

IBM Common Services Library for z/OS
Version 1 Release 1

User's Guide



IBM Common Services Library for z/OS
Version 1 Release 1

User's Guide



Note:

Before using this information and the product it supports, read the "Notices" topic at the end of this information.

Second Edition (December 2016)

This edition applies to Version 1 Release 1 of IBM Common Services Library for z/OS (product number 5655-CSL) and to all subsequent releases and modifications until otherwise indicated in new editions.

© Copyright Fundi Software 2016

US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

Contents

About this information v

How to read syntax diagrams v

Common Services Library overview. . . 1

What does Common Services Library do? 1

Common Services Library components 1

Service updates and support information. . . . 1

Product documentation and updates 1

Accessibility features 3

Installing IBM Common Services Library for z/OS . 3

IBM Common Services Library server . . 5

Plug-ins that use Common Services Library server. . 5

Scrub utility 7

Scrubbing sensitive data from IMS log records . . . 7

IMS log record types that are scrubbed 8

Scrub JCL reference 9

Scrub log information report. 10

Global options module (FUNGLOBL). 12

Setting the IMS version as a global option . . . 13

Scrub commands 13

SCRUB command 13

REPORT command. 14

CODES command 15

START and STOP commands 15

ZONE command 16

Messages 16

Notices 21

Index 25

About this information

IBM® Common Services Library for z/OS® provides a framework, and a set of base services, required by some z/OS tools.

These topics are designed to help database administrators, system programmers, application programmers, and system operators perform these tasks:

- Plan for the installation of Common Services Library
- Use Common Services Library with other z/OS products

Always check the IMS™ Tools Product Documentation page for the most current version of this information:

<http://www.ibm.com/software/data/db2imstools/imstools-library.html>

How to read syntax diagrams

The following rules apply to the syntax diagrams that are used in this information:

- Read the syntax diagrams from left to right, from top to bottom, following the path of the line. The following conventions are used:
 - The >>--- symbol indicates the beginning of a syntax diagram.
 - The ---> symbol indicates that the syntax diagram is continued on the next line.
 - The >--- symbol indicates that a syntax diagram is continued from the previous line.
 - The --->< symbol indicates the end of a syntax diagram.
- Required items appear on the horizontal line (the main path).

▶▶—*required_item*—————▶▶

- Optional items appear below the main path.

▶▶—*required_item*—┐*optional_item*—————▶▶

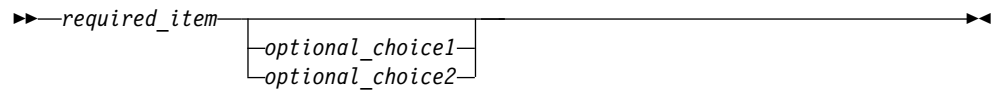
If an optional item appears above the main path, that item has no effect on the execution of the syntax element and is used only for readability.

▶▶—*required_item*—┐*optional_item*—————▶▶

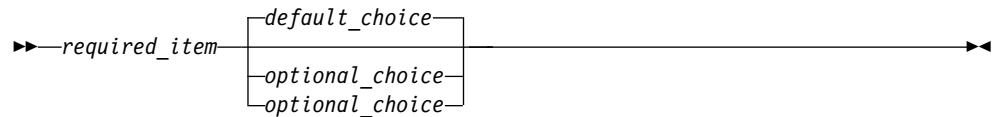
- If you can choose from two or more items, they appear vertically, in a stack. If you *must* choose one of the items, one item of the stack appears on the main path.

▶▶—*required_item*—┐*required_choice1*
—*required_choice2*—————▶▶

If choosing one of the items is optional, the entire stack appears below the main path.



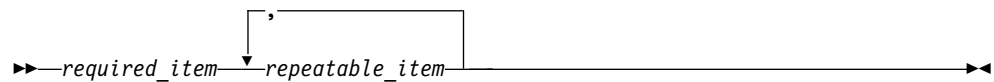
If one of the items is the default, it appears above the main path, and the remaining choices are shown below.



- An arrow returning to the left, above the main line, indicates an item that can be repeated.



If the repeat arrow contains a comma, you must separate repeated items with a comma.



A repeat arrow above a stack indicates that you can repeat the items in the stack.

- Keywords, and their minimum abbreviations if applicable, appear in uppercase. They must be spelled exactly as shown. Variables appear in all lowercase italic letters (for example, *column-name*). They represent user-supplied names or values.
- Separate keywords and parameters by at least one space if no intervening punctuation is shown in the diagram.
- Enter punctuation marks, parentheses, arithmetic operators, and other symbols exactly as shown in the diagram.
- Footnotes are shown by a number in parentheses; for example, (1).

Common Services Library overview

Common Services Library consists of a framework of code used and required by some z/OS applications. It also includes a server that some Eclipse-based plug-ins use to communicate with z/OS-based products, and a utility named Scrub that removes sensitive information from IMS log records.

What does Common Services Library do?

Common Services Library provides functionality that supports select IBM products. Rather than including this common functionality separately in each product, Common Services Library can be shared between products.

Common Services Library components

The components of Common Services Library are the Common Services Library server and the Scrub utility.

Infrastructure

Infrastructure includes a framework, and a set of base services, for z/OS tools to use. A product that requires the framework lists Common Services Library as a prerequisite. For information about how to configure a product to use the Common Services Library infrastructure, refer to the documentation for that product.

