IBM Copy Services Manager
6.3

Command-Line Interface User's Guide

SC27-8998-13

Note:

Before using this information and the product it supports, read the information in “Notices” on page 217.

This edition applies to version 6, release 3, modification 0, fix pack 1 of IBM® Copy Services Manager and to all subsequent releases and modifications until otherwise indicated in new editions.

Contents

Tables

About this guide

IBM Copy Services Manager is a software product that manages data-copy functions. By using the IBM Copy Services Manager command-line interface (CLI), you can interact with the product by entering CLI commands. This guide provides the CLI commands that you can enter, as well as their definitions, syntax, and examples.

Who should read this guide

This publication is intended for users of the CLI program for Copy Services Manager.

Command-line interface conventions

Information is provided about using the CLI program for Copy Services Manager. It includes information about command conventions and modes, command format requirements, and other usage information.

Syntax diagram conventions

A *syntax diagram* uses symbols to represent the elements of a command and to specify the rules for using these elements.

Within a syntax diagram, a *keyword* represents the name of a command, flag, parameter, or argument. Required keywords indicate the parameters or arguments that must be specified for the command.

To read syntax diagrams, follow the path of the line:

- Required keywords are displayed on the main path line. Mutually exclusive required keywords are stacked vertically. Optional key words indicate the parameters or arguments that you can choose to specify for the command. Optional keywords are shown under the main path line. Mutually exclusive optional keywords are stacked vertically.
- The main path line begins with double arrowheads (>>) and ends with two arrowheads that point to each other (><). If a diagram is longer than one line, each line to be continued ends with a single arrowhead (>) and the next line begins with a single arrowhead. The -->< symbol indicates the end of the syntax diagram.
- A dash (-) indicates that you must supply parameters from the `stdin` file rather than entering parameters.
- An arrow that returns to the start of an item means you can repeat the item. A character or space within the arrow means you must separate repeated items with that character or space.
- A stack of items followed by an arrow that returns to the start of the stack indicates that you can select more than one item. In some cases, you can repeat a single item.
- When a group of parameters is lengthy or a section is used multiple times in a command, it is shown as a separate fragment that follows the main diagram.

Syntax diagrams use position to indicate required, optional, and default values for keywords, variables, and operands:

- If an element is shown on the line, the element is required. If an element is shown under the line, the element is optional. If an element is shown over the line, the element is the default.
- If an operand has a default value, the operand is shown both over and under the main line. A value under the main line indicates that the operand must be specified. You must specify the default value or one of the other valid values that are shown. If an operand is not specified, the default value over the main line is used.
- When one or more items are shown under the main line, all of the items are optional.

Command emphasis

The following typefaces are used to show command emphasis:

boldface
Text in **boldface** represents command names.

italics
Text in *italics* is used for variables for which you supply actual values, such as a default directory or the name of a cluster.

`monospace`
Text in `monospace` identifies the data or commands that you type, samples of command output, examples of program code or messages from the system, or names of command flags, parameters, arguments, and name-value pairs.

Special characters

The following special characters are used in the command descriptions:

minus sign (-)
Flags are prefixed with a `minus sign` (-). Flags define the action of a command or modify the operation of a command. You can use multiple flags, followed by parameters, when you issue a command. This character cannot be used as the first character of an object name.

vertical bar (|)
A vertical bar signifies that you choose only one value.

For example, `[ a | b ]` indicates that you can choose a, b, or nothing. Similarly, `{ a | b }` indicates that you must choose either a or b.

quotation marks (" ")
Quotation marks around a string indicate that the value can include spaces, for example, "my session name."

brackets ([ ])
Brackets indicate optional options, parameters, and arguments.

braces ({ })
Braces indicate a required choice between two or more options or arguments.

ellipsis (...)
Ellipses indicate repetition or multiple values or arguments.

Command entry

You are guided through how to enter commands in a valid format.

Order of parameters

Parameters can be entered in any order, with the following exceptions:

- The first argument that follows the command name must be the action that is to be performed.
- If you are performing an action on a specific object, the object ID or name must be the last argument in the line.

Multiple values

For any commands that accept multiple input values of the same type, delimit the values with a comma with no spaces in the input string. For example, `-vol 3,5,8,9`).

For any commands that require multiple value types in one string, delimit the value types with a period. For example, if a volume requires a device number and a volume number, you might specify `-vol FCA86.3,FCA78.5,FCA96.8`. When input values are of different types but specified in the same flag,

use a colon. For example, to specify a minimum and maximum value in the same flag, you would type `–size min:max`.

Multiple arguments

Copy Services Manager supports multiple arguments for the `chsess`, `lsdevice`, `lssess`, `lssessactions`, `lsvol`, and `rmsess` commands. If you use a command with multiple arguments, the command is applied for each of the arguments. For example, you might issue the following command to remove `session_a`, `session_b`, and `session_c`.

```
#rmsess session_a session_b session_c
```

When a command runs on more than one argument, the CLI program establishes a single security session to run the command on each of the multiple arguments.

Volumes and locations

The following volume values are valid:

ESS devices
Valid volume values include the device type, component type, device ID, subsystem ID, logical subsystem ID, and volume ID, with each separated by a period or colon. For example:

ESS single volume

```
ESS:2105.65312:VOL:202F (ESS:ELEMENTTYPE.DEVICEID:VOL:LSSVOLNUM)
```

User-defined objects

The requirements for valid user-defined object names are listed:

- User-defined object names can be 250 characters or fewer, unless otherwise noted.
- Valid characters are A-Z, a-z, 0 - 9, dash (-), underscore (_), period (.), and colon (:).
- Object names must start with an alphanumeric character.
- Most object names cannot contain any blank spaces. However, you can include blanks in session names and location names.
- Do not translate user-defined objects or otherwise modify them from the user's entry. These objects are to remain case-sensitive.

User-defined descriptions

The requirements for valid user-defined descriptions are listed:

- If a description contains spaces, it must be enclosed in matching double quotation marks or single quotation marks.
- If a description that is already enclosed in matching quotation marks includes an asterisk, the asterisk must be preceded by an escape character, for example, `-desc "This is the \* pool"`.
- If a description that is already enclosed in matching quotation marks includes double quotation marks or single quotation marks within the actual text string, these characters must be escaped. For example, -desc `"This is Hanna\'s description"` or `–desc "This is the pool I call \"Foo\".'`
- User-defined descriptions can be 250 characters or fewer. They cannot contain any leading blank spaces.
- User-defined descriptions should not be translated or otherwise modified from the user's entry. The user-defined descriptions should remain case-sensitive.
- The CLI is sensitive to case when it interprets user-defined object names that are given as input. For example, object F00 is different from object `foo`.

Command modes

You can use the command-line interface (CLI) to run a single command or a series of commands, either interactively or from a script.

Single-shot mode

If you want to run only a single command, specify the `csmcli` program and the command that you want to run from the shell prompt, for example:

```
shell> csmcli lslocation
Location  Details
================
1         Boulder
3         Marana
2         Tucson
shell>
```

Interactive mode

If you want to run several commands, start a CLI session by using the `csmcli` program with no parameters or arguments. Then, enter each command at the `csmcli>` shell prompt. For example:

```
shell> csmcli
csmcli> rmsess exmp_session
Are you sure that you want to remove session exmp_session? [y/n]:y
Session exmp_session removed
csmcli> exit
shell>
```

Script mode

If you want to run a set of commands that you defined in a file, use the `csmcli` program with the **`-script`** parameter. For example:

```
shell> csmcli -script ~/bin/containersetup
shell>
```

You can add comments to the script file by placing a number sign (#) in the first column. For example:

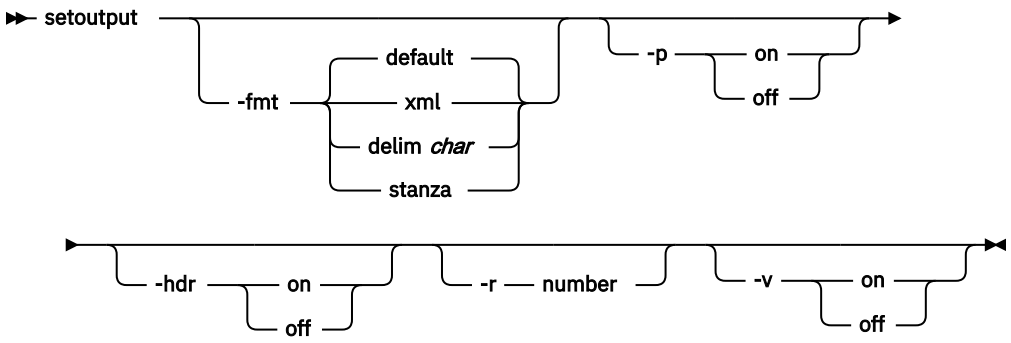
```
# This script file lists the default storage pool.
lspool -l -type default
```

The CLI program recognizes these built-in commands in interactive mode:

setoutput

Specifies various command-output format options. All settings that are specified with `setoutput` remain in effect during the interactive command session unless reset either with a command option or with `setoutput`. With no options, `setoutput` displays the current settings in the default output format. Settings from the `setoutput` command do not apply to help pages; help pages are shown in text output only.

Syntax



Parameters and arguments:

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim` *`char`* , where *`char`* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r ***number***
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of 1 - 100. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

help
Displays a list of commands available from the CLI session.

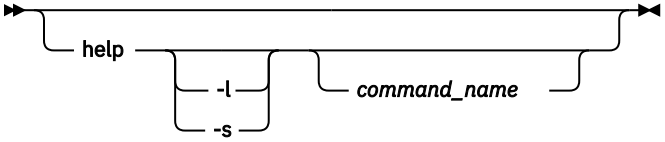
exit
Exits from the CLI session.

quit
Exits from the CLI session.

User assistance for commands

You can get user assistance for the `csmcli` command by using the `help` command.

Syntax



Parameters

`-l`
Displays a list of all available commands and syntax for each if no other options are specified. If a command name is also specified, this option displays syntax for that command.

`-s`
Displays a list of all available commands and a brief description of each if no other options are specified. If a command name is also specified, this option displays a brief description for that command.

command_name
Displays detailed help for the specified command.

Description

If this command is invoked without any parameters, it displays a list of all available commands.

You can use the command-help parameters (`-help`, `-h`, or `-?`) that are supported by each command to display a detailed description of the specified command. For more information about the command-help parameters, see the description for each command.

Output from command processing

The command output can include information such as prompts, messages, and codes. For some commands, you can specify the output format.

Confirmation prompts

Commands might cause an unrecoverable operation, loss of data, memory drain, or a long-running task, or might have an impact on concurrent operations. In these situations, you receive an interactive confirmation prompt that asks if you are sure that you want to continue with the specific action, such as:

```
Are you sure you want to xxx? Y/N
```

All confirmation prompts accept the following input:

`YES, yes, Y, y`
Confirm the action and continue.

`NO, no, N, n`
Cancel the action.

Messages

Messages are returned in the format of `IWNCxxxxy`, `IWNRxxxxy`, `IWNHxxxxy`, or `IWNExxxxy`, where xxxx is the number of the message and y indicates that the message type is I (information), W (warning), or E (error).

Each CLI command issues a return value and message. These messages are output as follows:

- Warning and informational messages are written to stdout.
- Error messages are written to the standard error stream (stderr).
- Messages include an explanation of the problem, if one exists.

Suppression of confirmation prompts and messages

You can use these flags to modify command input:

- To force destructive action, such as making a volume even if the LUN already has a label, use the **-f** flag. This flag suppresses confirmation and error messages.
- To suppress confirmation prompts and messages, use the **-quiet** flag. This flag answers yes to all confirmation prompts.

Return codes

The following table contains the codes that are returned by the **csmcli** command.

Table 1. Return codes for the csmcli command

Code	Category	Description
0	Success	The command was successful.
2	Syntax error	The syntax of the command was not correct.
3	Connection error	A connectivity error or protocol error occurred.
4	Server error	An error occurred during a function call to the application server.
5	Authentication error	An error was detected during authentication checking.
6	Application error	An error occurred during processing that is performed by the MetaProvider client application.

Notes:

- In single-shot mode, an exit code is provided after each command.
- In interactive and script mode, an exit code is not provided after each command. Instead, output is echoed to stdout for status information.
- In single-shot and interactive mode, with commands that act on more than one argument if one or more operations fail, the CLI completes the following actions:
  - Complete processing of all operations that it can continue processing
  - Report on all successful completions
  - Report on any failures
- In script mode, the CLI operates the same way. However, if one or more operations fail in the specified file, the CLI issues a failure exit code and automatically exits from the script mode after the failed command.

Options for setting the output format of listings

The standard format parameters set the output format of the listing (**ls**) commands in the CLI program. These parameters can be used either in one of the listing commands or in the **setoutput** command. The

format settings remain in effect during the session or until you reset the parameters either by specifying these parameters in a listing command (commands that start with `ls`) or by using the **setoutput** command.

