EZZ6103I

IST1776I  
IST1780I

## Deleted

EZD0997 - Replaced by EZD1158I  
EZD1017  
EZD1028 - Replaced by EZD1158I  
EZD1091I - Replaced by EZD1912I  
EZD1134I - Replaced by EZD1923I  
IST1770I - Replaced by IST2275I  
IST1771I - Replaced by IST2252I and IST2254I  
IST1772I - Replaced by IST2252I and IST2254I  
IST1918I  
ISTM009I  
ISTM010E

---

## Cryptographic Services PKI Services summary of message changes for z/OS V1R12

The messages for PKI Services are documented in *z/OS Cryptographic Services PKI Services Guide and Reference*.

## New

IKYP041E  
IKYP042E  
IKYP043I  
IKYO005I  
IKYC075I  
IKYC076I

## Changed

IKYP001E  
IKYP025I  
IKYP031E  
IKYS016I

## Deleted

None

---

## DFSORT summary of message changes for z/OS V1R12

The messages for DFSORT are documented in *z/OS DFSORT Messages, Codes and Diagnosis Guide*.

## New

- ICE236I
- ICE248I
- ICE249I
- ICE264I
- ICE278I
- ICE299I
- ICE801I

## Changed

- ICE199I
- ICE255I
- ICE289A
- ICE897I
- ICE898I

## Deleted

- None.

---

## Distributed File Service summary of message changes for z/OS V1R12

The messages for Distributed File Service are documented in *z/OS Distributed File Service Messages and Codes*.

## New

The following messages have been added:

- IOEP01711I
- IOEP01712I
- IOEP01713I
- IOEWH0001I
- IOEWH0002I
- IOEWH0010I
- IOEWH0011E
- IOEWH0012I
- IOEWH0014I
- IOEWH0020E
- IOEZ00660I
- IOEZ00674E
- IOEZ00675E
- IOEZ00676E
- IOEZ00677E

The following EFxxrrr reason codes have been added:

- 69BA
- 69CC

## Changed

The following messages have changed:

- IOEW16143I
- IOEW16144E
- IOEZ00001E
- IOEZ00308E
- IOEZ00309I
- IOEZ00312I
- IOEZ00604I
- IOEZ00660I

The following DF04rrrr reason code has been changed:

- 0002

The following EFxxrrr reason codes have been changed:

- 6743
- 6953
- 69C8
- 69CC

## Deleted

The following reason code has been deleted:

- 69C4

---

## HCD summary of message changes for z/OS V1R12

The messages for HCD are documented in *z/OS and z/VM HCD Messages*.

## New

CBDA398I  
CBDA410I  
CBDA541I  
CBDA596I  
CBDA597I  
CBDA598I  
CBDA599I  
CBDA600I  
CBDA601I  
CBDA602I  
CBDA602I  
CBDA739I  
CBDA740I  
CBDA950I  
CBDG419I  
CBDG542I  
CBDG543I  
CBDG544I  
CBDG700I  
CBDG701I  
CBDG702I  
CBDG703I  
CBDG704I  
CBDG705I  
CBDG706I  
CBDG707I  
CBDG708I  
CBDG709I  
CBDG710I  
CBDG711I  
CBDG712I  
CBDG713I  
CBDG714I  
CBDG715I  
CBDG716I  
CBDG717I  
CBDG718I

CBDG719I  
CBDG720I  
CBDG721I  
CBDG722I  
CBDG723I  
CBDG724I  
CBDG725I  
CBDG726I  
CBDG727I  
CBDG728I  
CBDG729I  
CBDG730I  
CBDG731I  
CBDG732I  
CBDG733I  
CBDG734I  
CBDG735I  
CBDG736I  
CBDG737I  
CBDG749I

## Changed

CBDA204I  
CBDA270I  
CBDA849I  
CBDA873I  
CBDG898I  
CBDG182I  
CBDG427I  
CBDG905I

## Deleted

None

---

## IBM Tivoli Directory Server summary of message changes for z/OS V1R12

The messages for IBM Tivoli Directory Server are documented in *IBM Tivoli Directory Server Messages and Codes for z/OS*.

## New

GLD1280E  
GLD1281E  
GLD1282E  
GLD1283W  
GLD1284E  
GLD1285E  
GLD1286E  
GLD1287E  
GLD1288I  
GLD1289E  
GLD1290I  
GLD1291I  
GLD1292E



GLD1293E  
GLD1294E  
GLD1295E  
GLD1296I  
GLD1297A  
GLD2030E  
GLD2031E  
GLD2435E  
GLD2436E  
GLD2437E  
GLD2438E  
GLD2439E  
GLD2440E  
GLD2441W  
GLD2442W  
GLD2443E  
GLD6053E  
GLD8829W  
GLD8834W  
GLD8835E  
GLD8836E  
GLD8844E  
GLD8850E  
GLD8851E  
GLD8852E  
GLD8865E  
GLD8866E  
GLD8867E

## Changed

GLD1082A  
GLD8816W  
GLD8820W

## Deleted

None.

---

## JES2 summary of message changes

The messages for JES2 are documented in *z/OS JES2 Messages*.

## New

\$HASP260  
\$HASP365  
\$HASP720

## Changed

\$HASP003  
\$HASP052  
\$HASP064  
\$HASP095  
\$HASP120  
\$HASP251  
\$HASP361  
\$HASP362

\$HASP363  
\$HASP364  
\$HASP370  
\$HASP414  
\$HASP436  
\$HASP443  
\$HASP473  
\$HASP492  
\$HASP493  
\$HASP496  
\$HASP708  
\$HASP810  
\$HASP890  
\$HASP895  
\$HASP028E

## Deleted

None

---

## JES3 summary of message changes

The messages for JES3 are documented in *z/OS JES3 Messages*.

## New

IAT9371  
IAT9379  
IAT9384

## Changed

IAT1145  
IAT1146  
IAT3802  
IAT3804  
IAT3900  
IAT4029  
IAT4034  
IAT4035  
IAT6363  
IAT6364  
IAT6369  
IAT6370  
IAT7130  
IAT8055  
IAT8539  
IAT8932

## Deleted

None

---

## Language Environment summary of message changes for z/OS V1R12

The messages for Language Environment are documented in *z/OS Language Environment Run-Time Messages*.