Common Services Library server

The Common Services Library server provides connectivity between select Eclipse-based plug-ins and their corresponding z/OS-based products. A product that requires Common Services Library server lists Common Services Library as a prerequisite. For information about how to configure a product to use the Common Services Library infrastructure, refer to the documentation for that product.

Scrub utility

The Scrub utility is a z/OS batch program that removes sensitive information from IMS logs.

Service updates and support information

Service updates and support information for this product, including software fix packs, PTFs, frequently asked questions (FAQs), technical notes, troubleshooting information, and downloads, are available from the web.

To find service updates and support information, see the following website:

http://www.ibm.com/support/entry/portal/Overview/Software/Information_Management/IMS_Tools

Product documentation and updates

IMS Tools information is available at multiple places on the web. You can receive updates to IMS Tools information automatically by registering with the IBM My Notifications service.

Information on the web

The IMS Tools Product Documentation web page provides current product documentation that you can view, print, and download. To locate publications with the most up-to-date information, refer to the following web page:

<http://www.ibm.com/software/data/db2imstools/imstools-library.html>

You can also access documentation for many IMS Tools from IBM Knowledge Center:

<http://www.ibm.com/support/knowledgecenter>

IBM Redbooks® publications that cover IMS Tools are available from the following web page:

<http://www.redbooks.ibm.com>

The Data Management Tools Solutions website shows how IBM solutions can help IT organizations maximize their investment in IMS databases while staying ahead of today's top data management challenges:

<http://www.ibm.com/software/data/db2imstools/solutions/index.html>

Receiving documentation updates automatically

To automatically receive emails that notify you when new technote documents are released, when existing product documentation is updated, and when new product documentation is available, you can register with the IBM My Notifications service. You can customize the service so that you receive information about only those IBM products that you specify.

To register with the My Notifications service:

1. Go to <http://www.ibm.com/support/mysupport>
2. Enter your IBM ID and password, or create one by clicking **register now**.
3. When the My Notifications page is displayed, click **Subscribe** to select those products that you want to receive information updates about. The IMS Tools option is located under **Software > Information Management**.
4. Click **Continue** to specify the types of updates that you want to receive.
5. Click **Submit** to save your profile.

How to send your comments

Your feedback is important in helping to provide the most accurate and high-quality information. If you have any comments about this book or any other IBM product documentation, use one of the following options:

- Use the online reader comment form, which is located at <http://www.ibm.com/software/data/rcf/>.
- Send your comments by email to comments@us.ibm.com. Include the name of the book, the part number of the book, the version of the product that you are using, and, if applicable, the specific location of the text you are commenting on, for example, a page number or table number.

Accessibility features

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use a software product successfully.

The major accessibility features in this product enable users to perform the following activities:

- Use assistive technologies such as screen readers and screen magnifier software. Consult the assistive technology documentation for specific information when using it to access z/OS interfaces.
- Operate specific or equivalent features by using only the keyboard. Refer to the following publications for information about accessing ISPF interfaces:
 - *z/OS ISPF User's Guide, Volume 1*
 - *z/OS TSO/E Primer*
 - *z/OS TSO/E User's Guide*

These guides describe how to use the ISPF interface, including the use of keyboard shortcuts or function keys (PF keys), include the default settings for the PF keys, and explain how to modify their functions.

Installing IBM Common Services Library for z/OS

To install Common Services Library, follow the instruction in the *Common Services Library Program Directory*, GI10-9011-00.

IBM Common Services Library server

The purpose of the Common Services Library server is to enable communication between Eclipse-based plug-ins and their corresponding z/OS-based products.

The following figure shows how plug-ins communicate with their corresponding z/OS-based products through the Common Services Library server.

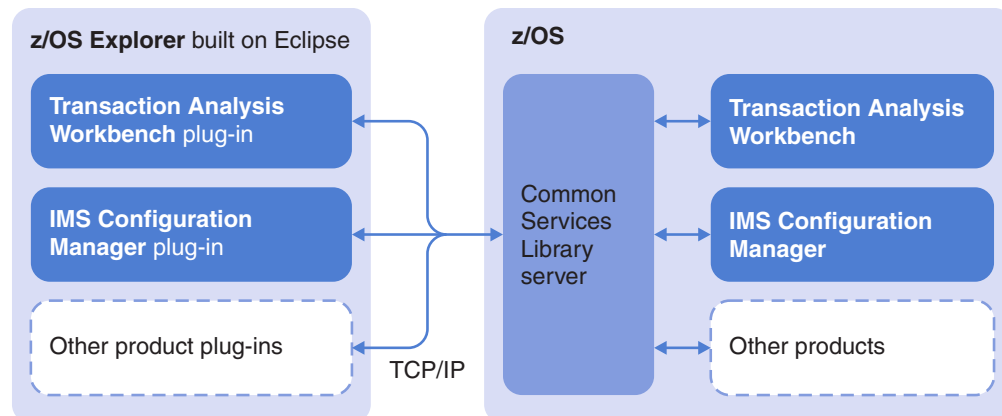


Figure 1. The role of Common Services Library server

To configure and customize the server, refer to the documentation for the product that uses the server.

Plug-ins that use Common Services Library server

Several Eclipse-based plug-ins use the Common Services Library server to communicate with z/OS-based IBM products.

For example, IBM Transaction Analysis Workbench for z/OS (Transaction Analysis Workbench) is a tool for analyzing problems with the performance or behavior of transactions on z/OS. The Transaction Analysis Workbench plug-in is aimed at “first responders”, such as help desk staff, who record the details of problems reported by users of z/OS-based transactions.