- **-p** specifies whether to display one page of text at a time or all text at one time.
  - `off` displays all text at one time. This option is the default value when the **csmcli** command is run in single-shot mode.
  - on displays one page of text at time. Pressing any key displays the next page. This option is the default value when the command is run in interactive mode.
- **-r number** specifies the number of rows per page to display when the **-p** parameter is on. The default value is 24. You can specify a value in the range 1 - 100.
- **-fmt** specifies the format of the output. You can specify one of the following values:
  - **default** specifies that the output is displayed in a tabular format by using spaces as the delimiter between the columns. This parameter is the default value.
  - **delim character** specifies that the output is displayed in a tabular format by using the specified character to separate the columns. If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.
  - **xml** specifies that the output is displayed in XML format.
  - -**hdr** specifies whether to display the table header. Use the default value of on to display the table header. Use `off` to hide the table header.
- **-v** specifies whether to enable verbose mode. Use the default value of `off` to disable verbose mode. This option is the default value. Use on to enable verbose mode.

These standard listing options modify command output in any CLI mode:

- **ls***object* **-s** lists only the objects without other columns of information. For example, `lssess –s` lists only the name header and the session names.
- **ls***object* **-l** lists all the objects with all defined columns, including the description.

Examples of using the setoutput command to define output formats

You can set output formats by using the **setoutput** command in interactive or script modes or by using the corresponding standard command options in single-shot mode.

setoutput with no options

When you issue **setoutput** with no options, the CLI always displays the current output settings in the default format (space-separated plain-text table), regardless of the values of the output settings. For example, enter the following command:

```
csmcli> setoutput
Paging  Rows  Format   Header  Verbose
=====================================
off     -     default  on      off
```

setoutput –fmt delim char

To obtain long output in comma-separated format for the default storage pool only, enter the following commands:

```
csmcli> setoutput –fmt delim ,
csmcli> lssess –l –type default
```

The following output is then returned:

```
Name,Status,State,Copy Type,
Recoverable,Copying,Copy Sets,Error
============================================================
session1,Inactive,Defined,Global Mirror Failover/Failback w/ Practice,
No,No,8,No
```

```
session2,Inactive,Defined,Global Mirror Failover/Failback,
No,No,0,No
```

To turn off headers, enter the command as shown in the following example:

```
csmcli> setoutput –fmt delim , -hdr off
csmcli> lssess –l –type default
```

The output would then be returned as follows:

```
session1,Inactive,Defined,Global Mirror Failover/Failback w/ Practice,
No,No,8,No
session2,Inactive,Defined,Global Mirror Failover/Failback,
No,No,0,No
```

setoutput –fmt xml

To obtain the long output in XML format for the default storage pool only, enter the following command:

```
csmcli> setoutput –fmt xml
csmcli> lssess –l –type default
```

The output is then returned in XML format as shown in the following example:

```
<IRETURNVALUE>
<INSTANCE CLASSNAME="STC_StoragePool"><PROPERTY NAME="Name" TYPE="string">
<VALUE>DEFAULT_POOL</VALUE></PROPERTY><PROPERTY NAME="PoolType" TYPE="uint32">
<VALUE>1</VALUE></PROPERTY><PROPERTY NAME="PartitionSize" TYPE="uint64">
<VALUE>16</VALUE></PROPERTY>
<PROPERTY NAME="AlertPercentage" TYPE="uint16"><VALUE>80</VALUE></PROPERTY>
<PROPERTY NAME="Size" TYPE="uint64"><VALUE>0</VALUE></PROPERTY>
<PROPERTY NAME="SizeAllocated" TYPE="uint64">
<VALUE>0</VALUE></PROPERTY><PROPERTY NAME="SizeAllocatedPercentage" TYPE="uint16">
<VALUE>0</VALUE></PROPERTY>
<PROPERTY NAME="NumberOfVolumes" TYPE="uint32"><VALUE>0</VALUE></PROPERTY>
<PROPERTY NAME="Description" TYPE="string"><VALUE>Default storage pool</VALUE>
</PROPERTY></INSTANCE>
</IRETURNVALUE>
```

setoutput –fmt default

To return the output format to the default (space-separated columns), enter the command as follows:

```
csmcli> setoutput –fmt default
csmcli> lssess –l type default
```

The output is then returned as follows:

```
Name    Type    Size(GB) Used(GB) Used(%) Alert(%)  Volumes
=====================================================================
DEFAULT Default 10000    2500     25      80        10


Partition  Size (MB)  Description
====================================
64         Default    Storage Pool
```

setoutput –fmt stanza

When columns are wide, output can be difficult to visually align. However, the stanza format option eliminates this problem. To obtain long output in stanza format for the default storage pool only, enter the command as follows:

```
csmcli> setoutput -fmt stanza
csmcli> lssess –l –type default
```

The output is then returned in the following format:

```
Name                  DEFAULT
Type                  Default
```

```
Size (GB)             10000
Used (GB)             2500
Used (%)              25
Alert (%)             80
Volumes               10
Partition Size (MB)   64
Description           Default storage pool

Name                  Personnel
Type                  System
Size (GB)             10000
Used (GB)             2500
Used (%)              25
Alert (%)             80
Volumes               20
Partition Size (MB)   64
Description           Personnel data
```

Publications and related information

Product guides, other IBM publications, and websites contain information that relates to IBM Copy Services Manager.

To view a PDF file, you need Adobe Reader. You can download it at no charge from the Adobe website (get.adobe.com/reader/).

Online documentation

The IBM Copy Services Manager online product documentation (http://www.ibm.com/support/knowledgecenter/SSESK4) contains all of the information that is required to install, configure, and manage IBM Copy Services Manager. The online documentation is updated between product releases to provide the most current documentation.

Publications

You can order or download individual publications that have an order number from the IBM Publications Center website (www.ibm.com/resources/publications).

Table 2. IBM Copy Services Manager product publications

Title	Description	Order number
IBM Copy Services Manager Installation and Configuration Guide	This guide provides task-oriented information for anyone who installs and configures IBM Copy Services Manager.	V6.2.11 **SC27-8543-14** V6.2.10 **SC27-8543-13** V6.2.9 **SC27-8543-12** V6.2.7 **SC27-8543-11** V6.2.6 **SC27-8543-10** V6.2.5 **SC27-8543-09** V6.2.3 **SC27-8543-08** V6.2.2 **SC27-8543-07** V6.2.1 **SC27-8543-06** V6.2.0 **SC27-8543-05** V6.1.5 **SC27-8543-04** V6.1.4 **SC27-8543-03** V6.1.3 **SC27-8543-02** V6.1.2 **SC27-8543-01** V6.1.0 **SC27-8543-00**

Table 2. IBM Copy Services Manager product publications (continued)		
Title	**Description**	**Order number**
IBM Copy Services Manager User's Guide	This guide provides task-oriented information for users of IBM Copy Services Manager. Users should be familiar with the following topics • Copy Services concepts • General principles of IBM AIX®, Linux®, Windows, and the IBM z/OS operating systems • Simple Network Management Protocol (SNMP) concepts • Storage Area Network (SAN) concepts	V6.3.0.1 **SC27-8542-20** V6.3.0 **SC27-8542-19** V6.2.12 **SC27-8542-18** V6.2.11 **SC27-8542-17** V6.2.10 **SC27-8542-16** V6.2.9 **SC27-8542-15** V6.2.8 **SC27-8542-14** V6.2.7 **SC27-8542-13** V6.2.6 **SC27-8542-12** V6.2.5 **SC27-8542-11** V6.2.4 **SC27-8542-10** V6.2.3 **SC27-8542-09** V6.2.2 **SC27-8542-08** V6.2.1 **SC27-8542-07** V6.2.0 **SC27-8542-06** V6.1.5 **SC27-8542-05** V6.1.4 **SC27-8542-04** V6.1.3 **SC27-8542-03** V6.1.2 **SC27-8542-02** V6.1.1 **SC27-8542-01** V6.1.0 **SC27-8542-00**
IBM Copy Services Manager Command-line Interface User's Guide	This guide provides information for customizing and using the command-line interface for IBM Copy Services Manager. This guide provides information for customizing and using the command-line interface for IBM Copy Services Manager.	V6.3.0.1 **SC27-8998-13** V6.3.0 **SC27-8998-12** V6.2.12 **SC27-8998-11** V6.2.11 **SC27-8998-10** V6.2.9 **SC27-8998-09** V6.2.8 **SC27-8998-08** V6.2.7 **SC27-8998-07** V6.2.5 **SC27-8998-06** V6.2.4 **SC27-8998-05** V6.2.3 **SC27-8998-04** V6.2.2 **SC27-8998-03** V6.2.1 **SC27-8998-02** V6.2.0 **SC27-8998-01** V6.1.5 **SC27-8998-00**
IBM Copy Services Manager z/OS FlashCopy Manager User's Guide	This guide provides task-oriented information for those who administer FlashCopy® operations in a z/OS® environment.	V6.3.0.1 **SC27-8032-06** V6.2.5 **SC27-8032-05** V6.2.3 **SC27-8032-04** V6.2.2 **SC27-8032-03** V6.2.0 **SC27-8032-02** V6.1.5 **SC27-8032-01** V6.1.3 **SC27-8032-00**
IBM Copy Services Manager Release Notes	This document contains the release notes in support of IBM Copy Services Manager.	Search on IBM Copy Services Manager at IBM Fix Central (www.ibm.com/support/fixcentral) to locate and download the Release Notes® related to your product version.

Table 2. IBM Copy Services Manager product publications (continued)		
Title	**Description**	**Order number**
IBM Copy Services Manager for z Systems Program Directory and *IBM Copy Services Manager Basic Edition for z Systems Program Directory*	These program directories are intended for system programmers who are responsible for program installation and maintenance. They contain information about the material and procedures associated with the installation of IBM Copy Services Manager for z Systems® and IBM Copy Services Manager Basic Edition for z Systems.	*IBM Copy Services Manager for z Systems Program Directory* V6.2.5 **GI13-4517-08** V6.2.3 **GI13-4517-07** V6.2.2 **GI13-4517-06** V6.2.1 **GI13-4517-05** V6.2.0 **GI13-4517-04** V6.1.4 **GI13-4517-03** V6.1.3 **GI13-4517-02** V6.1.1 **GI13-4517-01** V6.1.0 **GI13-4517-00** *IBM Copy Services Manager Basic Edition for z Systems Program Directory* V6.2.5 **GI13-4518-08** V6.2.3 **GI13-4518-07** V6.2.2 **GI13-4518-06** V6.2.1 **GI13-4518-05** V6.2.0 **GI13-4518-04** V6.1.4 **GI13-4518-03** V6.1.3 **GI13-4518-02** V6.1.1 **GI13-4518-01** V6.1.0 **GI13-4518-00**
Program Directory for IBM Copy Services Manager FlashCopy Manager for IBM Copy Services Manager for z Systems	This guide is intended for the system programmer or storage administrator of the IBM Copy Services Manager z/OS FlashCopy Manager utility.	V6.2.5 **GI11-2904-08** V6.2.3 **GI11-2904-07** V6.2.2 **GI11-2904-05** V6.2.1 **GI11-2904-04** V6.2.0 **GI11-2904-03** V6.1.4 **GI11-2904-02** V6.1.3 **GI11-2904-01**
IBM DSCLI on z/OS Program Directory	This program directory is intended for system programmers who are responsible for program installation and maintenance. It contains information about the material and procedures associated with the installation of the IBM Copy Services Manager on the DS8000® HMC for access to the DS8000 CLI.	V6.2.5 **GI13-3563-05** V6.2.3 **GI13-3563-04** V6.2.2 **GI13-3563-03** V6.2.1 **GI13-3563-02** V6.2.0 **GI13-3563-01** V6.1.4 **GI13-3563-00**

Related websites

View the websites in the following table to get more information about IBM Copy Services Manager.

Table 3. IBM Copy Services Manager related websites	
Title	**Description**
IBM website (ibm.com®)	Find more information about IBM products and services.

Table 3. IBM Copy Services Manager related websites (continued)	
Title	**Description**
IBM Support Portal website (www.ibm.com/support/home)	Find support-related information such as downloads, documentation, troubleshooting, and service requests and PMRs.
Copy Services Manager Support Portal (https://ibm.biz/Bdqrwj)	Find technical support information that is specific to IBM Copy Services Manager.
IBM Directory of Worldwide Contacts website (www.ibm.com/planetwide)	Find contact information for general inquiries, technical support, and hardware and software support by country.
IBM Redbooks® website (www.redbooks.ibm.com/)	Find technical information developed and published by IBM International Technical Support Organization (ITSO).
IBM System Storage® Interoperation Center (SSIC) website (www.ibm.com/systems/support/storage/config/ssic)	Find information about supported host system models, operating systems, adapters, and switches.
IBM Fix Central (www.ibm.com/support/fixcentral)	Find fixes and updates for your system's software, hardware, and operating system.

Sending comments

Your feedback is important in helping to provide the most accurate and highest quality information.

Procedure

To submit any comments about this publication or any other IBM storage product documentation:

- Send your comments by email to ibmkc@us.ibm.co. Be sure to include the following information:
  - Exact publication title and version
  - Publication form number (for example, GA32-1234-00)
  - Page, table, or illustration numbers that you are commenting on
  - A detailed description of any information that should be changed

Contacting IBM Software Support

You can contact IBM Software Support by phone, and you can register for support notifications at the technical support website.

- Go to the Copy Services Manager technical support website at Copy Services Manager Support Portal (https://ibm.biz/Bdqrwj).

  To receive future support notifications, sign in under **Subscribe to support notifications**. You are required to enter your IBM ID and password. After you are authenticated, you can configure your subscription for Copy Services Manager technical support website updates.