## New

New messages:

CEE3765I	CEE3770I	IBM0253S	IBM0259S	IGZ0189S	IGZ0262S
CEE3766I	EDC9511I	IBM0255S	IBM0270S	IGZ0190S	IGZ0302S
CEE3767I	IBM0250S	IBM0256S	IBM0271S	IGZ0191S	IGZ0303
CEE3768I	IBM0251S	IBM0257S	IGZ0153S	IGZ0192S	
CEE3769I	IBM0252S	IBM0258S	IGZ0171S	IGZ0230S	

Abends:

None

## Changed

Changed messages:

CEE3731I	CEE3743I	CEE3745I	EDC5152I	EDC5153I
----------	----------	----------	----------	----------

Changed abend codes:

U4036	U4093	U4094
-------	-------	-------

## Deleted

Deleted messages:

None

Deleted abends:

None

---

## NFS summary of message changes for z/OS V1R12

The messages for Network File System (NFS) are documented in *z/OS Network File System Guide and Reference*.

## New

GFSA383I  
GFSA384I  
GFSA385I  
GFSA386E  
GFSA387I  
GFSA569W  
GFSA570I  
GFSA788I  
GFSA805E  
GFSA872E

## Changed

GFSA954I  
GFSA956I  
GFSA959I  
GFSA972I  
GFSC840I  
GFSA1033E changed to GFSA1033W

## Deleted

None

---

## RMF summary of message changes for z/OS V1R12

This section lists new, changed, and deleted messages for RMF.

The non-operator messages for RMF are also documented in *z/OS RMF Messages and Codes*. The operator messages for RMF are documented in:

- *z/OS MVS System Messages, Vol 1 (ABA-AOM)*
- *z/OS MVS System Messages, Vol 2 (ARC-ASA)*
- *z/OS MVS System Messages, Vol 3 (ASB-BPX)*
- *z/OS MVS System Messages, Vol 4 (CBD-DMO)*
- *z/OS MVS System Messages, Vol 5 (EDG-GFS)*
- *z/OS MVS System Messages, Vol 6 (GOS-IEA)*
- *z/OS MVS System Messages, Vol 7 (IEB-IEE)*
- *z/OS MVS System Messages, Vol 8 (IEF-IGD)*
- *z/OS MVS System Messages, Vol 9 (IGF-IWM)*
- *z/OS MVS System Messages, Vol 10 (IXC-IZP)*

## New

ERBB124I  
GPM0739E  
GPM0629I  
GPM0630I  
GPM0631I  
GPM0720I  
GPM0721I  
GPM0733I  
GPM0734I  
GPM0735I  
GPM0736I

## Changed

ERBB113I  
ERBB121I

## Deleted

ERB249I

---

## SDSF summary of message changes for z/OS V1R12

The messages for SDSF are documented in *z/OS SDSF Operation and Customization*.

## New

ISF770W  
ISF777E  
ISF2001E  
ISF2002E  
ISF2003E  
ISF2004E  
ISF2005E  
ISF2006E  
ISF2007E  
ISF2008E  
ISF2009E  
ISF2010E  
ISF2101E  
ISF2102E  
ISF2103I  
ISF2104E  
ISF2105E  
ISF2106E  
ISF2201W  
ISF2202I  
ISF2203I  
ISF2205E  
ISF2206I  
ISF2207E  
ISF2208E  
ISF2209I

## Changed

None

## Deleted

None

---

## Security Server RACF summary of message changes for z/OS V1R12

The messages for RACF are documented in *z/OS Security Server RACF Messages and Codes*.

## New

ICH10321I  
ICH12306I  
IRRH083I, IRRH084I  
IRRD185I, IRRD186I, IRRD187I, IRRD188I, IRRD189I, IRRD197I  
IRRD210I

## Changed

ICH13007I  
ICH14078  
IRR803I  
IRRD108I, IRRD109I, IRRD125I  
IRRD156I, IRRD171I  
IRRD207I  
IRRD203I

IRRH229E  
IRRU080I  
IRRX004A

## Deleted

None

---

## TSO/E summary of message changes for z/OS V1R12

This section lists new, changed, and deleted non-operator messages for TSO/E. (New, changed, and deleted operator messages for TSO/E are listed in “BCP and DFSMS summary of message changes for z/OS V1R12” on page 267.)

The non-operator messages for TSO/E are documented in *z/OS TSO/E Messages*. The operator messages for TSO/E are documented in the *z/OS MVS System Messages*:

- For the *z/OS MVS System Messages*, Vol 1, Vol 2, Vol 3, Vol 4, Vol 5, and Vol 6, see *z/OS MVS Data Areas* in the *z/OS Internet Library*: <http://www.ibm.com/systems/z/os/zos/bkserv/>.
- *z/OS MVS System Messages, Vol 7 (IEB-IEE)*
- *z/OS MVS System Messages, Vol 8 (IEF-IGD)*
- *z/OS MVS System Messages, Vol 9 (IGF-IWM)*
- *z/OS MVS System Messages, Vol 10 (IXC-IZP)*

## New

IRX0241I  
IRX0242I

## Changed

IKJ56411I  
IKJ56447A

## Deleted

IKJ54011I  
IKJ54015I  
IKJ54017A  
IKJ54020A  
IKJ54030I  
IKJ56667I

---

## XL C/C++ summary of message changes for z/OS V1R12

The messages for XL C/C++ are documented in *z/OS XL C/C++ Messages*.

## New

CCN0616  
CCN0834  
CCN2024  
CCN2445  
CCN2448  
CCN2469  
CCN2470 to CCN2474  
CCN3477

CCN4157  
CCN4270  
CCN4426  
CCN4427  
CCN4453 to CCN4461  
CCN5099  
CCN5183  
CCN5449  
CCN5450  
CCN5891 to CCN5894  
CCN6621  
CCN7520  
CCN7524 to CCN7533  
CCN8161  
CCN8439 to CCN8444  
CCN8646 to CCN8649  
CCN8651 to CCN8658  
CCN8928  
CCN8932 to CCN8943  
CCN8947

## Changed

CCN5721

## Deleted

None

---

## z/OS UNIX summary of message changes for z/OS V1R12

The messages for z/OS UNIX are documented in *z/OS UNIX System Services Messages and Codes*. Messages from the REXX processor are documented in *z/OS MVS System Messages, Vol 3 (ASB-BPX)*.