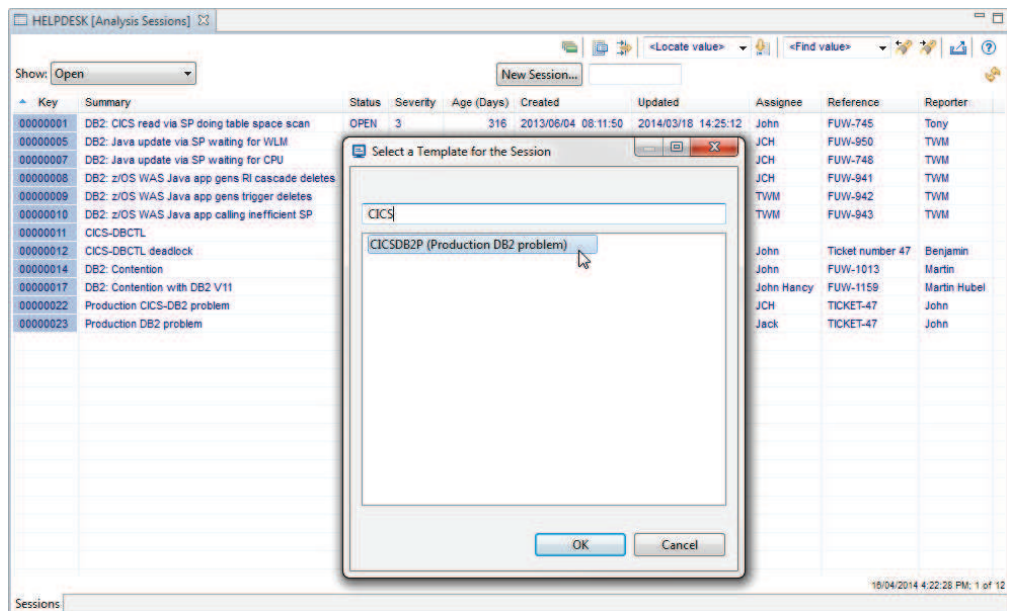


Figure 2. Transaction Analysis Workbench plug-in: creating a session and selecting a template

Another example is the IBM IMS Configuration Manager for z/OS plug-in. You can use this plug-in to view the topology of your IMS systems, view resources, and submit IMS commands to those systems.

Source	IMSplex	SystemName	MemberName	ParamSource	ALOT	AOIS	AOII	APPLD1	APPC	APPCSE	ARC	ARIMST	ASOT	AUTO	BSIZ	CMDMCS
1	PLBDP	IBDR	DFSPBPLP	INEFFECT	60		N	ICDHEVT1			01	N	60	N	02048	
1	PLCDH	ICDH	DFSPBHWIS	INEFFECT	1440	N	N	CCDR			1	N	1440	N		Y
1	PLDDH	ICDH	DFSPBHWIS	INEFFECT	60		N				01	N	60	N	02048	
1	PLDDQ	ICDQ	DFSPBQQ1	INEFFECT	60		N	ICDQEV1			01	N	60	N	02048	
1	PLDDQ	IDQ	DFSPBQQ1	INEFFECT	60		N				01	N	60	N	02048	
1	PLXDH	IBDH	DFSPBHWIS	INEFFECT	60		N	IBDHEVT1			01	N	60	N	02048	
1	PLXDP	IBDP	DFSPBPLP	INEFFECT	60	S	N	IBDPEVT1			01	Y	60	N	02048	
1	PLXDP	ICDP	DFSPBPLP	INEFFECT	60	S	N	ICDPEVT1	N	F	1	N	60	N	2048	
1	PLXDP	IDP	DFSPBPLP	INEFFECT	60	S	N				01	N	60	N	02048	
1	PLXNU	IADP	DFSPBPLP	INEFFECT	60	S	N	IADPEVT1			01		60	N	02048	
1	IPABX	ABS0	DFSPB00M	INEFFECT		R	R	IMABMS0	Y		01			N		R
1	IPABX	ABS1	DFSPB01M	INEFFECT		R	R	IMABMS1	Y		01			N		R
1	IPABX	ABS2	DFSPB02M	INEFFECT		R	R	IMABMS2	Y		01			N		R
1	IPABX	ABS3	DFSPB03M	INEFFECT		R	R	IMABMS3	Y		01			N		R

Figure 3. IMS Configuration Manager plug-in: comparing parameters across an enterprise using the plug-in comparator

Scrub utility

Scrub utility (also known as Scrub) is a tool that removes sensitive data from IMS log records.

Scrubbing sensitive data from IMS log records

To remove from IMS log records any sensitive or confidential user data, such as customer business information, use the Scrub utility (FUNSCRUB). Use Scrub when you need to send IMS logs to an external organization; for example, before sending IMS logs to IBM for problem determination.

About this task

Scrub processes IMS logs created by any in-support version of IMS. You cannot use Scrub to process Common Queue Server (CQS) logs.

Scrub overwrites the contents of user data fields in a specific set of IMS log record types. For fields shorter than 10 bytes, Scrub overwrites the contents with null bytes (hexadecimal zero). For longer fields, Scrub overwrites the contents with -CLEARED-> followed by null bytes.

Scrubbed log records remain structurally intact and the same length.

Procedure

To run Scrub, create and submit JCL.