You can also review the *IBM Software Support Handbook*, which is available at http://www14.software.ibm.com/webapp/set2/sas/f/handbook/home.html.

The support website offers extensive information, including a guide to support services; frequently asked questions (FAQs); and documentation for all IBM Software products, including Redbooks and white papers. Translated documents are also available for some products.

When you contact IBM Software Support, be prepared to provide identification information for your company so that support personnel can readily assist you. Company identification information might also be needed to access various online services available on the website. See “Reporting a problem” on page xxii.

Reporting a problem

Provide the IBM Support Center with information about the problems that you report.

Have the following information ready when you report a problem:

- The IBM Copy Services Manager version, release, modification, and service level number.
- The communication protocol (for example, TCP/IP), version, and release number that you are using.
- The activity that you were doing when the problem occurred, listing the steps that you followed before the problem occurred.
- The job log output for any failing IBM Copy Services Manager jobs.
- The exact text of any error messages.
- The operating system, such as z/OS, IBM i.
- The storage system, such as DS8000, SVC, Hitachi.
- The function, such as FCM, CSM.

Summary of changes

The following functions are introduced in IBM Copy Services Manager 6.3.0.1:

Version 6, Release 3, Modification 0, Fix Pack 1

This table provides the current technical changes and enhancements to Copy Services Manager as of August 2021.

Table 4. Summary of changes in Copy Services Manager 6.3.0.1 (August 2021)

Function or feature	Description
View recovered backups	You can now run the **lsrecoveredbackups** command to view the backups for a specified session and role. For more information, see “lsrecoveredbackups” on page 118 .
View the H1-R1 pairs for a backup	You can now run the **lsrecoveredbackuppairs** command to view the H1-R1 pairs for a backup or backups for a specified session and role. For more information, see “lsrecoveredbackuppairs” on page 120.

The following functions are introduced in IBM Copy Services Manager 6.3.0

Version 6, Release 3

This table provides the current technical changes and enhancements to Copy Services Manager as of July 2021.

Table 5. Summary of changes in Copy Services Manager 6.3.0 (July 2021)

Function or feature	Description
Remove a scheduled task	The **rmsess** command allows you to remove a scheduled task. For more information, see “rmtask” on page 180.

Preparing to use HyperSwap from z/OS

Before you can use HyperSwap® with Copy Services Manager, you must configure z/OS to use HyperSwap.

Configuring HyperSwap

On IBM Z, HyperSwap requires that all RESERVEs are converted to global enqueues (ENQs).

When a HyperSwap is initiated and a RESERVE exists on any PPRC device, the RESERVE might be lost.

To prevent data integrity exposure, configure global resource serialization (GRS) to convert RESERVEs to Global ENQs, use these steps:

1. Run the ENQ/RESERVE/DEQ Monitor with filtering REQTYPE of NCRESERVE to gather reports on non-converted RESERVEs issued by the system. For more information about using the ENQ/RESERVE/DEQ monitor tool, see the *z/OS MVS™ Planning: Global Resource Serialization* document.
2. Use the GRSRNL*xx* member of SYS1.PARMLIB statement to add an RNLDEF customization parameter.
3. To convert any RESERVE that might be issued against volumes that are managed by HyperSwap to Global ENQs, use a PATTERN entry.
4. Use the RNLDEF parameter to convert all RESERVEs to Global ENQs: `RNLDEF RNL(CON) TYPE(PATTERN) QNAME(*)`.

For more information about converting RESERVEs to Global ENQs, see the section about GRSRNLxx (global resource serialization resource name lists) in the most-recent version of the *z/OS MVS Initialization and Tuning Reference*.

When RESERVEs are converted to GRS Global ENQs, the ENQs might take longer to resolve if the ISGLOCK structure is too small to process each global ENQ independently. If this situation occurs, you might want to increase the size of your ISGLOCK structure. For information about GRS, including guidelines on how to resize your ISGLOCK structure, see the latest version of the *z/OS MVS Planning: Global Resource Serialization* document.

Sharing the HyperSwap managed devices outside of the sysplex

When HyperSwap is started, the cross-system coupling facility or XCF is used to coordinate all the systems in the sysplex through the swap. Any system outside the sysplex does not participate in the swap, and is unaware that the device was swapped. In certain cases, the system outside the sysplex continues to use the old primary volumes after a swap, that results in data integrity exposures.

The HyperSwap address spaces

HyperSwap requires two address spaces: the HyperSwap API address space, and the HyperSwap management address space. Follow these steps to start the address spaces:

1. Add procedures for the address spaces to the SYS1.PROCLIB data set:

   For the HyperSwap API address space:

   ```
   //HSIBAPI JOB  MSGLEVEL=(1,1),TIME=NOLIMIT,REGION=0M
   //        EXEC PGM=IOSHSAPI
   ```

   For the HyperSwap management address space:

   ```
   //HSIB JOB MSGLEVEL=(1,1),TIME=NOLIMIT,REGION=0M
   //     EXEC PGM=IOSHMCTL
   ```

   Notes:

- If you are enabling an IP connection, the **SOCKPORT** parameter also needs to be added for the HyperSwap management address space.

  See the following example:

  ```
  //HSIB JOB MSGLEVEL=(1,1),TIME=NOLIMIT,REGION=0M
  //     EXEC PGM=IOSHMCTL,PARM='SOCKPORT=5858'
  ```

- If APAR OA57050 has been installed to support TCP/IP stack affinity when starting the z/OS HyperSwap Management address space, the new **STACKNAME** parameter must also be added.

  The **SOCKPORT** parameter must be specified if the **STACKNAME** parameter is specified.

  See the following example:

  ```
  //HSIB JOB MSGLEVEL=(1,1),TIME=NOLIMIT,REGION=0M
  //IEFPROC EXEC PGM=IOSHMCTL,
  //    PARM='SOCKPORT=PORT_NUMBER,STACKNAME=TCPIP_ADDRESS'
  ```

  where **PORT_NUMBER** is a number in the 1 - 65535 range, and **STACKNAME** is the TCP/IP stack name in 1 to 8 alphanumeric characters.

- If a TCP/IP stack affinity is not used, the **STACKNAME** parameter can be omitted.

2. Start the address spaces in one of the following ways:
   - Issue the **START** command manually.
   - Include the **START** command in the COMMND*xx* member of the SYS1.PARMLIB data set.

   Note: When you issue the START commands, either manually or by using COMMNDxx, it is preferred, although not required, that you start the API address space before the management address space.

These are the START commands for the specific address spaces:

For the HyperSwap API address space start command:

```
START HSIBAPI,SUB=MSTR
```

For the HyperSwap management address space start command:

```
START HSIB,SUB=MSTR
```

To reduce the possibility of a swap failure because of page faults, enable the CRITICALPAGING function. To enable the CRITICALPAGING function, use the FUNCTIONS statement of the COUPLE*xx* PARMLIB member for each system in the sysplex.

For example, add the following CRITICALPAGING statement to the COUPLE*xx* PARMLIB member:

```
FUNCTIONS ENABLE(CRITICALPAGING)
```

Tip: You cannot enable the CRITICALPAGING function through the **SETXCF** command. However, you can use either method to stop CRITICALPAGING.

For information about indicating the address spaces that are critical for paging, see the *z/OS V1R12.0 MVS Initialization and Tuning Reference* document.

SMF Recording

When z/OS HyperSwap is active, there is no SMF interval recording for the HyperSwap address spaces. There is no SMF interval recording for either the HSIB or HSIBAPI address spaces, or for the XCFAS address spaces. The reason for this design is to avoid potential hangs during HyperSwap processing due to access to disk storage by SMF. If you have existing SMF processes that depend on SMF interval records for XCFAS, review and revise these procedures.

Gathering information or controlling a HyperSwap session by using commands

When you are running HyperSwap, you can use extra commands to gather information or control a HyperSwap session on z/OS.

Table 6. Extra HyperSwap commands on z/OS	
Command	**Result**
D HS,STATUS	Displays the status of a HyperSwap session. This command also displays any reasons why HyperSwap might be disabled, and the policies for the HyperSwap session.
D HS,CONFIG(DETAIL,ALL)	Displays the detailed configuration for the HyperSwap session. The volumes and status of all pairs in the HyperSwap configuration are listed.
SETHS SWAP	Starts a planned HyperSwap session. You can issue this command instead of issuing the **HyperSwap** command from Copy Services Manager.
SETHS DISABLE	Disable HyperSwap by operator command. This command prevents a HyperSwap session from occurring, either by command or automatically.
SETHS ENABLE	Enable HyperSwap by operator command. This command allows a HyperSwap session to be performed, either by command or automatically, if a HyperSwap session is not disabled for other reasons.
SETHS RESUMEIO	Resumes normal I/O activity to devices after a suspended HyperSwap action because the Hold I/O option was used.

Chapter 1. Customizing the command-line interface

This information describes how to customize the command-line interface.

Configuring the command-line interface

This information describes how to modify the properties files to configure the command-line interface.

Before you begin

Note: For information on starting the command-line interface program, see the **csmcli** command.

About this task

There are three properties files that are used to configure the command-line interface:

repcli.properties
Contains the server and port information used to communicate with the IBM Copy Services Manager server and the command-line interface.

rmserver.properties
Contains configuration information about logging.

csmcli-auth.properties
Contains authorization information for signing on to the CLI automatically without entering your user name and password.

Setting up automatic login to the CLI

You can set up the command-line interface to automatically log you in without specifying your user name or password each time you issue a **csmcli** command or enter the `csmcli` shell. Use the `csmcli-auth.properties` file to create a persistent copy of the user name and encrypted password that is used for automatic authentication and authorization.

Procedure

Complete these steps to set up automatic login authentication:

1. Locate the `csmcli-auth.properties` template file where the `csmcli.bat` or `csmcli.sh` file is located.

   The template is in the following directories, depending on the operating system.

Operating system	Default directory
z/OS	*path_prefix*`/opt/IBM/CSM/CLI`
Windows	`c:\Program Files\IBM\CSM\CLI`
Linux or AIX	*path_prefix*`/CLI`

2. Copy the authentication properties template file into the `csm-cli` subdirectory of the home directory defined by the operating system. For example, `<HOME>/csm-cli/csmcli-auth.properties`.

   Note: You can place the file in the home directory to support different operating system users being able to log in from the same server.

3. Add CSM user login credentials in the properties file and grant file read permission for operating system users that should use the defined CSM credentials for automated log in. Passwords will be encrypted by the `csmcli-auth.properties` file when it is used the first time.

4. The operating system user can now run the script (or Job) to issue a **csmcli** command or enter the `csmcli` shell without providing further login credentials.

What to do next

Note: Optionally, for CSM CLI on z/OS, the **-saf** parameter can be used as your automatic login method. For more information on the setup and use of the **-saf** parameter, see “csmcli” on page 52.

Chapter 2. csmcli command descriptions

The following table provides a brief description and authorization role for each command in the command-line interface.

Sessions and copy sets

Command	Description	Roles
"addassociation" on page 9	Use the **addassociation** command to associate one session to another.	Administrator Operator
"chsess" on page 25	Use the **chsess** command to change the description or properties for an existing session. If you want to change the session type, you must delete the session and create another session.	Administrator Operator
"cmdsess" on page 43	Use the **cmdsess** command to run a specific action against a session.	Administrator Operator
"csmcli" on page 52	The `csmcli` command is the Copy Services Manager command-line interface (CLI) program. This command can be used either on its own, using the associated options and arguments, or interactively by starting `csmcli` with no parameters or arguments to start an interactive session.	Administrator Operator Monitor
"dcrequestaction" on page 54	Use the **dcrequestaction** command to run a specified scheduled task. Tip: To list all of the Dual Control requests, use the **lsdcrequests** command.	Administrator Operator Monitor
"exportcsv" on page 55	Use the **exportcsv** command to export the copy sets in a session to a comma-separated values (CSV) file or to the console. You are prompted to overwrite the CSV file if it exists.	Administrator Operator Monitor
"importcsv" on page 59	Use the **importcsv** command to parse a comma-separated values (CSV) file to create copy sets for a session.	Administrator
"lsbackups" on page 68	Use the **lsbackups** command to display the backups for a specified session and role.	Administrator Operator Monitor
"lsbackupvols" on page 70	Use the **lsbackupvols** command to display the volumes included in a given backup for the specified session and role.	Administrator Operator Monitor
"lscpset" on page 72	Use the **lscpset** command to list the IDs and number of volumes for the copy sets that are in a session.	Administrator Operator Monitor
"lscptypes" on page 75	Use the **lscptypes** command to display the session types and the storage systems that you can use with the session types.	Administrator Operator Monitor