## New

Messages:

FSUMB451  
FSUMB452  
FSUMB453  
FSUMB454  
FSUMB455  
FSUMB456

Return codes:

None

Reason codes:

X'0405', JRSMFNotAuthorized  
X'0633', JrPOEActionErr  
X'0634', JrPOESocketScopeErr  
X'0635', JrPOENotAvailable  
X'0636', JrCannotDecrease  
X'0637', JrNoInetNwk  
X'0638', JrInAddrAnyNotAllowed  
X'0639', JrAmtNoFsName

## Changed

Messages:

FDBX0331  
FOMF0301I  
FSUM5021

Return codes:

None

Reason codes:

X'0067', JRParMTooLong  
X'05D6', JRSMCMaxCntSeg  
X'720C', JRIOCTLRRTTableSize

## Deleted

Messages:

FSUM3490  
FSUM7871

Return codes:

None

Reason codes:

None



---

## Chapter 38. z/OS V1R11 summary of message changes

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### BCP and DFSMS summary of message changes for z/OS V1R11

This section lists new, changed, and deleted messages for BCP, DFSMSdftp, DFSMSdss, DFSMSHsm, DFSMSrmm, and DFSMSStvs. It also lists new, changed, and deleted operator messages for RMF and TSO/E. (New, changed, and deleted non-operator messages for TSO/E are in “TSO/E summary of message changes for z/OS V1R11” on page 322.) All the messages in this section are grouped together, without distinction as to element or feature.

All messages for the BCP and DFSMS, as well as the operator messages for RMF and TSO/E, are documented in:

- *z/OS MVS System Messages, Vol 1 (ABA-AOM)*
- *z/OS MVS System Messages, Vol 2 (ARC-ASA)*
- *z/OS MVS System Messages, Vol 3 (ASB-BPX)*
- *z/OS MVS System Messages, Vol 4 (CBD-DMO)*
- *z/OS MVS System Messages, Vol 5 (EDG-GFS)*
- *z/OS MVS System Messages, Vol 6 (GOS-IEA)*
- *z/OS MVS System Messages, Vol 7 (IEB-IEE)*
- *z/OS MVS System Messages, Vol 8 (IEF-IGD)*
- *z/OS MVS System Messages, Vol 9 (IGF-IWM)*
- *z/OS MVS System Messages, Vol 10 (IXC-IZP)*

#### New

ADYH001E  
ADYH002I  
ADYH003I  
ADYH004I  
ADYH011E  
ADYH012I  
ADYH013I  
AIR001I  
AIR002I  
AIR003I  
AIR004I  
AIR005I  
AIR006I  
AIR007I  
AIR008I  
AIR009I  
AIR010I  
AIR011I  
AIR012I  
AIR014I  
AIR015I  
AIR016I  
AIR019I  
AIR020I  
AIR021I  
AIR022I  
AMD115I

AMD116I  
ANTI1038E  
ANTX5129E  
ANTX5130W  
ANTX5131W  
ANTX5132W  
ANTX5133E  
ANTX5134E  
ANTX5135W  
ANTX5136E  
ANTX5139E  
ANTX5140E  
ANTX5151E  
ANTX8144I  
ANTX8145I  
ANTX8147I  
ANTX8148I  
ANTX8149I  
ANTX8155I  
ANTX8158I  
ANTX8159I  
ANTX8160I  
ANTX8169I  
ANTX8170W  
ANTX8172I  
ANTX8173W  
ANTX8174W  
ANTX8175I  
ANTX8176I  
ANTX8177W  
ANTQ8286I  
ANTQ8287I  
ANTQ8288I  
ANTQ8290I  
ARC0258I  
ARC0259I  
ARC0605I  
ARC1030I  
ARC1068I  
ARC1547I  
ARC1812I  
ARC1819I  
ARC1838I  
AXR0112I  
AXR0113I  
AXR0114I  
AXR0115E  
AXR0202I  
BLWH0001E  
BLWH0002E  
BLWH0008I  
BLWH0009I  
BLWH0010I  
BLWH0011E  
BLWH0901I  
BPXF248I

BPXF249I  
BPXF250I  
BPXF251I  
BPXF252I  
BPXF253E  
BPXF254I  
BPXF255I  
BPXF256I  
BPXF257I  
BPXF258I  
BPXF259I  
BPXF260I  
BPXF261I  
BPXF262I  
BPXH901I  
BPXH902E  
BPXH903I  
BPXH904E  
BPXH905E  
BPXH906E  
BPXI085D  
BPXO068I  
BPXO070I  
BPXW9000I  
BPXW9001I  
BPXW9002I  
BPXW9003I  
BPXW9004I  
BPXW9005I  
BPXW9006I  
BPXW9007I  
BPXW9008I  
BPXW9009I  
BPXW9010I  
BPXW9011I  
BPXW9012I  
BPXW9013I  
BPXW9014I  
BPXW9015I  
BPXW9016I  
BPXW9017I  
BPXW9018I  
BPXW9019I  
BPXW9020I  
BPXW9021I  
BPXW9022I  
BPXW9023I  
BPXW9024I  
BPXW9025I  
BPXW9026I  
BPXW9027I  
BPXW9028I  
BPXW9030I  
BPXW9031I  
BPXW9032I  
BPXW9040I

BPXW9041I  
BPXW9043I  
BPXW9044I  
BPXW9045I  
BPXW9046I  
BPXW9047I  
BPXW9048I  
BPXW9049I  
BPXW9050I  
BPXW9051I  
BPXW9054I  
BPXW9055I  
BPXW9090I  
BPXW9091I  
BPXW9092I  
CBR0435I  
CBR0436I  
CBR0437I  
CBR0443I  
CBR0444I  
CBR0445I  
CBR0446I  
CBR0447I  
CBR6429I  
CBR6430I  
CBR9109I  
CEA0016I  
CEA0017I  
CEA0018I  
CEA0019I  
CEA0020I  
CEA0021I  
CEA0022I  
CEA0023I  
CEA0500I  
CEA0501I  
CEA0502I  
CEA0600I  
CEA0601I  
CEA0602I  
CNZHF0009E  
CNZHF0012E  
CNZHF1006I  
CNZHR0012I  
CNZHS0012I  
CNZZ050E  
CNZZ424I  
CPO messages (new chapter)  
DMO0050I  
DMO0051I  
DMO0052I  
DMO0053I  
DMO0054I  
EDG0117D  
EDG0311I  
EDG0312I