Example

The following JCL scrubs records within the specified time range in an IMS version 14 log.

```
//JOBNAME JOB ,NOTIFY=&SYSUID,CLASS=A,MSGCLASS=T
//SCRUB EXEC PGM=FUNSCRUB,PARM='V141' 1
//STEPLIB DD DISP=SHR,DSN=HLQ1.SFUNLINK
//SYSPRINT DD SYSOUT=*
//LOGINFO DD SYSOUT=*
//SYSUT1 DD DISP=SHR,DSN=IMS.SLDS 2
//SYSUT2 DD DISP=(NEW,CATLG),DSN=IMS.SLDS.SCRUBBED, 3
// UNIT=SYSDA,SPACE=(CYL,(100,100),RLSE)
//SYSIN DD * 4
SCRUB
CODES(01-FF)
START 2017-01-26-10.30.00.00
STOP 2017-01-26-10.45.00.00
ZONE(LOCAL)
/*
```

Figure 4. JCL to scrub sensitive data from an IMS log

- 1** The EXEC statement for Scrub accepts an optional PARM parameter. The PARM parameter specifies the release of IMS that created the IMS log to be scrubbed. If you omit the PARM parameter, you must specify the IMS version as a runtime setting in the global options module.

- 2** The SYSUT1 DD statement specifies the input IMS log.
- 3** The SYSUT2 DD statement specifies the output (scrubbed) IMS log.
- 4** The SYSIN DD statement specifies the Scrub commands.

This example contains optional commands that you can use to restrict the records processed by Scrub. To scrub all possible records in the input IMS log, specify the single command SCRUB with no other commands.

What to do next

Review the log information report. By default, Scrub writes this report to a LOGINFO output data set.

Related concepts:

“Global options module (FUNGLOBL)” on page 12

The global options module provides a way for you to specify Scrub utility runtime settings such as the IMS version.

Related tasks:

“Setting the IMS version as a global option” on page 13

This task shows you how to set a default value for the IMS version.

Related reference:

“Scrub commands” on page 13

The SYSIN data set of a Scrub job must contain either a SCRUB command or a REPORT command. SYSIN may also contain other commands.

IMS log record types that are scrubbed

Scrub overwrites the contents of user data fields in these IMS log record types.

IMS log record type (hexadecimal)	Description
01	Input message
03	Output message
26	I/O toleration buffer was created
4002	Checkpoint Message Queue
4026	Checkpoint I/O toleration buffer
4082	Checkpoint EMHB
4086	Checkpoint DMHR
48	OLDS control information
50	Database update
5901	FP input message
5903	FP output message
5920	FP MSDB update
5950	FP database update
5951	FP database update – non-recoverable
5952	FP database update
5953	FP database update – utilities
5954	FP database update – DEDB
5956	FP database update – Resync
5957	FP database update – DMAC

IMS log record type (hexadecimal)	Description
6701	Communications trace
67ED	SB SNAP Trace
67EE	SB SNAP Trace
67EF	SB Compare Option
67FB	Invalid AWE
67FC	Buffer 'ALL' invalid
67FD	SNAP Trace
67FF	Exception Condition SNAP
9904	Data capture

Scrub JCL reference

The JCL to run Scrub must contain specific statements, such as a SYSIN DD statement for the data set containing Scrub commands.

EXEC statement

The EXEC statement that runs the Scrub program accepts an optional PARM parameter. The PARM parameter specifies the release of IMS that created the input IMS log. If you omit the PARM parameter, you must specify the IMS version as a runtime option in the global options module. Scrub validates the PARM parameter against the log file and outputs an information message if the IMS version of each does not match.

The PARM parameter takes the form PARM='Vnnn' where *nnn* is the three-digit IMS version and release number.

The following example shows an EXEC statement that can be used to scrub a log created using IMS Version 14 Release 1:

```
//SCRUB EXEC PGM=FUNSCRUB,PARM='V141'
```

Required DD statements

The JCL to run Scrub must contain DD statements with the following ddnames:

SYSIN

Input data set containing Scrub commands. For example:

```
//SYSIN DD *
SCRUB
/*
```

SYSPRINT

Output data set where Scrub echoes the input commands and writes messages.

SYSUT1

Input IMS log.

Optional DD statements

The JCL to run Scrub can optionally contain DD statements with the following ddnames:

LOGINFO

Output log information report written by the SCRUB or REPORT command.

LOGINFO is the default ddname for the log information report.

To output the log information report to a different ddname, use the OUTPUT parameter of the SCRUB or REPORT parameter.

If you do not explicitly specify a LOGINFO DD statement, Scrub dynamically allocates this ddname to SYSOUT=*.

SYSUT2

Output IMS log (scrubbed).

If you omit this DD statement, Scrub continues, and writes the log information report as if you had specified an output IMS log.

If you omit the DCB attributes (RECFM, LRECL and BLKSIZE) for the output IMS log, Scrub uses the DCB attributes of the input IMS log specified by SYSUT1.

Return codes

- 0 Request completed successfully.
- 4 Request completed with a warning. See warning message in SYSPRINT.
- 8 Request failed. See error message in SYSPRINT.

Related concepts:

“Global options module (FUNGLOBL)” on page 12

The global options module provides a way for you to specify Scrub utility runtime settings such as the IMS version.

Related tasks:

“Setting the IMS version as a global option” on page 13

This task shows you how to set a default value for the IMS version.