Command	Description	Roles
"lsdcrequests" on page 84	Use the **lsdcrequests** command to display all Dual Control requests created by or requiring approval from the current user.	Administrator Operator Monitor
"lspair" on page 101	Use the **lspair** command to list the copy pairs for a specified role pair or to list the copy pairs for a specified copy set.	Administrator Operator Monitor
"lsparameter" on page 105	Use the **lsparameter** command to list Metro Mirror heartbeat setting.	Administrator Operator Monitor
"lsrolepairs " on page 112	Use the **lsrolepairs** command to display role pairs in a session.	Administrator Operator Monitor
"lsrolescpset" on page 116	Use the **lsrolescpset** command to list the volume roles in the specified session.	Administrator Operator Monitor
"lssess" on page 123	Use the **lssess** command to display sessions and their status.	Administrator Operator Monitor
"lssessactions" on page 126	Use the **lssessactions** command to list all the session actions (commands) that can be run for a session.	Administrator Operator Monitor
"lssessdetails" on page 129	Use the **lssessdetails** command to display the details of a session.	Administrator Operator Monitor
"mkcpset" on page 152	Use the **mkcpset** command to create copy sets.	Administrator Operator
"mksess" on page 160	Use the **mksess** command to create a session.	Administrator Operator
"rmassociation" on page 167	Use the **rmassociation** command to remove an association between two sessions.	Administrator Operator
"rmcpset" on page 170	Use the **rmcpset** command to remove a copy set.	Administrator Operator
"rmsess" on page 176	Use the **rmsess** command to remove a session.	Administrator Operator
"setparameter" on page 183	Use the **setparameter** command to set the system parameters.	Administrator

Command	Description	Roles
"setrolepaircg" on page 184	Use the **setrolepaircg** command to assign a specific user defined consistency group name to a role pair.	Administrator Operator
"showcpset" on page 186	Use the **showcpset** command to display properties for a copy set.	Administrator Operator Monitor
"showsess" on page 198	Use the **showsess** command to display properties for a selected session, including name, description, group managed, and copy type.	Administrator Operator Monitor

Storage systems and connections

Command	Description	Roles
"adddevice" on page 10	Use the **adddevice** command to add a storage system.	Administrator
"addemailalert" on page 13	Use the **addemailalert** command to add e-mail addresses to the list of e-mail addresses to receive e-mail alerts.	Administrator
"addemailserver" on page 14	Use the **addemailserver** command to add or change the SMTP server configuration used to send e-mail alerts.	Administrator
"addmc" on page 16	Use the **addmc** command to add a management console connection and all the storage systems that are managed by that management console.	Administrator
"addstorsys" on page 17	Use the **addstorsys** command to add a specific storage system and its volumes that are attached through a z/OS connection to the copy services management server configuration	Administrator
"chdevice" on page 19	Use the **chdevice** command to change user names and passwords for storage systems.	Administrator
"chlocation" on page 23	Use the **chlocation** command to change the location associated with the specified storage systems.	Administrator
"chmc" on page 24	Use the **chmc** command to set or change the hardware credentials for the hardware management console (HMC).	Administrator
"chsystem" on page 40	Use the **chsystem** command to make changes to system settings files for the server. The server may need to be restarted for changes to take effect. **Note:** This command can only be issued by a user with Administrator authority.	Administrator
"chvol" on page 42	Use the **chvol** command to change the protection setting for a volume. You cannot change the protection setting for a volume that is in a session.	Administrator
"lsavailports" on page 66	Use the **lsavailports** command to display the port configuration types for a specific path.	Administrator Operator Monitor

Command	Description	Roles
"lsdevice" on page 79	Use the **lsdevice** command to list storage systems and properties.	Administrator Operator Monitor
"lslocation" on page 95	Use the **lslocation** command to list all defined locations.	Administrator Operator Monitor
"lslss" on page 97	Use the **lslss** command to list the logical subsystems (LSSes) for the specified DS or ESS storage system. You can use this output with the **mkpath** command.	Administrator Operator Monitor
"lsmc" on page 99	Use the **lsmc** command to display a summary of management consoles and settings.	Administrator Operator Monitor
"lspath " on page 107	Use the **lspath** command to display paths between ESS and DS devices. You can then use this information for a remote copy.	Administrator Operator Monitor
"lspool" on page 110	Use the **lspool** command to list pools that are on FlashSystems/IBM Spectrum Accelerate.	Administrator Operator Monitor
"lsstorcandidate" on page 140	Use the **lsstorcandidate** command to list the storage systems that can be discovered through an IBM z/OS connection. This command does not list storage systems that are already added to the copy services management server configuration.	Administrator Operator Monitor
"lsvol" on page 144	Use the **lsvol** command to display detailed information about volumes.	Administrator Operator Monitor
"mkdevicedump" on page 156	Use the **mkdevicedump** command to collect diagnostic information on a storage device. The only storage devices currently supported by this command are DS8000 devices using an HMC connection. Users with administrator authority who have administrator or service authorization on the HMC can issue the **mkdevicedump** command through the HMC connection.	Administrator
"mkpath" on page 159	Use the **mkpath** command to create a Fibre Channel path or paths between a source logical subsystem (LSS) and a target LSS.	Administrator Operator
"rmdevice" on page 171	Use the **rmdevice** command to remove a direct connection to a storage system.	Administrator
"rmmc" on page 175	Use the **rmmc** command to remove a management console.	Administrator
"rmpath" on page 176	Use the **rmpath** command to remove a path or paths between a source logical subsystem (LSS) and a target LSS.	Administrator Operator

Command	Description	Roles
“rmstorsys” on page 178	Use the **rmstorsys** command to remove a specific storage system and its volumes connected through a z/OS connection to the copy services management server configuration.	Administrator
“showdevice” on page 187	Use the **showdevice** command to display storage system properties.	Administrator
“showmc” on page 197	Use the **showmc** command to display the properties of a management console.	Administrator

Management servers

Command	Description	Roles
“hareconnect” on page 58	Use the **hareconnect** command to reconnect the active and standby servers for high availability (HA).	Administrator
“hatakeover” on page 59	Use the **hatakeover** command to change the standby server to the active server.	Administrator
“lshaservers” on page 90	Use the **lshaservers** command to show the status of each active and standby management server.	Administrator Operator Monitor
“lssnmp” on page 139	Use the **lssnmp** command to list the SNMP managers to which the copy services management server is configured to send SNMP alerts.	Administrator Operator Monitor
“lstasks” on page 142	Use the **lstasks** command to display a list of scheduled tasks.	Administrator
“mkbackup” on page 151	Use the `mkbackup` command to create a backup of the configuration data (including storage systems, sessions, and copy sets) in the zero-administration embedded repository.	Administrator
“mklogpkg” on page 158	Use the **mklogpkg** command to create a log package. The log package is written to the file that is specified in the *csm_install_directory*`\wlp\usr\servers\csmServer\properties\Diagnostics.properties` file.	Administrator
“mksnmp” on page 163	Use the **mksnmp** command to add a specified manager to the list of servers to which SNMP traps are sent. SNMP traps are not specific to any particular session. All traps for any session are sent to each server.	Administrator
“rmactive” on page 166	Use the **rmactive** command to remove an active management server.	Administrator
“rmsnmp” on page 177	Use the **rmsnmp** command to remove the specified manager from the list of servers to which SNMP traps are sent.	Administrator
“rmstdby” on page 178	Use the **rmstdby** command to remove a standby management server.	Administrator
“runtask” on page 181	Use the **runtask** command to run a specified scheduled task.	Administrator

Command	Description	Roles
"setasstdby" on page 182	Use the **setasstdby** command to set a management server to be the standby management server of another active management server.	Administrator
"setstdby" on page 185	Use the **setstdby** command to set the standby management server for an active management server.	Administrator
"showha" on page 193	Use the **showha** command to display the high-availability status.	Administrator Operator Monitor
"ver" on page 204	Use the **ver** command to display the current version of IBM Copy Services Manager.	Administrator Operator Monitor

Security

Command	Description	Roles
"chauth" on page 18	Use the **chauth** command to change the authorization level of a user.	Administrator
"chuser" on page 41	Use the **chuser** command to change the password for a user in the basic user registry.	Operator
"lsauth" on page 61	Use the **lsauth** command to list the name, authorization level, and session permission for each user or user group.	Administrator Operator Monitor
"lsauthcfg" on page 63	Use the **lsauthcfg** command to show the configuration being used for server base authentication, if any.	Administrator
"mkadcfg" on page 148	Use the **mkadcfg** command to configure the Active Directory server-based authentication.	Administrator
"mkauth" on page 149	Use the **mkauth** command to grant monitor, administrator, user administrator, or operator authorization to a user. (This command will not remove authorization for an existing user.)	Administrator
"mkldapcfg" on page 157	Use the **mkldapcfg** command to configure an LDAP server based authentication.	Administrator
"mkuser" on page 164	Use the **mkuser** command to create a user in the basic user registry.	Administrator
"rmauth" on page 168	Use the **rmauth** command to remove monitor, administrator, or operator authorization from an LDAP user or user group. Note: The **rmuath** command is only for LDAP users and groups. To remove users from the basic user registry, you must use the **rmuser** command.	Administrator
"rmauthcfg" on page 169	Use the **rmauthcfg** command to remove the LDAP configuration from being used from user authentication.	Administrator

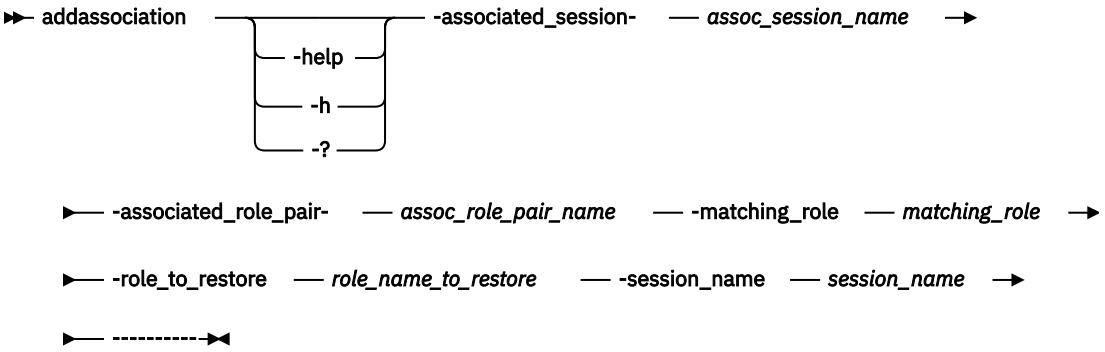
Command	Description	Roles
"rmuser" on page 180	Use the **rmuser** command to remove a user from the basic user registry.	Administrator
"syncauthservice" on page 202	Use the **syncauthservice** command to synchronize certificates from the authentication service to the authentication service of another server. For change to take effect, csmAuth needs to be restarted on the destination server.	Administrator
"whoami" on page 204	Use the **whoami** command to show the name of the user that is logged on.	Administrator Operator Monitor

addassociation

Use the **addassociation** command to associate one session to another.

The **addassociation** command is used to add or update an association. If the association does not exist, a new one gets created. If it already exists, it is updated.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-associated_session- ***assoc_session_name*[;*assoc_session_name*]**
Specifies the name of another session that is defined on the server to associate with the specified session.

-associated_role_pair- ***assoc_role_pair_name*[;*assoc_role_pair_name*]**
Specifies the role pair, which in the associated session has a role that matches a role in the specified session.

-matching_role*matching_role*[;*matching_role*]
The role in the other session that matches the H1 role in the specified session.

-role_to_restore*role_name_to_restore*[;*role_name_to_restore*]
The role in the other session that would be restored from a backup in the Safeguarded Copy session.

-session_name*session_name*[;*session_name*]
Specifies a name for the session. For sessions that contain an XIV system, the session name can have up to 58 alphanumeric characters. For sessions that contain other storage system types, the session name can have up to 250 alphanumeric characters. Session names must be unique.

Alternatively, use the dash (-) to specify that input for this parameter, which comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Associating a Metro Mirror Failover/Failback session to a Safeguarded copy session

```
csmcli> addassociation -associated_session 8kMM -associated_role_pair H1-H2 -matching_role H2
-role_to_restore H1 SGCsess
```

The following output is returned:

```
IWNR1293I Session SGCsess was successfully associated to session 8kMM and role pair H1-H2.
```

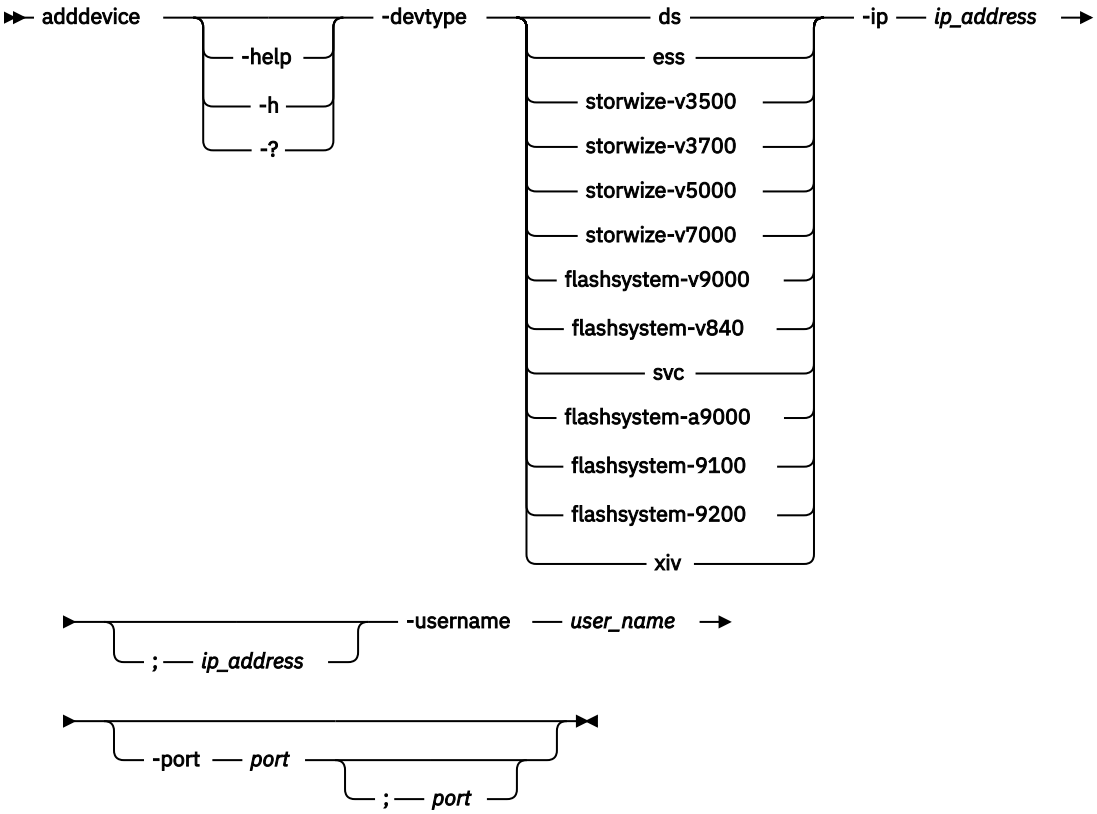
adddevice

Use the **adddevice** command to add a storage system.