EDG0313I  
EDG0314I  
EGD2443I  
EGD2444I  
EDG2445I  
EDG2446I  
EDG2447I  
EDG2448I  
EDG6310I  
EDG6311I  
EDG6312E  
EDG6313I  
EDG6314I  
EDG6315E  
EDG6316I  
EDG6317I  
EDG6318I  
EDG6319I  
EDG6320E  
EDG6321E  
EDG6676E  
EDG6677E  
EDG6678I  
EDG6679I  
EDG6680E  
EDG6681I  
EDG6682I  
EDG6683I  
EDGH1013I  
EDGH1014I  
EDGH1015I  
EDGH1016I  
EDGH1017I  
EDGH2001R  
EDGH2002R  
EDGH3002R  
EDGH8004E  
EDGH8005E  
EDGH8006E  
EDGH8007E  
HWI015I  
HWI016I  
HWI017I  
HWI018I  
IAR025I  
IDC2899I  
IDC2900I  
IDC2901I  
IDC2902I  
IDC3319I  
IEA031I  
IEA045I  
IEA046E  
IEA135I  
IEA136I  
IEA395I

IEA461I  
IEATH001I  
IEATH002I  
IEATH003I  
IEATH004I  
IEATH005E  
IEATH006E  
IEATH009E  
IEAVTRH01I  
IEAVTRH02I  
IEAVTRH03I  
IEAVTRH04E  
IEAVTRH05I  
IEAVTRH06I  
IEAVTRH07I  
IEAVTRH11I  
IEFA001I  
IEFA002I  
IEFA003I  
IEFA010I  
IEFA011I  
IEFA100I  
IEFA101I  
IFA832I  
IFA833I  
IFA834I  
IFA835I  
IFA836I  
IFA837I  
IGD089I  
IGGHC103I  
IGGHC104E  
IGGHC106I  
IGGHC107I  
IGGHC108I  
IGGHC109I  
IOS307I  
IOSHM0308I  
IOSHM0309I  
IRA864I  
ISG374I  
ISG375I  
IXC103I  
IXC104I  
IXC106I  
IXC107E  
IXC108I  
IXC109I  
IXC111I  
IXC112I  
IXC113I  
IXC114I  
IXC373I  
IXC410E  
IXC470I  
IXC554I

IXC55I  
IXC814I  
IXCH0525I  
IXCH0526E  
IXCH0527I  
IXCH0528I  
IXCH0529E

## Changed

AMD056I  
ANTQ8238I  
ANTQ8243I  
ARC0103I  
ARC0182I  
ARC0185I  
ARC0189I  
ARC0260I  
ARC0272I  
ARC0550I  
ARC0570I  
ARC0734I  
ARC0757I  
ARC0784I  
ARC0814I  
ARC1067I  
ARC1220I  
ARC1334I  
ARC1378I  
ARC1381I  
ARC1500I  
ARC1605I  
ARC1606I  
ARC1802I  
ARC1803E  
ARC1805I  
ARC1806E  
ARC1807I  
ARC1809I  
ARC1833I  
ARC1836I  
ARC1866I  
ARC6172E  
AXR0104I  
AXR0105I  
AXR0106I  
AXR0107I  
AXR0108I  
AXR0109I  
AXR0110I  
AXR0111I  
AXR0200I  
AXR0201I  
AXR0203I  
AXR0204I  
AXR0205I  
AXR0206I

AXR0207I  
AXR0402I  
AXR0403I  
AXR0500I  
AXR0700I  
AXR0800I  
AXR0802I  
BPXI083D  
BPXO040I  
BPXO043I  
BPXO047I  
BPXO063I  
BPXW0000I  
BPXW0001I  
BPXW0002I  
BPXW0003I  
BPXW0004I  
BPXH046E  
CBR0014I  
CBR0432I  
CBR0434I  
CBR1100I  
CBR1130I  
CBR7320I  
CBR9103I  
CBR9225I  
CBR9226I  
CBR9370I  
CEA0003I  
CEA0008I  
CNZ4101I  
CNZZ003I  
CNZZ017I  
CNZZ040I  
CNZZ041I  
CNZZ042I  
CNZZ043I  
CNZZ202I  
CNZZ207I  
CNZZ208I  
CNZZ212I  
CNZZ415I  
CNZZ421I  
CNZZ422I  
CNZZ423I  
CNZZ901I  
CNZZ902I  
CNZZ903I  
CNZZ904I  
CNZZ905I  
CNZZ906I  
DMO0012I  
EDG222E  
EDG2301E  
EDG2413E  
EDG4026I



EDG4057I  
EDG6003E  
EDG6007E  
EDG6012E  
EDG6139E  
EDG6205E  
EDG6301E  
EDG6302E  
EDG6303E  
EDG6304E  
EDG6408W  
EDG6410I  
EDG6411I  
EDG6412I  
EDG6428E  
EDG6431I  
EDG6436W  
EDG6601E  
EDG6603E  
EDG6604E  
EDG6626A  
EDG6627A  
EDG6670E  
EDG6901I  
EDG8188I  
EDG8190I  
EDGH1009I  
EDGH1012I  
HZS0002E  
IAZ0543I  
IEA002I  
IEA480E  
IEA498I  
IEA611I  
IEA763I  
IEA796E  
IEA858E  
IEA911E  
IEA912I  
IEC026I  
IEC142I  
IEC161I  
IEC210I  
IEC359I  
IEC378I  
IEC507D  
IEC708I  
IEC710I  
IEC712I  
IEC987I  
IEE097I  
IEE115I  
IEE174I  
IEE236I  
IEE239I  
IEE241I