Scrub log information report

The SCRUB and REPORT commands produce a log information report that identifies the types of log record in the input IMS log, with statistics for each type.

Example

VIRIM0		IMS V141		Common Services Library Scrub Utility - Log Information							
Log data From 2015-02-11 15.55.11.912529				To 2015-02-11 15.56.01.883558				Duration		0.50	
----- In -----										----- Out -----	
Code	Count	MCNT	Recs/Sec	Avg len	Max Len	Byte/Sec	MB	%	Count	Scrubbed	
01	6,190		123	5	4,008	65,955	3.2	4.7	6,190	5,240	
CQS PUT	545		10	1,8	4,008	19,793	0.9	1.4	545	545	
CQS RD	819		16	4	1,008	6,935	0.3	0.4	819	0	
OUT	2,708		54	5	533	27,715	1.3	1.9	2,708	2,708	
CONT	2,118		42	2	4,008	11,510	0.5	0.8	2,118	1,987	
03	21,984		439	6	4,008	291,143	14.2	20.9	21,984	11,343	
IN	19,649		392	5	4,008	221,530	10.8	15.9	19,649	9,685	
OUT	1,971		39	1,4	4,008	57,482	2.8	4.1	1,971	1,448	
CONT	364		7	1,6	4,008	12,130	0.5	0.8	364	210	
07	10,682	11,718	213	4	456	97,419	4.7	7.0	10,682	0	
MPP	7,400	9,994	148	4	456	67,488	3.2	4.8	7,400	0	
QUICK	131	1,724	2	4	456	1,194	0.0	0.0	131	0	
FALSE	3,114	0	62	4	456	28,399	1.3	2.0	3,114	0	
BMP	14	0	0	4	456	127	0.0	0.0	14	0	
DBCTL	23	0	0	4	456	209	0.0	0.0	23	0	
08	10,667		213	1	148	31,574	1.5	2.2	10,667	0	
MPP	10,499		209	1	148	31,077	1.5	2.2	10,499	0	
QUICK	131		2	1	148	387	0.0	0.0	131	0	
BMP	14		0	1	148	41	0.0	0.0	14	0	
ODBM	10		0	1	148	29	0.0	0.0	10	0	
DBCTL	13		0	1	148	38	0.0	0.0	13	0	
31	12,407		248	1	762	30,010	1.4	2.1	12,407	0	
DLI	11,670		233	1	116	27,074	1.3	1.9	11,670	0	
COMMS	737		14	1	762	2,935	0.1	0.2	737	0	
37	23,796		475	1	152	51,939	2.5	3.7	23,796	0	
4001	1		0	5	500	10	0.0	0.0	1	0	
45FF	1		0		60	1	0.0	0.0	1	0	
50	27,774		555	2	1,569	117,345	5.7	8.4	27,774	27,728	
6701	11,612		232	9	1,056	217,628	10.6	15.6	11,612	11,612	
Total	312,319		6,246	2	4,140	1,389,076	67.8	100.0	312,319	55,923	

Figure 5. Example log information report produced by the SCRUB command

The columns under the Out heading appear in reports produced by the SCRUB command, but not in reports produced by the REPORT command. The columns under Out show how many records were copied to the output IMS log (specified by the SYSUT2 DD statement), and how many of those records were scrubbed.

Tip: To produce a report with Out columns without writing a scrubbed IMS log, use a SCRUB command but omit the SYSUT2 DD statement.

For each record type, the report shows record count, length, rates per second, and volumes. Selected record types are broken down further to provide additional information about transaction arrival and processing throughput. For additional information on each record type, refer to the appropriate IMS documentation.

Additional information for record types 01 and 03: message arrival rates

The following message arrival rate information appears indented under the rows for log record types 01 and 03:

IN Transaction processed on this system

MSC FE

MSC transaction processed on a remote system

MSC BE

Remote MSC transaction processed on this system

CQS PUT

Input transaction put onto the shared queue

CQS RD

Input transaction read off the shared queue for processing on this system

OUT Output message

CONT

Continuation record (MSGFFRST=0)

Additional information for record types 07 and 08: scheduling and transaction processing rates

The following scheduling and transaction processing rate information appears indented under the rows for log record types 07 and 08:

MPP Message processing region

QUICK

Message processing region quick reschedule

BMP Batch message processing (message and non-message driven)

IFP Fast Path

JMP Java™ message processing region

JBP Java batch processing region

AER Application Execution Region

DBCTL

CICS® DBCTL

ODBM

Open Database

TRACK

Tracking thread

CPI-C APPC region

For 07 only:

DBCTL

Includes DBCTL and ODBM (DLRDBT=1 for both and therefore indistinguishable)

FALSE

False schedule (DLRFALSE=1)

ABEND

Transactions that abended (DLRAB=1)

Additional information for record type 31: transaction processing rates

The following transaction processing rate information appears indented under the rows for log record type 31:

DLI I/O PCB GU to start transaction processing

COMMS

Output message sent

Global options module (FUNGLOBL)

The global options module provides a way for you to specify Scrub utility runtime settings such as the IMS version.

The advantage of using the global options module is that when you need to update the IMS version, you can change it in a single place, instead of in multiple JCL members.

If a PARM parameter is included on the EXEC statement for a Scrub utility job step, the PARM parameter overrides the global runtime settings. This feature is useful if you need to run the Scrub utility for a specific JCL member to a different IMS version from the version specified in the global options module.