To add a storage system that is attached through an IBM z/OS connection, use the **addstorsys** command.

To change the location of a storage system, use the **chlocation** command.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-devtype { ds | ess | storwize-v3500 | storwize-v3700 | storwize-v5000 | storwize-v7000 | flashsystem-v9000 | flashsystem-v840 | svc | flashsystem-a9000 | flashsystem-9100| flashsystem-9200| xiv }

Specifies the type of storage system. The following list shows the parameter values and the storage systems that they represent.

- `ds`: IBM DS8000
- `ess`: IBM TotalStorage™ Enterprise Storage Server® Model 800
- `storwize-v3500`: IBM Storwize® V3500
- `storwize-v3700`: IBM Storwize V3700
- `storwize-v5000`: IBM Storwize V5000
- `storwize-v7000`: IBM Storwize V7000 or IBM Storwize V7000 Unified
- `flashsystem-v9000`: IBM FlashSystem V9000
- `flashsystem-v840`: IBM FlashSystem V840
- `svc`: IBM System Storage SAN Volume Controller
- `flashsystem-a9000`: IBM FlashSystem® A9000
- `flashsystem-9100`: IBM FlashSystem 9100
- `flashsystem-9200`: IBM FlashSystem 9200
- `xiv`: FlashSystem/IBM Spectrum® Accelerate

-ip *ip_address*[;*ip_address*]

Specifies the IP address or host name of the clusters or nodes that are used by the storage system.

The following storage systems use two clusters. You must specify the IP address or host name for each cluster by using a semicolon between the addresses (for example, `192.0.2.0;192.0.2.1`):

- TotalStorage Enterprise Storage Server Model 800
- IBM DS8000

The following storage systems use one node and require only one address or host name:

- SAN Volume Controller
- Storwize V3500
- Storwize V3700
- Storwize V5000
- Storwize V7000
- Storwize V7000 Unified
- FlashSystem V9000
- FlashSystem V840
- FlashSystem A9000
- FlashSystem A9000
- FlashSystem 9100
- FlashSystem 9200

The XIV® and FlashSystem A9000 use multiple nodes. Specify the IP address or host name for one node and the remaining nodes are discovered automatically.

-username *user_name*[;*user_name*]

Specifies the user name for the clusters or nodes.

For the following storage systems, you can provide one user name, which is used for both clusters, or you can specify two user names. If you have separate user names, include a semicolon between the user name for cluster 0 and cluster 1.

- TotalStorage Enterprise Storage Server Model 800

- IBM DS8000

For the following storage systems, provide one user name:

- SAN Volume Controller
- Storwize V3500
- Storwize V3700
- Storwize V5000
- Storwize V7000
- Storwize V7000 Unified
- FlashSystem V9000
- FlashSystem V840
- FlashSystem A9000
- FlashSystem 9100
- FlashSystem 9200
- FlashSystem/IBM Spectrum Accelerate

Important: After you enter the parameters for the `adddevice` command, you are prompted to enter the password for this user name. The password is not displayed in the command window.

-port ***port*[;*port*]**

Specifies the port to use for accessing the clusters or nodes.

For the following storage systems, you can provide one port number, which is used for both clusters, or you can provide two port numbers. If you have separate port numbers, include a semicolon between the port for cluster 0 and cluster 1. The default port number is 2433.

- TotalStorage Enterprise Storage Server Model 800
- IBM DS8000

For the FlashSystem/IBM Spectrum Accelerate, provide one port number, which is used for all nodes. The default port number is 7778.

The following storage systems do not require this parameter.

- SAN Volume Controller
- Storwize V3500
- Storwize V3700
- Storwize V5000
- Storwize V7000
- Storwize V7000 Unified
- FlashSystem V9000
- FlashSystem V840
- FlashSystem A9000
- FlashSystem 9100
- FlashSystem 9200
- FlashSystem/IBM Spectrum Accelerate

Example: Adding a storage system

The following command adds a TotalStorage Enterprise Storage Server Model 800 storage system.

```
csmcli> adddevice -devtype ess -ip sts596c0;sts596c1 -username admin
```

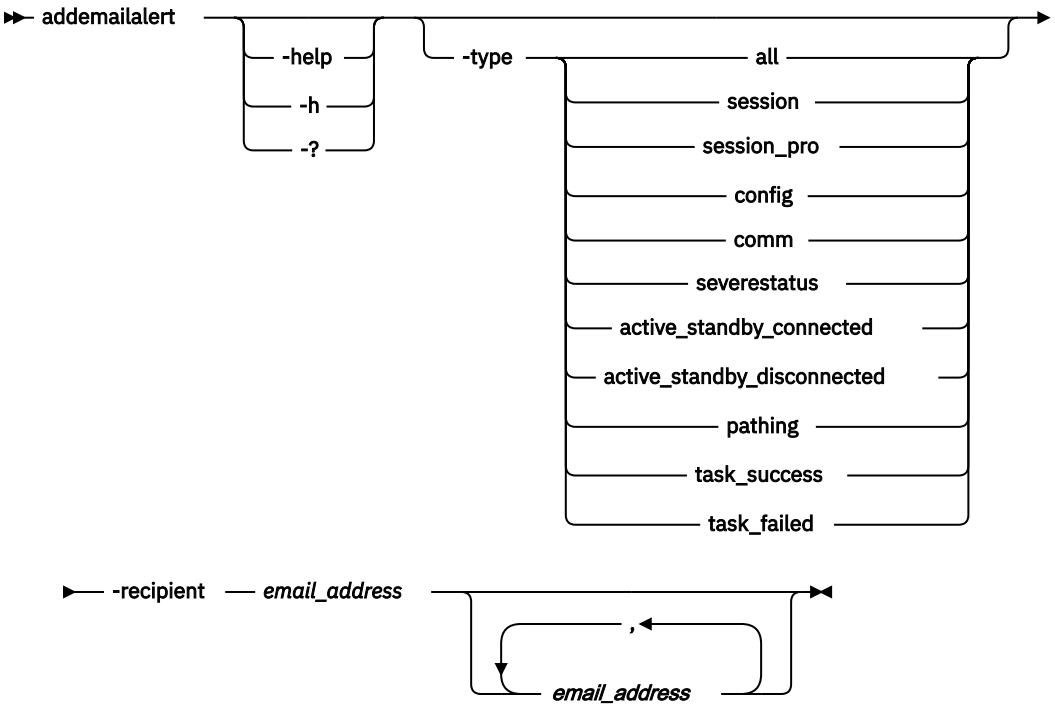
The following output is returned:

```
Please enter a password for the device cluster 0 userid of admin:
IWNH1612I  The connection sts596c0:sts596c1 was successfully added.
```

addemailalert

Use the **addemailalert** command to add e-mail addresses to the list of e-mail addresses to receive e-mail alerts.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-type { all | session | session_rpo | config | comm | severestatus | active_standby_connected | active_standby_disconnected | pathing | task_success | task_failed }
Specifies which type of alerts to notify the recipients. If type is not specified, the recipient will receive all categories.

-recipient email_address[,email_address]
Specifies the e-mail addresses to be added to the alert recipient list. Multiple e-mail addresses can be added using a comma separated list.

Example: Adding an e-mail address to the alert recipient list

```
csmcli> addemailalert -recipient user@us.ibm.com
```

The following output is returned:

```
IWNR1720I [Apr 12, 2016 10:05:41 AM] The e-mail recipient list has been updated.
IWNR1724I [Apr 12, 2016 10:05:41 AM] The e-mail recipient user@us.ibm.com has been added to
category ALL.
```

Example: Adding multiple e-mail addresses to the alert recipient list

```
csmcli> addemailalert -recipient user1@us.ibm.com,user2@us.ibm.com
```

The following output is returned:

```
IWNR1720I [Apr 12, 2016 10:07:48 AM] The e-mail recipient list has been updated.
IWNR1724I [Apr 12, 2016 10:07:48 AM] The e-mail recipient user1@us.ibm.com has been added to
category ALL.
IWNR1724I [Apr 12, 2016 10:07:48 AM] The e-mail recipient user2@us.ibm.com has been added to
category ALL.
```

Example: Adding multiple e-mail addresses to the alert recipient list for only session state change events

```
csmcli> addemailalert -type session -recipient user1@us.ibm.com,user2@us.ibm.com
```

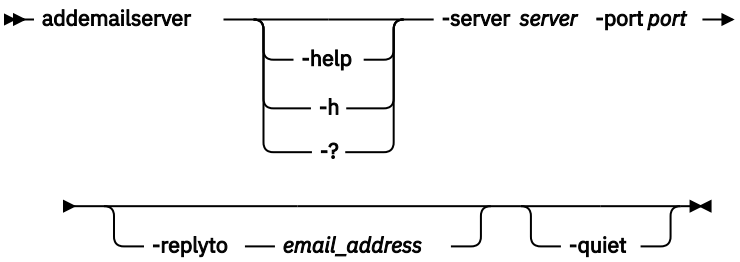
The following output is returned:

```
IWNR1720I [Apr 12, 2016 10:07:48 AM] The e-mail recipient list has been updated.
IWNR1724I [Apr 12, 2016 10:07:48 AM] The e-mail recipient user1@us.ibm.com has been added to
category SESSION.
IWNR1724I [Apr 12, 2016 10:07:48 AM] The e-mail recipient user2@us.ibm.com has been added to
category SESSION.
```

addemailserver

Use the **addemailserver** command to add or change the SMTP server configuration used to send e-mail alerts.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-server ***server***
Specifies the SMTP server ip address or hostname. This will be the SMTP server used to send e-mail alerts to.

-port ***port***
Specifies a port number to use for the SMTP server. If not specified, the default port is 25. Valid ports are from 1 to 65535.

-replyto ***email_address***
Specifies the e-mail addresses to be be used as the reply-to e-mail address on e-mail alerts sent. If not specified then no reply-to e-mail address will be used.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

Example: Adding an SMTP server for e-mail alerts

```
csmcli> addemailserver -server na.relay.ibm.com -port 25
```

The following output is returned:

```
IWNR1728I [Apr 14, 2016 4:17:34 PM] The SMTP server configuration has been updated.
IWNR1710I [Apr 14, 2016 4:17:34 PM] Configured SMTP server na.relay.ibm.com:25.
```

Example: Adding an SMTP server for e-mail alerts with a reply-to e-mail address

```
csmcli> addemailserver -server na.relay.ibm.com -replyto user@us.ibm.com
```

The following output is returned:

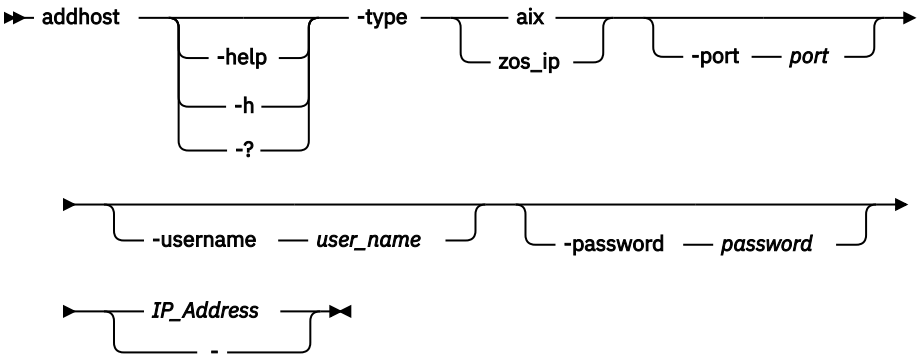
```
IWNR1728I [Apr 14, 2016 4:20:16 PM] The SMTP server configuration has been updated.
IWNR1710I [Apr 14, 2016 4:20:16 PM] Configured SMTP server na.relay.ibm.com:25.
IWNR1714I [Apr 14, 2016 4:20:16 PM] The reply-to e-mail address was set to
 user@us.ibm.com.
```

addhost

Use the **addhost** command to add AIX or IBM z/OS host system connections to the copy services management server.