IEE243I  
IEE254I  
IEE459I  
IEE504I  
IEE505I  
IEE521I  
IEE559I  
IEE711I  
IEE713I  
IEE852I  
IEE921I  
IEF117I  
IEF192I  
IEF211I  
IEF283I  
IEF285I  
IEF295I  
IEF485I  
IEF702I  
IEF756I  
IEF882E  
IEF883E  
IEW2277E  
IEW2278I  
IEW2464E  
IEW2809E  
IEW4000I  
IFA820I  
IGD17294I  
IGD17318I  
IGD17372I  
IGD17389I  
IGWRH0110I  
IGWRH0300I  
IGWRH0301E  
IGWRH0302I  
IOS099I  
IOS500I  
IOS627E  
IOS628E  
IOSHM0201I  
IOSHM0303I  
IRA220I  
IRA222I  
IRA420I  
IRA422I  
ISG343I  
ISG361A  
ISG363I  
IWM063I  
IXC101I  
IXC105I  
IXC206I  
IXC208I  
IXC220W  
IXC246E

IXC300I  
IXC309I  
IXC335I  
IXC357I  
IXC358I  
IXC360I  
IXC362I  
IXC364I  
IXC370I  
IXC406I  
IXC409D  
IXC414I  
IXC416I  
IXC419I  
IXC422I  
IXC434I  
IXC438I  
IXC462W  
IXC468W  
IXC602I  
IXC603I  
IXC611I  
IXCH0443E  
IXG120E  
IXG255I  
IXG256I  
IXG263E  
IXG271I  
IXG272E  
IXG448I  
IXL008I  
IXL015I  
IXL040E  
IXL042I  
IXL141I  
IXL150I  
IXL161I

## Deleted

ARC0547I  
AXR0401I  
CNZZ006I  
CNZZ012I  
CNZZ013I  
CNZZ022I  
CNZZ026I  
CNZZ027I  
CNZZ028I  
CNZZ029I  
CNZZ101I  
CNZZ102I  
CNZZ103I  
CNZZ104I  
CNZZ418I  
CNZZ419I  
CNZZ420I

EDG0300I  
EDG0301I  
EDG0302I  
EDG0303D  
EDG0304I  
EDG0305I  
EDG0306I  
EDG2241E  
IEE176I  
IEE177D  
IEE240I  
IGF970E  
IRA700I

---

## CIM summary of message changes for z/OS V1R11

The messages for Common Information Model (CIM) are documented in *z/OS Common Information Model User's Guide*.

### New

CEZ02000I  
CEZ02001I  
CEZ05000E  
CEZ05001E  
CEZ05002E  
CEZ05003E  
CEZ05004E  
CEZ05005E  
CEZ05006E  
CEZ05007W  
CEZ05008W  
CEZ05009E  
CEZ05010E  
CEZ05011E  
CEZ05012E  
CEZ05013E  
CEZ05014E  
CEZ05015E  
CEZ05016E  
CEZ05017E  
CFZ05203W  
CFZ12579W  
CFZ12580I

### Removed

CFZ12573W

---

## Communications Server summary of message changes for z/OS V1R11

The messages for Communications Server are documented in:

- *z/OS Communications Server: IP Messages Volume 1 (EZA)*
- *z/OS Communications Server: IP Messages Volume 2 (EZB, EZD)*
- *z/OS Communications Server: IP Messages Volume 3 (EZY)*
- *z/OS Communications Server: IP Messages Volume 4 (EZZ, SNM)*

- *z/OS Communications Server: SNA Messages*

## **New**

EZA1719I  
EZA1720I  
EZA1722I  
EZA1725I  
EZA1726I  
EZA1733I  
EZA1734I  
EZA1739I  
EZA2192I  
EZA2193I  
EZA2194I  
EZA2403I  
EZA4434I  
EZA4435E  
EZA4436I  
EZA4437I  
EZA4438I  
EZA4439I  
EZA4440I  
EZA4442I  
EZD0022I  
EZD0042I  
EZD0043I  
EZD0044I  
EZD0045I  
EZD0046I  
EZD1157I  
EZD1299I  
EZD1300I  
EZD1301I  
EZD1302I  
EZD1303I  
EZD1305I  
EZD1306I  
EZD1307I  
EZD1308I  
EZD1309I  
EZD1313I  
EZD1580I  
EZD1581I  
EZD1582I  
EZD1583I  
EZD1584I  
EZD1585I  
EZD1586I  
EZD1587I  
EZD1588I  
EZD1589I  
EZD1726I  
EZD1753I  
EZD1771I  
EZD1772I  
EZD1775I

EZD1777I  
EZD1779I  
EZD1781I  
EZD1783I  
EZD1785I  
EZD1789I  
EZD1793I  
EZD1794I  
EZD1795I  
EZD1801I  
EZD1802I  
EZD1803I  
EZD1804I  
EZD1805I  
EZD1806I  
EZD1807I  
EZD1808I  
EZD1809I  
EZD1810I  
EZD1811I  
EZD1813I  
EZD1814I  
EZD1815E  
EZD1816I  
EZD1817I  
EZD1818I  
EZD1819I  
EZD1820E  
EZD1821I  
EZD1822I  
EZD1824E  
EZD1825I  
EZD1826I  
EZD1828I  
EZD1829I  
EZD1830I  
EZD1831I  
EZD1832I  
EZD1833I  
EZD1834I  
EZD1835I  
EZD1836I  
EZD1837I  
EZD1838I  
EZD1839I  
EZD1840I  
EZD1841I  
EZD1842I  
EZD1843I  
EZD1844I  
EZD1845I  
EZD1846I  
EZD1847I  
EZD1848I  
EZD1849I  
EZD1850I

EZD1851I  
EZD1856I  
EZD1857I  
EZD1858I  
EZD1859I  
EZD1860I  
EZD1861I  
EZYTE88E  
EZYTE89I  
EZZ0612I  
EZZ0617I  
EZZ0619I  
EZZ0808I  
EZZ0809I  
EZZ0810I  
EZZ0811I  
EZZ0812I  
EZZ0813I  
EZZ0814I  
EZZ0815I  
EZZ0816I  
EZZ0817I  
EZZ0818I  
EZZ0819I  
EZZ0820I  
EZZ0821I  
EZZ0822I  
EZZ0823I  
EZZ0824I  
EZZ2393I  
EZZ2592I  
EZZ2666I  
EZZ2667I  
EZZ2668I  
EZZ2669I  
EZZ2903I  
EZZ2904I  
EZZ2905I  
EZZ2906I  
EZZ2916I  
EZZ2917I  
EZZ2918I  
EZZ2919I  
EZZ3134I  
EZZ6085I  
EZZ6086I  
EZZ7453I  
EZZ8165I  
EZZ8166I  
EZZ8167I  
EZZ8168I  
EZZ8169I  
EZZ8170I  
EZZ8662I  
EZZ8663I  
EZZ8664I