Setting the IMS version as a global option

This task shows you how to set a default value for the IMS version.

About this task

If you have to maintain many JCL members that refer to the Scrub utility, and you need to update the IMS version for all of them, you might find it easier to specify the IMS version in the global options module.

Procedure

1. In the sample library SFUNSAMP, edit FUNGLOBL to set IMSLEVEL to the IMS version you want; for example, IMSLEVEL=V141.
2. Customize the sample JCL code in FUNASMGL to assemble and link FUNGLOBL into the appropriate STEPLIB.
3. Test the Scrub utility, and check the output messages for indications that a global option is in effect, and that the IMS level is correct.

Related reference:

“Messages” on page 16

Use the information in these messages to help you diagnose and solve problems running Scrub.

Scrub commands

The SYSIN data set of a Scrub job must contain either a SCRUB command or a REPORT command. SYSIN may also contain other commands.

SCRUB command

The SCRUB command reads records from the IMS log specified by the ddname SYSUT1, scrubs them, and then writes them to SYSUT2.

SCRUB also produces a log information report. The report provides details about each record type in the input IMS log, and how many records were scrubbed and copied to the output IMS log.

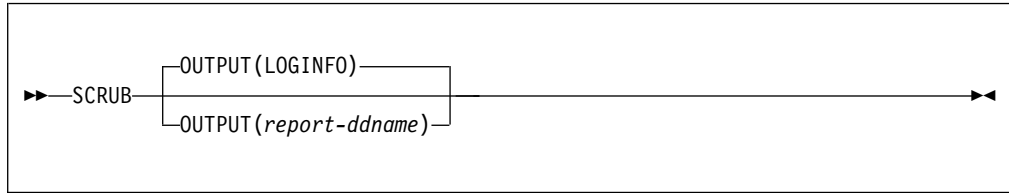
If you omit SYSUT2, SCRUB produces the report as if it had written to an output IMS log.

To filter the time range of records that SCRUB reads from the input IMS log, use the START and STOP commands.

To filter the types of record that SCRUB writes to the output IMS log, use the CODES command.

The SYSIN data set of a Scrub job must contain either a SCRUB command or a REPORT command. Do not specify both a SCRUB command and a REPORT command in the same SYSIN data set.

Syntax



Parameters

OUTPUT(*report-ddname*)

Specifies the ddname for the log information report.

If you omit this parameter, Scrub writes the log information report to the destination specified by the LOGINFO ddname.

If you do not specify a LOGINFO DD statement, Scrub dynamically allocates this ddname to SYSOUT=*.

REPORT command

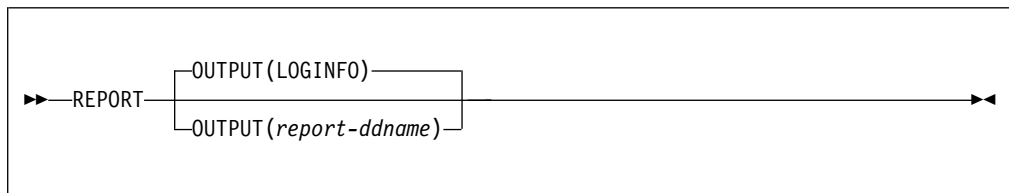
The REPORT command produces a log information report. The report provides details about each record type in the input IMS log.

The report produced by the REPORT command does not contain the Out columns in the similar report produced by the SCRUB command.

To filter the time range of records that REPORT reads from the input IMS log, use the START and STOP commands.

The SYSIN data set of a Scrub job must contain either a SCRUB command or a REPORT command. Do not specify both a SCRUB command and a REPORT command in the same SYSIN data set.

Syntax



Parameters

OUTPUT(*report-ddname*)

Specifies the ddname for the log information report.

If you omit this parameter, Scrub writes the log information report to the destination specified by the LOGINFO ddname.

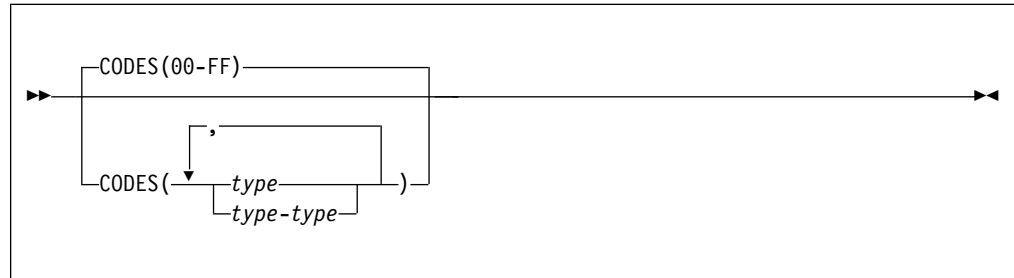
If you do not specify a LOGINFO DD statement, Scrub dynamically allocates this ddname to SYSOUT=*.

CODES command

The optional CODES command restricts which log record types the SCRUB command writes to the output IMS log.

CODES does not affect which record types are scrubbed.

Syntax



You can specify individual log record types and ranges of log record types, in any combination.

Each *type* can be either a 2-digit hexadecimal value (a log record type, such as 01) or a 4-digit hexadecimal value (a log record type followed by a subtype, such as 5901).