For z/OS host systems, this command is required only if you are connecting to the host system by using an IP address or host name. If the copy services management server is installed on the z/OS host system, the host system connection is automatically added. This connection is referred to as the native z/OS connection.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-type { aix | zos_ip }
Specifies the type of host system: AIX or z/OS.

-username ***user_name***
Specifies the user name for a z/OS host system. This parameter is required to connect to a z/OS host.

-password ***password***
Specifies the password for a z/OS host system. This parameter is required to connect to a z/OS host. If you do not include this parameter, you are prompted for the password. However, the password is not displayed in the command window.

-port *port*
Specifies the port to use to access the host system, if other than the default port. If a port is not specified, the default port is 5858 for z/OS and 9930 for AIX.

***IP_Address* | -**
Specifies the IP address or host name of the host system.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Adding an AIX host system

The following command adds an AIX host system with the IP address `192.0.2.0`. In this example, you could omit the `-port` parameter because port 9930 is the default.

```
csmcli> addhost -type aix -port 9930  192.0.2.0
```

Example: Adding a z/OS host system

The following command adds a z/OS host system with the IP address `192.0.2.1`.

```
csmcli> addhost -type zos -username abcuser 192.0.2.1
```

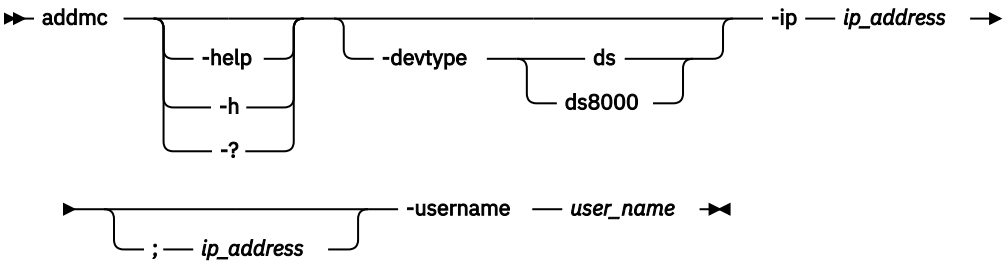
The following output is returned:

```
Please enter a password for the host userid of abcuser:
 IWNR7000I Connection 192.0.2.1 added successfully.
```

addmc

Use the **addmc** command to add a management console connection and all the storage systems that are managed by that management console.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-devtype { ds | ds8000 }
Specifies the type of hardware device. You can specify either `ds` or `ds8000`.

-ip ***ip_address*[;*ip_address*]**
Specifies the IP addresses of the management consoles to be added. For dual-management console configurations, both IP addresses must be specified with a semicolon in between (for example, `192.0.2.0;192.0.2.1`).

-username ***user_name***
Specifies the user name for the management console. For dual management console configurations, the management consoles must have the same user name.

Important: After you enter the parameters for the **addmc** command, you are prompted to enter the password for this user name. For security, the password is not displayed in the command window.

Example: Adding a management console

The following command adds a management console.

```
csmcli> addmc -devtype ds -ip 127.0.0.1 -username admin
```

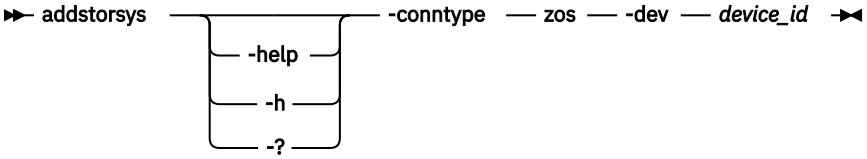
The following output is returned:

```
Please enter a password for the device userid of admin:
IWNH1612I  The connection HMC:127.0.0.1 was successfully added.
```

addstorsys

Use the **addstorsys** command to add a specific storage system and its volumes that are attached through a z/OS connection to the copy services management server configuration.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-conntype zos
Specifies the type of connection that the storage system uses. Currently, you can specify only `zos` for a z/OS connection.

-dev *device_id*
Specifies the ID of the DS or ESS storage system that is to be added to the configuration.

Tip: Use the **lsdevice** command to display a list of valid storage system IDs.

Description

Important:

- You must have Administrator privileges to run this command.
- You can run this command only from the copy services management server that is installed on a system that is running z/OS.
- You can use this command to add only DS and ESS type storage systems.

If the storage system has been previously added through another connection type, then z/OS is added to the connection types for the storage system.

To add a storage system that is attached through a direct connection, use the **adddevice** command. To add a storage system that is attached through a hardware-management-console (HMC) connection, use the **addmc** command.

To change the location of the storage system, use the **chlocation** command.

Example: Adding an ESS storage system

This example illustrates how to add the storage system with ID ESS:BOX:2105.12345 to the configuration through the z/OS connection.

```
csmcli> addstorsys -dev ESS:BOX:2105.12345 -conntype zos
```

The following output is returned:

```
IWNH1612I  The connection ESS:BOX:2105.12345 was successfully added.
```

Example: Adding a DS8000 storage system

This example illustrates how to add the storage system with ID DS8000:BOX:2107.MV492 to the configuration through the z/OS connection.

```
csmcli> addstorsys -dev DS8000:BOX:2107.MV492 -conntype zos
```

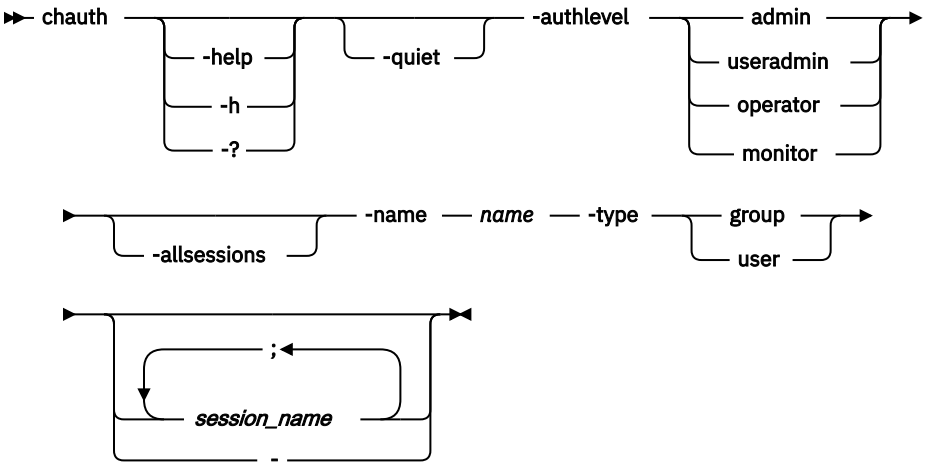
The following output is returned:

```
IWNH1619I  The storage device 2107.MV492 at ZOS was successfully added.
```

chauth

Use the **chauth** command to change the authorization level of a user.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers `yes` to all confirmation prompts.

-authlevel admin | useradmin | operator | monitor
Specifies the new authorization level. You can specify one of these authorization levels: `admin`, `useradmin`, `operator`, or `monitor`.

-allsessions
When `authlevel` is set to operator, this option indicates that the user will be authorized to manage all existing and future sessions. When set all session names specified will be ignored. The option will be ignored for all other `authlevel` values.

-name *name*
Specifies a user ID or group name for which you are changing the authorization level.

-type group | user
Specifies whether authorization is to be changed for a user group or user.

***session_name* | -**
Use this optional parameter when you are assigning operator authorization to a user and want to specify one or more sessions to which the operator has access. This parameter does not apply to monitors, user administrators, or administrators.

To specify multiple sessions, use a semicolon (;) to separate the session names.

If you specify `-authlevel operator` but do not specify a session name, the user is not granted operator status to any of the existing sessions but is granted permission to create new sessions.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). You can specify multiple session names from `stdin` when the dash (-) is specified. The dash is supported only in single-shot mode.

Example: Changing user authorization to session operator

The following command changes the authorization level for the user `csmuser` to operator privileges with permission to manage session `session1`.

```
csmcli> chauth -name csmuser -type user -authlevel operator session1
```

The following output is returned:

```
Are you sure you want to change access for user csmuser? [y/n]:y
IWNR4016I  Successfully granted the session operator role to csmuser.

IWNR4026I  Successfully granted permission for session session1 for
user csmuser.
```

Example: Changing user authorization to monitor privileges

The following command changes the authorization level for the user named `guest` to monitor privileges.

```
csmcli> chauth -name guest -type user -authlevel monitor
```

The following output is returned:

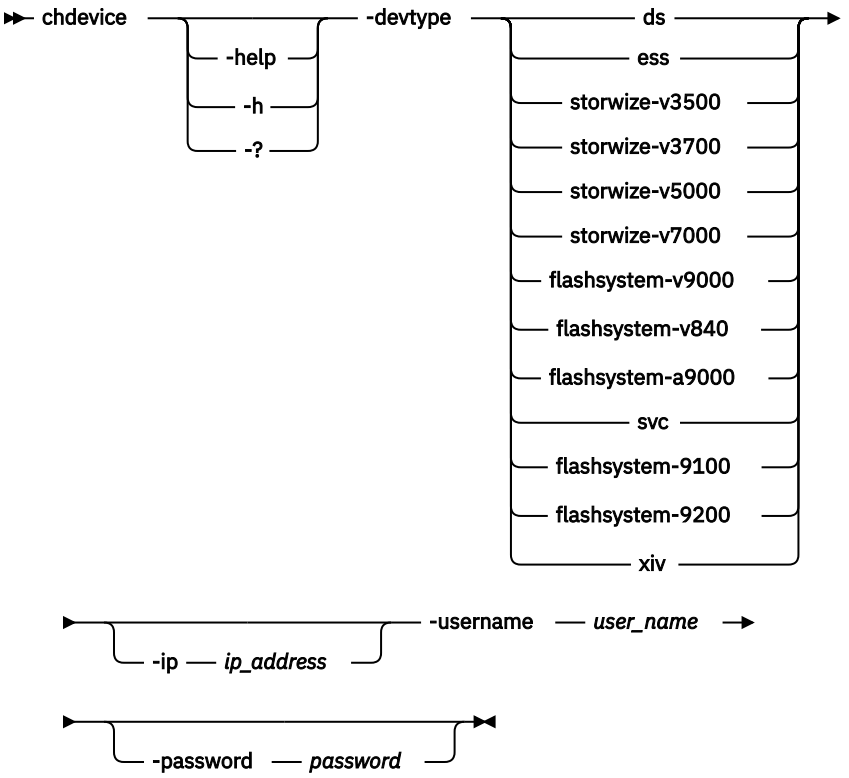
```
Are you sure you want to change access for user guest? [y/n]:y
 IWNR4017I  Successfully granted the monitor role to guest.
```

chdevice

Use the **chdevice** command to change user names and passwords for storage systems.

Tip: To change the location of storage systems, use the **chlocation** command.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-devtype { ds | ess | storwize-v3500 | storwize-v3700 | storwize-v5000 | storwize-v7000 | flashsystem-v9000 | flashsystem-v840 | svc | flashsystem-a9000 | flashsystem-9100| flashsystem-9200| xiv }
Specifies the type of storage system. The parameter values are:

- `ds`: IBM DS8000
- `ess`: IBM TotalStorage Enterprise Storage Server Model 800
- `storwize-v3500`: IBM Storwize V3500
- `storwize-v3700`: IBM Storwize V3700
- `storwize-v5000`: IBM Storwize V5000
- `storwize-v7000`: IBM Storwize V7000 or IBM Storwize V7000 Unified
- `flashsystem-v9000`: IBM FlashSystem V9000
- `flashsystem-v840`: IBM FlashSystem V840
- `svc`: IBM SAN Volume Controller
- `flashsystem-a9000`: IBM FlashSystem A9000
- `flashsystem-9100`: IBM FlashSystem 9100
- `flashsystem-9200`: IBM FlashSystem 9200
- `xiv`: FlashSystem/IBM Spectrum Accelerate

-ip *ip_address* [;*ip_address*]
Specifies the IP address or host name of the clusters or nodes that are used by the storage system.

The following storage systems use two clusters. You must specify the IP address or host name for each cluster by using a semicolon between the addresses (for example, `192.0.2.0;192.0.2.1`):

- TotalStorage Enterprise Storage Server Model 800
- IBM DS8000

The following storage systems use one node and require only one address or host name:

- SAN Volume Controller
- Storwize V3500
- Storwize V3700
- Storwize V5000
- Storwize V7000
- Storwize V7000 Unified
- FlashSystem V9000
- FlashSystem V840
- FlashSystem 9100
- FlashSystem 9200

The XIV and FlashSystem A9000 use multiple nodes. Specify the IP address or host name for one node and the remaining nodes are discovered automatically.

Tip: To list the IP address of storage system clusters or nodes, use the **lsdevice** command.

-username ***user_name*** **[;*user_name*]**
Specifies the user name for the clusters or nodes that are used by the storage system. Enter the user name or user names that you want to change. If you want to change passwords associated with user names (but not the user names), enter the currently valid user names.

For the following storage systems, you can provide one user name, which is used for both clusters, or you can specify two user names. If you have separate user names, include a semicolon between the user name for cluster 0 and cluster 1.