EZZ8665I  
EZZ9298I  
EZZ9305I  
EZZ9725I  
EZZ9726I  
IST2267I  
IST2268I  
IST2269I  
IST2270I  
IST2271I  
IST2272I  
IST2273E  
IST2298I  
IST2299I  
IST2302I  
IST2303I  
IST2304I  
IST2305I  
IST2309I  
IST2310I  
IST2316I  
IST2317I  
ISTM009I  
ISTM010E  
ISTM011I  
ISTM012E

## Changed

The following messages were changed in this release:

EZD1286I  
EZD1287I  
EZYTE22I  
EZZ0372I  
EZZ0379I  
EZZ6103I  
IST1968I

## Deleted

EZA2187I  
EZA2188I  
EZA2191I  
EZA3950I THROUGH EZA4173E  
EZD0011I  
EZD0901I  
EZD0914I  
EZD0916I  
EZD0921I  
EZD0947I  
EZD0949I  
EZD0955I  
EZD0972I  
EZD0976I  
EZD0999I  
EZD1000I THROUGH EZD1004I  
EZD1016I



EZD1023I  
EZD1024I  
EZD1047I  
EZD1048I  
EZD1050I  
EZD1078I  
EZD1080I  
EZD1084I  
EZY1345E  
EZY1346E  
EZY2046I  
EZY2047I  
EZY2049I  
EZY2050I  
EZY2051I  
EZYFT56W  
EZYFT57I  
EZYTE23E THROUGH EZYTE26E  
EZZ4212I  
EZZ6067I  
EZZ6108I  
EZZ6452I THROUGH EZZ6705I  
EZZ7262 THROUGH EZZ7331  
EZZ9165I  
EZZ9166I  
EZZ9167I  
EZZ9272I  
EZZ9273I  
EZZ9274I  
IST1770I  
IST1814I  
IST1815I

---

## Cryptographic Services PKI Services summary of message changes for z/OS V1R11

The messages for PKI Services are documented in *z/OS Cryptographic Services PKI Services Guide and Reference*.

### New

IKYC074I  
IKYI005I  
IKYI006I  
IKYK001I  
IKYK002I  
IKYK003I  
IKYP040I

### Changed

IKYC032I  
IKYC037I  
IKYC068I  
IKYI002I  
IKYP031E  
IKYP035I

IKYP036I  
IKYU015I

## Deleted

None

---

## Cryptographic Services System SSL summary of message changes for z/OS V1R11

The messages for Cryptographic Services System Secure Sockets Layer (SSL) are documented in *z/OS Cryptographic Services System SSL Programming*.

## New

GSK01053A  
GSK01054E  
GSK01055E  
GSK01056E  
GSK01057I

## Changed

None

## Deleted

None

---

## DFSORT summary of message changes for z/OS V1R11

The messages for DFSORT are documented in *z/OS DFSORT Messages, Codes and Diagnosis Guide*.

## New

- ICE259A
- ICE260A
- ICE261A
- ICE653A
- ICE654A
- ICE655I
- ICE656A

## Changed

- ICE018A
- ICE107A
- ICE113A
- ICE114A
- ICE151A
- ICE152I
- ICE189A
- ICE214A
- ICE221A
- ICE222A
- ICE241A
- ICE613A
- ICE614A

- ICE623A
- ICE624A
- ICE628I
- ICE637A
- ICE639A
- ICE640A
- ICE643I
- ICE645A
- ICE652A

## Deleted

- None.

---

## Distributed File Service summary of message changes for z/OS V1R11

The messages for Distributed File Service are documented in *z/OS Distributed File Service Messages and Codes*.

## New

- IOEN00506I
- IOEN00507I
- IOEN00508I
- IOEN00509A
- IOEN00510A
- IOEN00511I
- IOEN00512I
- IOEN00514A
- IOEZ00609I
- IOEZ00610I
- IOEZ00611I
- IOEZ00612I
- IOEZ00613I
- IOEZ00614A
- IOEZ00615E
- IOEZ00616E
- IOEZ00617I
- IOEZ00618E
- IOEZ00619E
- IOEZ00620E
- IOEZ00621E
- IOEZ00622E
- IOEZ00623E
- IOEZ00625E
- IOEZ00627E
- IOEZ00628E
- IOEZ00629E
- IOEZ00630E
- IOEZ00631E

- IOEZ00632E
- IOEZ00633E
- IOEZ00634E
- IOEZ00635E
- IOEZ00636E
- IOEZ00639I
- IOEZ00640E
- IOEZ00641I
- IOEZ00647E
- IOEZ00658E
- IOEZ00659E
- IOEZ00660I
- IOEZ00661I
- IOEZ00662I
- IOEZ00663I
- IOEZ00664I
- IOEZ00665E
- IOEZ00666E
- IOEZ00667I
- IOEZ00668I

The following EFxxrrr reason codes have been added:

- 6611
- 6617
- 6638
- 6777
- 680C
- 6997 - 6999
- 69A8 - 69AF
- 69B0 - 69B7
- 69BB
- 69BD
- 69BF
- 69C0 - 69C8
- 69CA
- 69CB

## Changed

- IOEB03067E
- IOEN00203A
- IOEP01709A
- IOEW16149E
- IOEW16154E
- IOEW16158I
- IOEX18103A

- IOEZ00604I
- IOEZ00664I

The following EFxxrrr reason codes have been changed:

- 602D
- 6058
- 6270
- 6419
- 665E
- 6690
- 66E1
- 6956
- 69A8
- 69BF

## Deleted

- IOEZ00406E
- IOEZ00554I

The following EFxxrrr reason codes have been deleted:

- 6966
- 698D
- 6990-6993

---

## HCD summary of message changes for z/OS V1R11

The messages for HCD are documented in *z/OS and z/VM HCD Messages*.