Examples

If you omit the CODES command, the SCRUB command writes all log record types, as if you had specified the following CODES command:

```
CODES(00-FF)
```

The following example excludes user log records from the output IMS log:

```
CODES(00-99)
```

A SYSIN data set can contain multiple CODES commands. The following single command:

```
CODES(01,03,40-45,67FF,50,5901-59FF)
```

is equivalent to the following commands:

```
CODES(01)
CODES(03)
CODES(40-45)
CODES(67FF)
CODES(50)
CODES(5901-59FF)
```

START and STOP commands

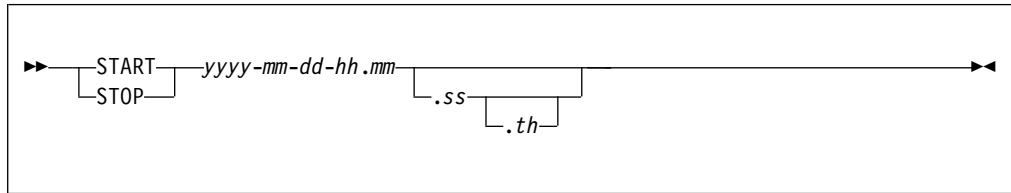
The optional START and STOP commands restrict the time range of records that the SCRUB and REPORT commands read from the input IMS log.

By default, SCRUB and REPORT read all records from the input IMS log.

Scrub interprets the start and stop times according to the time zone specified by the ZONE command. If you omit the ZONE command, or specify the default value

ZONE(LOCAL), Scrub interprets the start and stop times according to the local time zone of the system on which Scrub is running.

Syntax



Example

The following example selects records for 26 January 2017 from 10:30 a.m. to 2:30 p.m.:

```
START 2017-01-26-10.30
STOP 2017-01-26-14.30
```

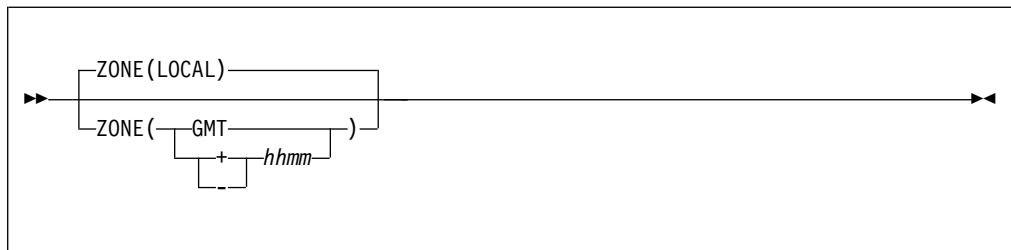
ZONE command

The optional ZONE command specifies the time zone where the input IMS log was created. Use ZONE to process IMS logs that were created in a different time zone to the system on which you are running Scrub.

The log record time stamp is a (GMT) STCK value in the log record suffix. Scrub converts this time stamp to local time by applying the ZONE specification.

Note that when LOCAL is specified (the default), then the system leap second offset (CVTISO) is also applied.

Syntax



Messages

Use the information in these messages to help you diagnose and solve problems running Scrub.

Message format

Scrub message identifiers have the following format:

FUNnnnnx

where:

FUN Indicates that the message was issued by Common Services Library.

- nnnn* Is the message identification number.
- x* Indicates the severity of the message:
- I** Indicates that the message is informational only.
 - W** Indicates that the message is a warning to alert you to a possible error condition.
 - E** Indicates that an error occurred, which might or might not require operator intervention.
 - S** Severe. Scrub processing is suspended until you have taken action.
 - C** An internal Scrub error. Scrub immediately stops processing. Contact IBM Software Support.

Each message also includes the following information:

Explanation

Describes what the message text means, why the message occurred, and what its variables represent.

System action

Describes what the system will do in response to the event that triggered this message.

User response

Describes whether a response is necessary, what the appropriate response is, and how the response will affect the system or program.

FUN5000E Command input error:
Command=command

Explanation: Invalid command input from SYSIN specified.

System action: Scrub immediately stops processing.

User response: Specify correct command input and retry request.

FUN5003W SYSUT2 output file was not specified,
reporting continues

Explanation: SYSUT2 output DD was not specified in the JCL.

System action: Scrub continues processing and produces only the log information report output.

User response: None.

FUN5001E No action commands were specified

Explanation: No valid action commands were specified in the command input. SYSIN specifies commands for the Scrub and report requests. SYSIN specifies commands for the Scrub and report requests.

System action: Scrub immediately stops processing.

User response: Specify correct command input and retry request.

FUN5004I Log input processing started: Time=time
stamp, LSN=log sequence number

Explanation: The first log record in the input file has been read. Record processing does not commence until the start time (if specified) is reached. The log record suffix (STCK time stamp and LSN) are formatted to help identify the start of this log file.

System action: Processing continues.

User response: None. Informational message only.

FUN5002E DD statement is missing from JCL:
ddname=ddname

Explanation: A required ddname was not specified in the JCL.

System action: Scrub immediately stops processing.

User response: Specify the required ddname in the JCL, and retry the request.

FUN5005I Start time has been reached: Time=time
stamp, LSN=log sequence number

Explanation: The first log record after the required start time has been read and is about to be processed. The log record suffix (STCK time stamp and LSN) are formatted to help identify the first record.

System action: Processing continues.

User response: None. Informational message only.

FUN5006I **Log input processing ended:** *Time=time stamp, LSN=log sequence number*

Explanation: The last log record in the input file has been read. The log record suffix (STCK time stamp and LSN) are formatted to help identify the end of this log file.