- TotalStorage Enterprise Storage Server Model 800
- IBM DS8000

For the following storage systems, provide one user name:

- SAN Volume Controller
- Storwize V3500
- Storwize V3700
- Storwize V5000
- Storwize V7000
- Storwize V7000 Unified
- FlashSystem V9000
- FlashSystem V840
- FlashSystem A9000
- FlashSystem 9100
- FlashSystem 9200
- FlashSystem/IBM Spectrum Accelerate

-password ***password*** **[;*password*]**
Specifies the passwords for the user names. If you want to change user names, but do not want to change the passwords that are associated with the user names, enter the current passwords. If you do not include this parameter, you are prompted for the passwords.

Example: Changing user names and passwords

The following command shows how to change the IP address or host name and port number for a host system connection. The following output is returned:

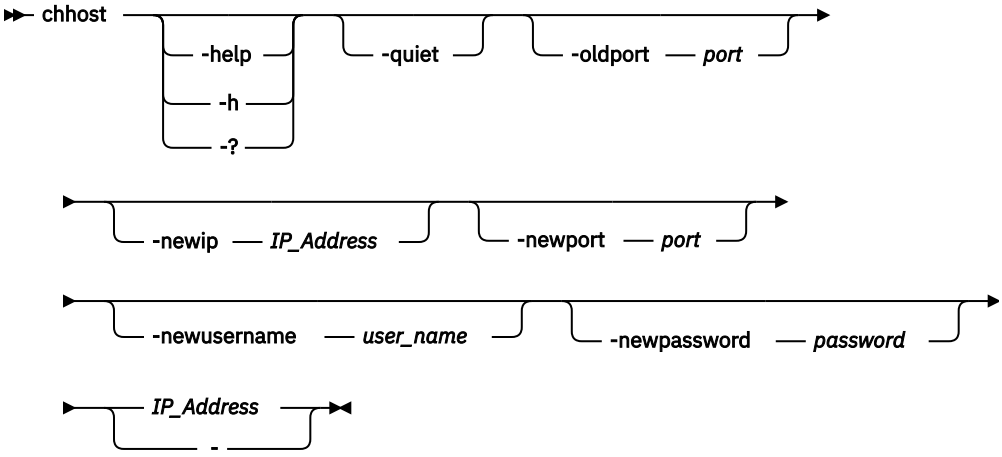
```
Please enter a password for the device cluster 0 userid of admin:
IWNH1613I User profile information for the storage device at
ds8kboxc0.domain.company.com;ds8kboxc1.domain.company.com was successfully updated.
```

chhost

Use the **chhost** command to change the connection information for host systems that are connected to the copy services management server.

For z/OS host systems, this command is applicable only if the copy services management server is connected to the host system by using an IP address or host name.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

-oldport ***port***
Specifies the old port number for the host system connection to be modified.

-newip ***IP_Address***
Specifies the new IP address or host name of the host system connection to be modified.

-newport ***port***
Specifies the new port number for the host system connection to be modified.

-newusername ***user_name***
Specifies the new user name for the IBM z/OS host system connection to be modified.

-newpassword ***password***
Specifies the new password for the z/OS host system connection to be modified.

***IP_Address* | -**
Specifies the IP address or host name of the host system connection to be modified.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Changing an AIX host system credentials

The following command changes the IP address and port number for an AIX host system connection.

```
csmcli> chhost -oldport 9930 -newip 192.0.2.2 -newport 9931  192.0.2.0
```

Example: Changing a z/OS host system credentials

The following command changes the user name for a z/OS host system connection.

```
csmcli> chhost -oldport 5858 -newusername xyzuser 192.0.2.1
```

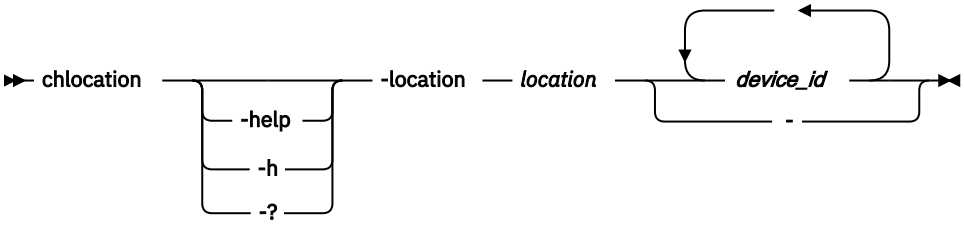
The following output is returned:

```
Are you sure you want to change the host 192.0.2.1? [y/n]:y
Please enter a password for the host userid of xyzuser:
IWNR7005I Update to connection 192.0.2.1:5858 successful.
```

chlocation

Use the **chlocation** command to change the location associated with the specified storage systems.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-location ***location***
Specifies the location to associate with the specified storage systems. The location can be up to 32 alphanumeric characters.

device_id... **| -**
Specifies the ID of one or more storage systems whose location is to be changed, separated by a space.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Tip: Use the **lsdevice** command to list the valid storage system IDs.

Description

Important: You must have Administrator privileges to run this command.

To list the locations that have already been associated with storage systems, use the **lslocation** command.

Example: Changing the location of multiple storage systems

The following command changes the location of multiple storage systems to Tucson.

```
csmcli> chlocation -location Tucson ESS:BOX:2105.18596 DS8000:BOX:2107.NK791
```

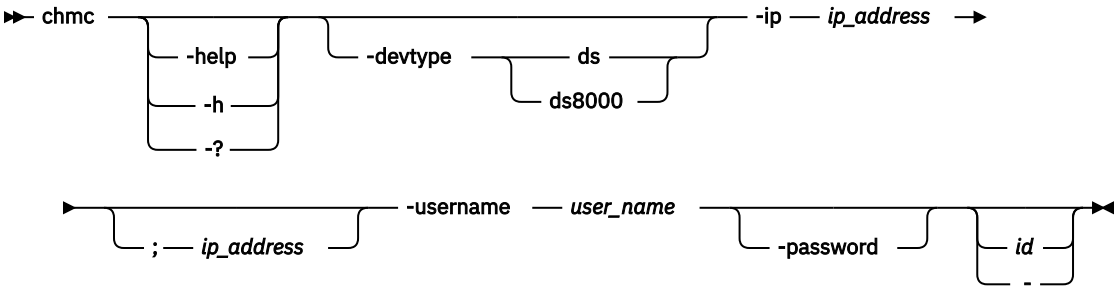
The following output is returned:

```
IWNH1222I  The site location for storage system ESS:BOX:2105.18596
was successfully changed to Tucson.

IWNH1222I  The site location for storage system DS8000:BOX:2107.NK791 was
successfully changed to Tucson.
```

chmc

Use the **chmc** command to set or change the hardware credentials for the hardware management console (HMC).

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-devtype ds | ds8000
Specifies the hardware type.

-ip *ip_address*[;*ip_address*]
Specifies the IP addresses of the primary and secondary management consoles. For single HMC configurations only one IP address is necessary. For dual HMC configurations, two IP addresses must be specified separated with a semicolon (;).

-username *user_name*
Specifies the user names of the management console.

-password
Prompts you for a new password for the device.

***id* | -**
Specifies the ID of the management console to change.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Tip: Use the **lsmc** command to list the management console IDs.

Description

To change the location of a storage system behind a HMC connection, use the **chlocation** command.

Example: Changing hardware credentials

The following command changes the user name and password for the HMC with ID `HMC:127.0.0.1` and IP address `9.11.222.33`.

```
csmcli> chmc -devtype ds -ip 127.0.0.1 -username admin -password HMC:127.0.0.1
```

The following output is returned:

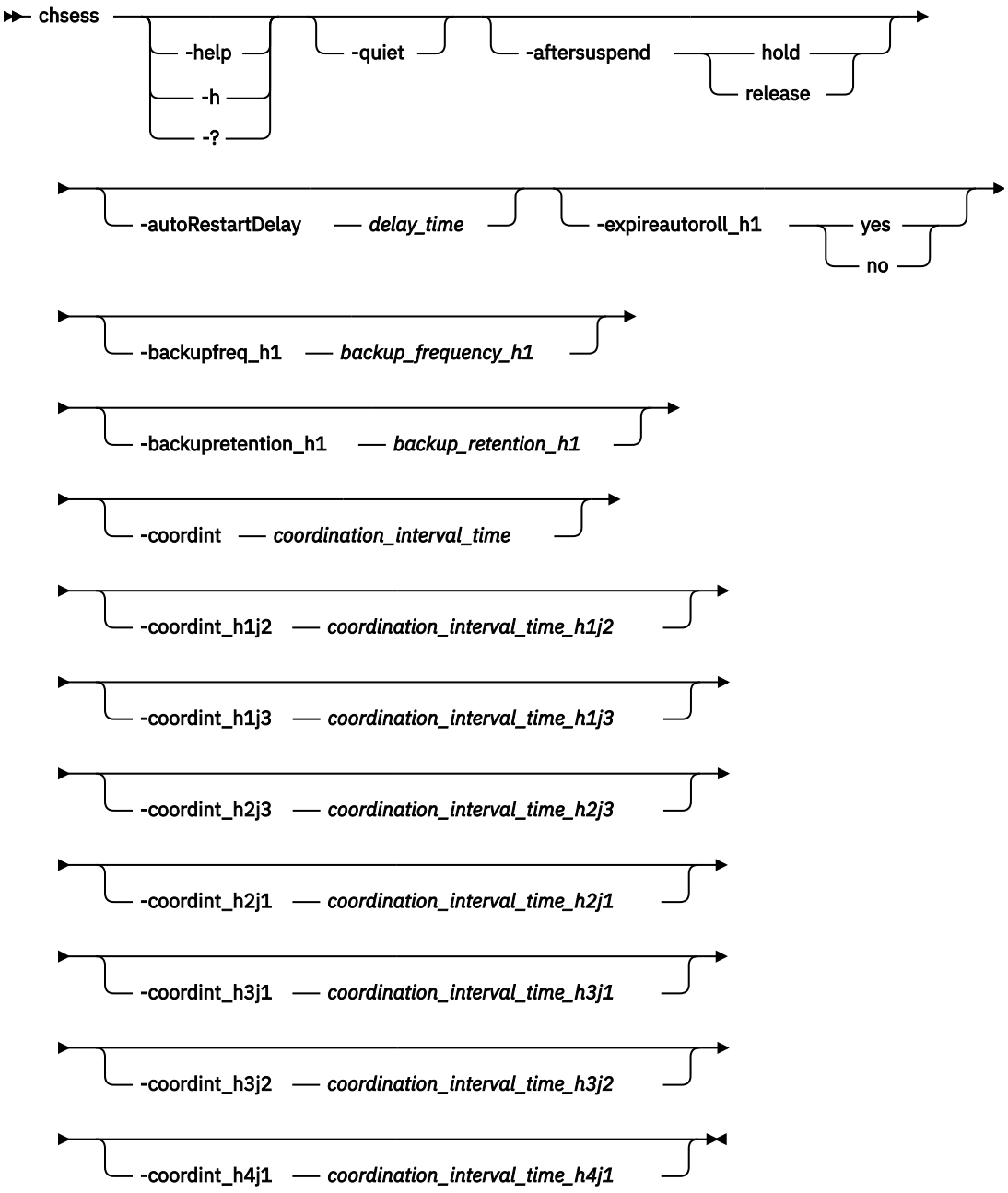
```
Please enter a password for the device userid of admin: ******
IWNH1613I  User profile information for the storage device at HMC:127.0.0.1
was successfully updated.
```