### New

CBDA369I  
 CBDG188I  
 CBDG189I  
 CBDG490I

### Changed

CBDA269I  
 CBDA337I  
 CBDA340I  
 CBDA498I  
 CBDA583I  
 CBDA653I  
 CBDA816I  
 CBDA865I  
 CBDC099I  
 CBDG129I  
 CBDG182I  
 CBDG183I  
 CBDG306I  
 CBDG899I

## Deleted

None

---

## IBM Tivoli Directory Server summary of message changes for z/OS V1R11

The messages for IBM Tivoli Directory Server are documented in *IBM Tivoli Directory Server Messages and Codes for z/OS*.

## New

GLD1254E to GLD1279A  
GLD1866E to GLD1868E  
GLD1871E to GLD1873E  
GLD2285E  
GLD3350E  
GLD8501E  
GLD8503W to GLD8504E  
GLD8510E  
GLD8516E to GLD8536E  
GLD8538E to GLD8543W  
GLD8545E to GLD8547E  
GLD8551E  
GLD8553E  
GLD8556E  
GLD8559E to GLD8560E  
GLD8563E to GLD8572I  
GLD8578W to GLD8584E  
GLD8586E to GLD8596I  
GLD8598E  
GLD8601I to GLD8604W  
GLD8608I  
GLD8610E  
GLD8618E  
GLD8620E  
GLD8628I to GLD8630I  
GLD8632E to GLD8635I  
GLD8637I  
GLD8639E to GLD8640I  
GLD8642W to GLD8645E  
GLD8637I to GLD8645E  
GLD8647E to GLD8654I  
GLD8797E  
GLD8801E to GLD8828E  
GLD8830E to GLD8833E  
GLD8837I to GLD8843E  
GLD8845E to GLD8849E  
GLD8853I to GLD8864I

## Changed

GLD1040E  
GLD1158E  
GLD1159E  
GLD1257E  
GLD2004I is now GLD2004D

GLD2262A  
GLD2273R is now GLD2273D  
GLD3342I  
GLD3343E  
GLD3344E  
GLD3345E  
GLD3346E

## Deleted

GLD2412A  
GLD2413A  
GLD2415A  
GLD2416A  
GLD2418A through GLD2423I  
GLD2430A through GLD2434A

---

## JES2 summary of message changes for z/OS V1R11

The messages for JES2 are documented in *z/OS JES2 Messages*.

## New

\$HASP051  
\$HASP052  
\$HASP022E  
\$HASP023I  
\$HASP024I  
\$HASP025I  
\$HASP026E  
\$HASP027I  
\$HASP028E  
\$HASP029I  
\$HASP030I

## Changed

\$HASP003  
\$HASP095  
\$HASP119  
\$HASP232  
\$HASP275  
\$HASP406  
\$HASP407  
\$HASP409  
\$HASP410  
\$HASP461  
\$HASP462  
\$HASP463  
\$HASP464  
\$HASP492  
\$HASP895

## Deleted

None

---

## JES3 summary of message changes for z/OS V1R11

The messages for JES3 are documented in *z/OS JES3 Messages*.

### New

IAT3207  
IAT3837  
IAT3838  
IAT4331

### Changed

IAT3042  
IAT3441  
IAT7130  
IAT8709  
IAT9122

### Deleted

None

---

## Language Environment summary of message changes for z/OS V1R11

The messages for Language Environment are documented in *z/OS Language Environment Run-Time Messages*.

### New

CEE3519S  
CEE3596S  
CEE5238I  
IBM0640S  
IBM0641S  
IBM0642S  
IBM0643S  
IBM0644S  
IBM0977S  
IGZ0299S  
IGZ0300S  
IGZ0301S

### Changed

CEE3216S  
CEE3217S  
CEE3218S  
CEE3219S  
CEE3220S  
CEE3221S  
CEE3222S  
EDC5247I  
IBM0917S  
IGZ0280S  
IGZ0281S  
IGZ0282S  
IGZ0283S  
IGZ0284S



IGZ0285S  
IGZ0286S  
IGZ0287S  
IGZ0288S  
IGZ0289S  
IGZ0290S  
IGZ0291S  
IGZ0292S  
IGZ0293S  
IGZ0294S  
IGZ0295S  
IGZ0296S  
IGZ0297S  
IGZ0298S  
U4088  
U4091  
U4093

## Deleted

None

---

## NFS summary of message changes for z/OS V1R11

The messages for Network File System (NFS) are documented in *z/OS Network File System Guide and Reference*.

## New

GFS4444E  
GFS4445E  
GFS4446E  
GFS4462E  
GFS4463E  
GFS4464I  
GFS4476E  
GFS4790I  
GFS4796I  
GFS4797I  
GFS1030W  
GFS1031I  
GFS1032E  
GFS1033E  
GFSN5025E  
GFSN5026E  
GFSN5027E  
GFSN5028E  
GFSN5030E  
GFSN5035E

## Changed

GFS326E  
GFS792I  
GFS824W  
GFS866I  
GFSC110E  
GFSC284E changed to GFSC284I

## Deleted

GFSA325I  
GFSA338E  
GFSA661E  
GFSA662E  
GFSA939E  
GFSA906I  
GFSA926I  
GFSA928I  
GFSA940E  
GFSA941I  
GFSC511E

---

## RMF summary of message changes for z/OS V1R11

This section lists new, changed, and deleted messages for RMF.

The non-operator messages for RMF are also documented in *z/OS RMF Messages and Codes*. The operator messages for RMF are documented in:

- *z/OS MVS System Messages, Vol 1 (ABA-AOM)*
- *z/OS MVS System Messages, Vol 2 (ARC-ASA)*
- *z/OS MVS System Messages, Vol 3 (ASB-BPX)*
- *z/OS MVS System Messages, Vol 4 (CBD-DMO)*
- *z/OS MVS System Messages, Vol 5 (EDG-GFS)*
- *z/OS MVS System Messages, Vol 6 (GOS-IEA)*
- *z/OS MVS System Messages, Vol 7 (IEB-IEE)*
- *z/OS MVS System Messages, Vol 8 (IEF-IGD)*
- *z/OS MVS System Messages, Vol 9 (IGF-IWM)*
- *z/OS MVS System Messages, Vol 10 (IXC-IZP)*

## New

ERB812I  
ERBA033I  
GPM0737I  
GPM0738I

## Changed

ERB246I  
ERB247I  
ERB400I  
ERB402I  
ERBB102I  
GPM077I

## Deleted

ERB249I

---

## SDSF summary of message changes for z/OS V1R11

The messages for SDSF are documented in *z/OS SDSF Operation and Customization*.