System action: Processing continues.

User response: None. Informational message only.

FUN5007I **Records processed:** *In=number of record input Out=number of records output Scrubbed=number of records scrubbed*

Explanation: Record processing to the specified output file has completed. The record counts indicate the number of records read in, scrubbed, and written out.

System action: Processing continues.

User response: None. Informational message only.

FUN5008I **Global module FUNGLOBL was found in STEPLIB**

Explanation: During initial processing the global runtime options module was found in the STEPLIB dataset.

System action: Processing continues.

User response: None. Informational message only.

FUN5009I **Utility options used:** *IMS level=IMS version*

Explanation: This message provides a summary of the runtime options that are in effect for this execution of the utility.

System action: Processing continues.

User response: None. Informational message only.

FUN5010E **Utility runtime option is invalid:** *IMS level=IMS version*

Explanation: A runtime option contains an invalid value. The name of the option is provided along with the value that is invalid.

System action: Utility execution ends.

User response: Correct the specification of the invalid runtime option.

FUN5011E **Execution cannot continue:** *Runtime options missing or incorrect, RSN=reason code*

Explanation: Utility execution cannot continue because the runtime options are missing or invalid. The

message provides a reason code to indicate the type of problem.

rsn=0201

At least one of the runtime options needed for execution has not been defined in either the global module or the PARM parameter of the job.

rsn=0202

At least one of the runtime options specified in the global module, or the PARM parameter of the job, is invalid.

rsn=0203

The IMS level of the secondary log data set (SLDS) being scrubbed does not match the IMS level specified in the runtime options. A previous message has been issued to identify the IMS level mismatch.

System action: Utility execution ends.

User response: Correct the specification of the invalid or missing runtime options.

FUN5012E **Error detected:** *runtime IMS level=IMS runtime level, does not match log record IMS level=IMS log record level, LSN=log sequence number*

Explanation: During the scrub process, an IMS log record containing the IMS level that created the secondary log data set (SLDS) was found. The IMS level that created the SLDS does not match the IMS level runtime option. Both levels are shown in the message.

System action: Utility execution ends.

User response: Correct the specification of the IMS level in the global option or job parameter.

FUN5013E **SYSPRINT DD is missing**

Explanation: SYSPRINT DD was not specified in the JCL. SYSPRINT contains the system messages and runtime event log.

System action: The Scrub utility immediately stops processing with return code 16. This message is written to the JOBLOG because no message output file is available.

User response: Specify SYSPRINT DD in the JCL then retry request.

FUN5014I **Scrub utility processing has completed:** *RC=return code*

Explanation: The Scrub utility has completed processing. The specified return code indicates how the job completed:

0 Processing completed successfully

- 4 Processing completed with some warnings
- 8 An unrecoverable error has prematurely
 stopped processing

System action: Scrub utility completes processing.

User response: None. Informational message only.

Notices

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

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

IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-1785
U.S.A.

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

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

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law:

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

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

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

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

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

IBM Corporation
J64A/G4
555 Bailey Avenue
San Jose, CA 95141-1003
U.S.A.

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

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

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

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

COPYRIGHT LICENSE:

This information contains sample application programs in source language, which illustrate programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs. The sample programs are provided "AS IS", without warranty of any kind. IBM shall not be liable for any damages arising out of your use of the sample programs.

Trademarks

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

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

Privacy policy considerations

IBM Software products, including software as a service solutions, ("Software Offerings") may use cookies or other technologies to collect product usage information, to help improve the end user experience, to tailor interactions with the end user or for other purposes. In many cases no personally identifiable information is collected by the Software Offerings. Some of our Software Offerings can help enable you to collect personally identifiable information. If this Software Offering uses cookies to collect personally identifiable information, specific information about this offering's use of cookies is set forth below.

This Software Offering does not use cookies or other technologies to collect personally identifiable information.

If the configurations deployed for this Software Offering provide you as customer the ability to collect personally identifiable information from end users via cookies and other technologies, you should seek your own legal advice about any laws applicable to such data collection, including any requirements for notice and consent.

For more information about the use of various technologies, including cookies, for these purposes, see IBM's Privacy Policy at <http://www.ibm.com/privacy> and the section titled "Cookies, Web Beacons, and Other Technologies" in IBM's Online Privacy Statement at <http://www.ibm.com/privacy/details>. Also, see the "IBM Software Products and Software-as-a-Service Privacy Statement" at <http://www.ibm.com/software/info/product-privacy>.

Index

A

accessibility
 overview 3

C

CODES command 15
components 1
cookie policy 21, 23

D

documentation
 accessing 2
 sending feedback 2

E

EXEC statement 7

F

FUNGLOBL 13

I

IMS log records
 scrubbing sensitive data from 7
IMS value as global option 13
installation 5
introduction to Common Services
 Library 1

L

legal notices
 cookie policy 21, 23
 notices 21
 programming interface
 information 21
 trademarks 21, 22

M

messages
 overview 16

N

notices 21

O

overview of Common Services Library 1

P

PARM parameter 7
plug-ins 5
programming interface information 21

R

reader comment form 2
REPORT command 14

S

screen readers and magnifiers 3
SCRUB command 13
scrubbing sensitive data from IMS log
 records 7
service information 1
START command 15
STOP command 15
support information 1
syntax diagrams
 how to read v

T

technotes 2
trademarks 21, 22

Z

ZONE command 16



Product Number: 5655-CSL

SC27-6753-01