## New

ISF138E  
ISF139E  
ISF149E  
ISF769I  
ISF770W  
ISF771E  
ISF772I  
ISF775E  
ISF776E  
ISFH1015I  
ISFH1016E  
ISFH1017I

## Changed

None

## Deleted

None

---

## Security Server RACF summary of message changes for z/OS V1R11

The messages for RACF are documented in *z/OS Security Server RACF Messages and Codes*.

## New

ICH04018I  
IRRW201I  
IRRW202I  
IRRW203I  
IRRW204I  
IRRW205I  
IRRW206I  
IRRW207I  
IRRW208I  
IRRW209I  
IRRW210I  
IRRW211I  
IRRW212I  
IRRW213I  
IRRD190I  
IRRD191I  
IRRD192I  
IRRD193I  
IRRD194I  
IRRD195I  
IRRD196I  
ICH440I  
ICH441I  
ICH442I  
ICH443I  
ICH444I  
ICH445I  
ICH446I  
ICH447I

ICH448I  
ICH449I  
ICH450I  
ICH451I  
ICH452I  
IRRC143I  
IRRC144I

## Changed

ICH70001I  
IRR417I  
IRRC132I  
IRRD109I  
IRRD130I  
ICH408I  
ICH14079I  
IRR67653I  
ICH555I

## Deleted

None

---

## TSO/E summary of message changes for z/OS V1R11

This section lists new, changed, and deleted non-operator messages for TSO/E. (New, changed, and deleted operator messages for TSO/E are listed in “BCP and DFSMS summary of message changes for z/OS V1R11” on page 295.)

The non-operator messages for TSO/E are documented in *z/OS TSO/E Messages*. The operator messages for TSO/E are documented in:

- *z/OS MVS System Messages, Vol 1 (ABA-AOM)*
- *z/OS MVS System Messages, Vol 2 (ARC-ASA)*
- *z/OS MVS System Messages, Vol 3 (ASB-BPX)*
- *z/OS MVS System Messages, Vol 4 (CBD-DMO)*
- *z/OS MVS System Messages, Vol 5 (EDG-GFS)*
- *z/OS MVS System Messages, Vol 6 (GOS-IEA)*
- *z/OS MVS System Messages, Vol 7 (IEB-IEE)*
- *z/OS MVS System Messages, Vol 8 (IEF-IGD)*
- *z/OS MVS System Messages, Vol 9 (IGF-IWM)*
- *z/OS MVS System Messages, Vol 10 (IXC-IZP)*

## New

IRX0241I  
IRX0242I

## Changed

IKJ56447A

## Deleted

None

---

## XL C/C++ summary of message changes for z/OS V1R11

The messages for XL C/C++ are documented in *z/OS XL C/C++ Messages*.

### New

CDA1002 to CDA1021  
CCN4439 to CCN4447  
CCN8160  
CCN5447  
CCN5448

### Changed

None

### Deleted

None

---

## z/OS UNIX summary of message changes for z/OS V1R11

The messages for z/OS UNIX are documented in *z/OS UNIX System Services Messages and Codes*. Messages from the REXX processor are documented in *z/OS MVS System Messages, Vol 3 (ASB-BPX)*.

### New

Messages:  
CDA0020  
CDA0021  
FDBX0051  
FDBX0052  
FDBX0053  
FDBX0056  
FDBX0057  
FDBX0059  
FDBX0060  
FDBX0116  
FDBX0117  
FDBX9997  
FDBX9998  
FDBX0740  
FSUM1248  
FSUM1249  
FSUM1250  
FSUM1251  
FSUM1252  
FSUM1253  
FSUM1254  
FSUM1255  
FSUM1256  
FSUM1257  
FSUM1258  
FSUM1259  
FSUM1260  
FSUM1261  
FSUM1262

FSUM1263  
FSUM1264  
FSUM1265  
FSUM1266  
FSUM1267  
FSUM1268  
FSUM1269  
FSUM1270  
FSUM1271  
FSUM3273  
FSUM3274  
FSUM8976

Reason codes:

X'062C', JrAsyncAnr  
X'062F', JrNoRemote  
X'0631', JrRemoteRFI  
X'0632', JrFSTypeChanged

Return codes:

X'00F7', ENOTSUP

## Changed

Messages:

CDA0014  
FDBX0552  
FDBX0741  
FOMF0506I  
FOMF0521I  
FOMF0531I  
FSUM1245  
FSUM7327  
FSUMB084

Reason codes:

X'0003', HFS\_RSN\_RACF\_Not\_Installed  
X'004B', JROpen  
X'03FF', JrAsyncBadSockAddr  
X'00D8', JRNotServerAuthorized  
X'730E', JRNotAuthPort

Return codes:

None

## Deleted

Messages:

None

Reason codes:

EXAMPLE: RSN\_GLOK + X'105'

Return codes:

None

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## Accessibility

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Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use software products successfully. The major accessibility features in z/OS enable users to:

- Use assistive technologies such as screen readers and screen magnifier software
- Operate specific or equivalent features using only the keyboard
- Customize display attributes such as color, contrast, and font size

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## Using assistive technologies

Assistive technology products, such as screen readers, function with the user interfaces found in z/OS. Consult the assistive technology documentation for specific information when using such products to access z/OS interfaces.

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## Keyboard navigation of the user interface

Users can access z/OS user interfaces using TSO/E or ISPF. Refer to *z/OS TSO/E Primer*, *z/OS TSO/E User's Guide*, and *z/OS ISPF User's Guide Vol I* for information about accessing TSO/E and ISPF interfaces. These guides describe how to use TSO/E and ISPF, including the use of keyboard shortcuts or function keys (PF keys). Each guide includes the default settings for the PF keys and explains how to modify their functions.

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## z/OS information

z/OS information is accessible using screen readers with the BookServer/Library Server versions of z/OS books in the Internet library at:

<http://www.ibm.com/systems/z/os/zos/bkserv/>





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**z/OS**

**Summary of Message and Interface Changes**

**Version 1 Release 12**

**Publication No. SA22-7505-16**

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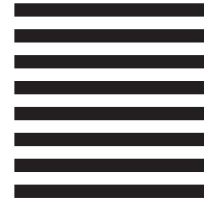
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