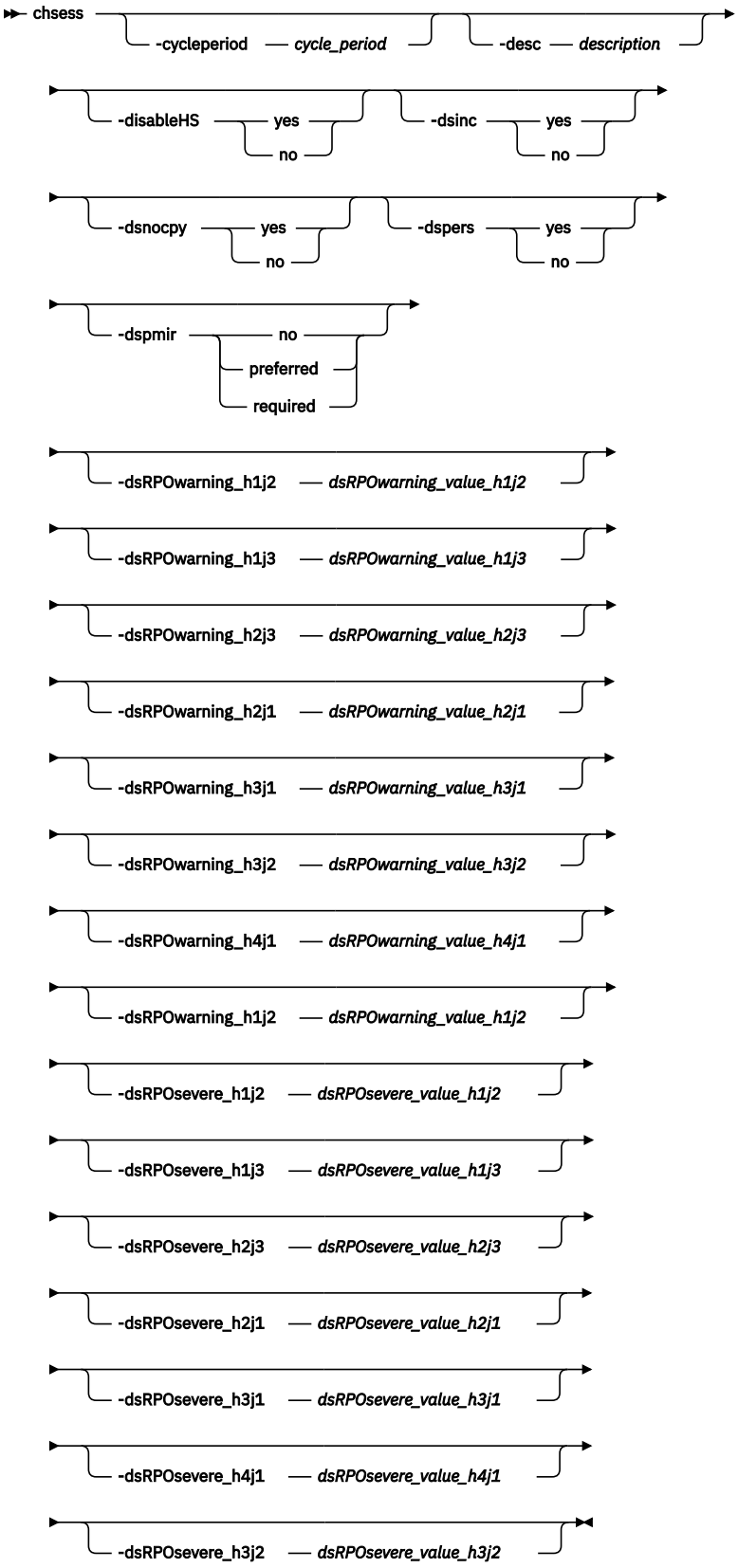
chsess

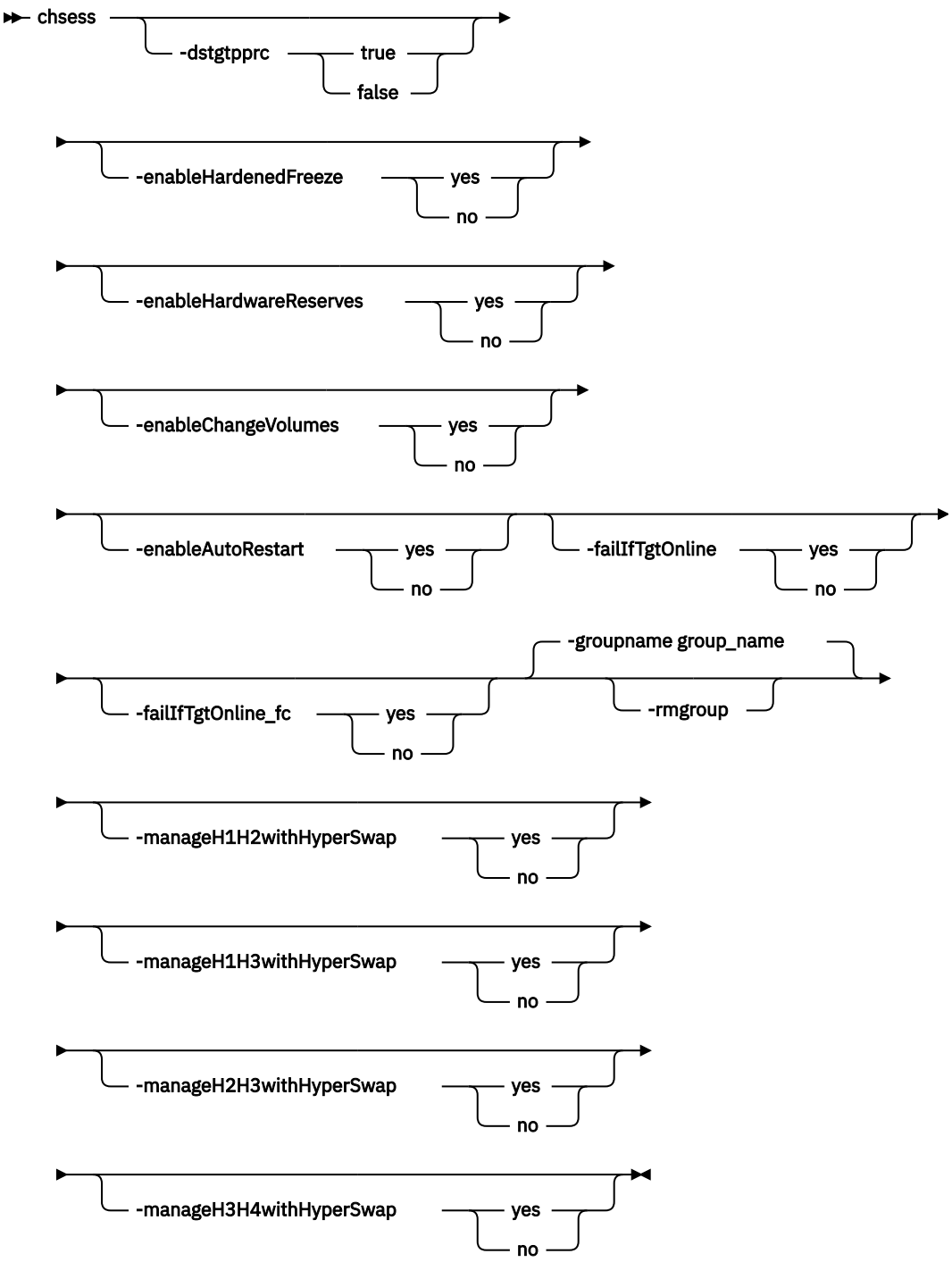
Use the **chsess** command to change the description or properties for an existing session. If you want to change the session type, you must delete the session and create another session.

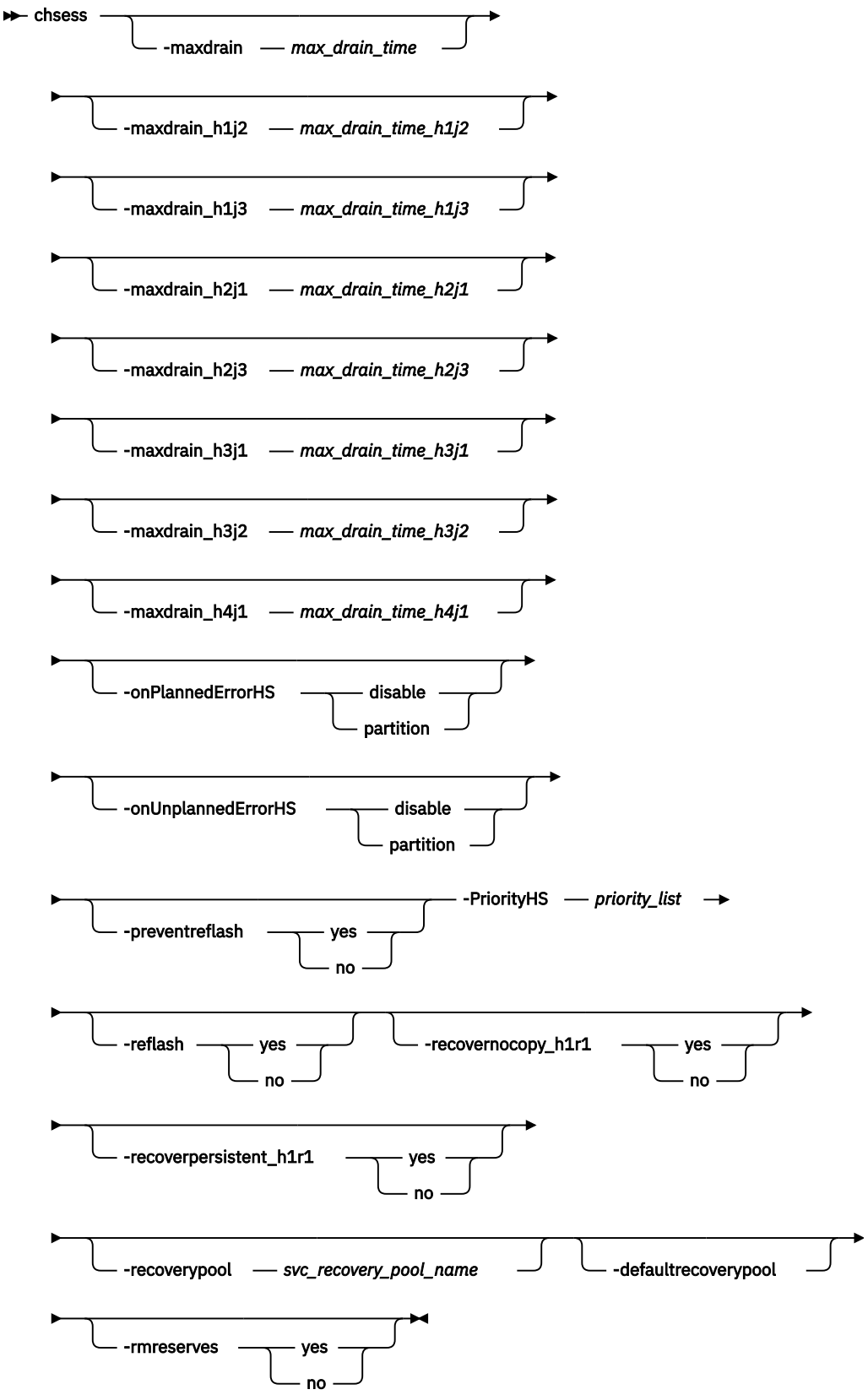
Syntax

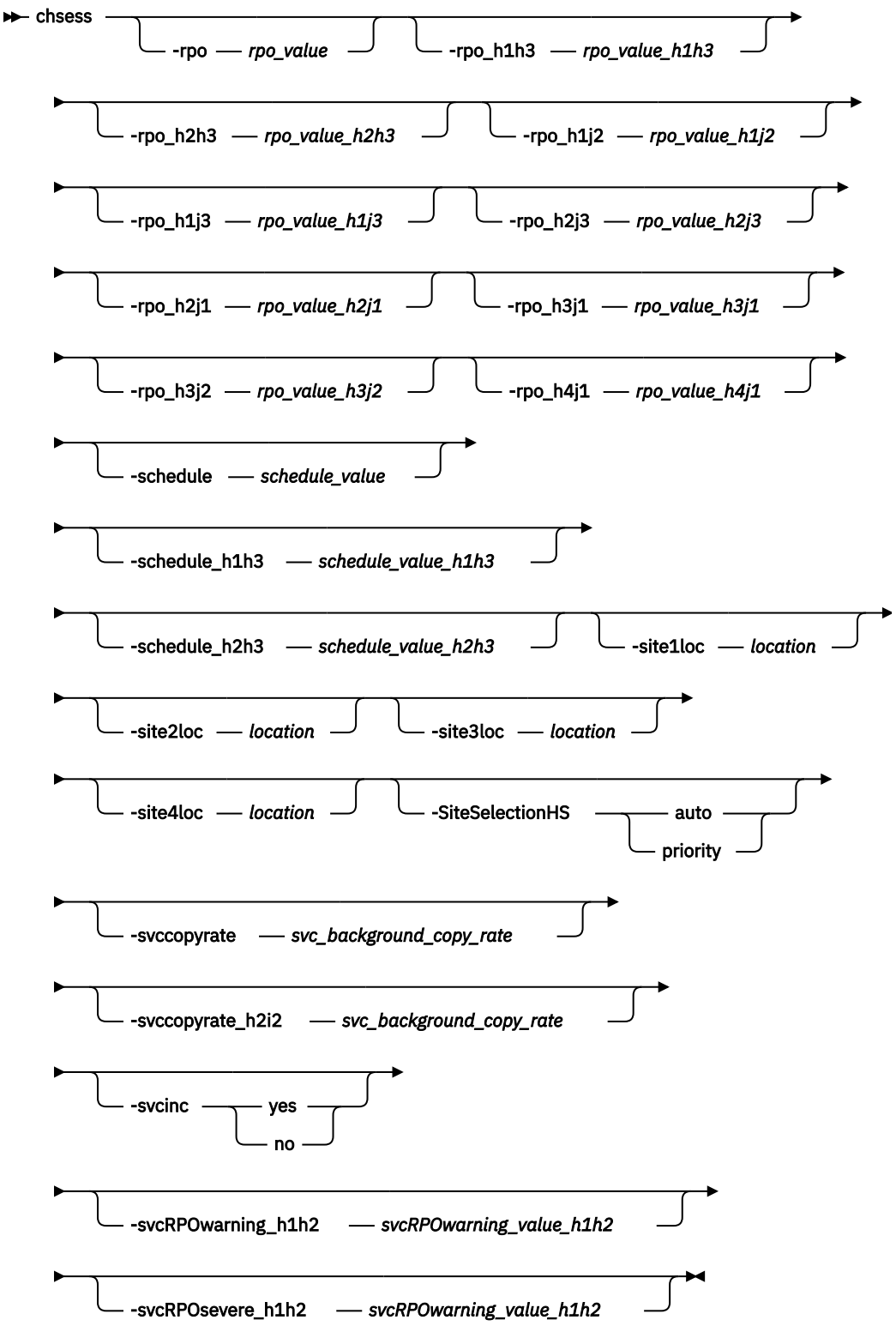
The properties that are available for a session depend on the session type and the storage system type. For a description of the correlating properties by session type and storage system type in the GUI, see the *IBM Copy Services Manager User's Guide*.

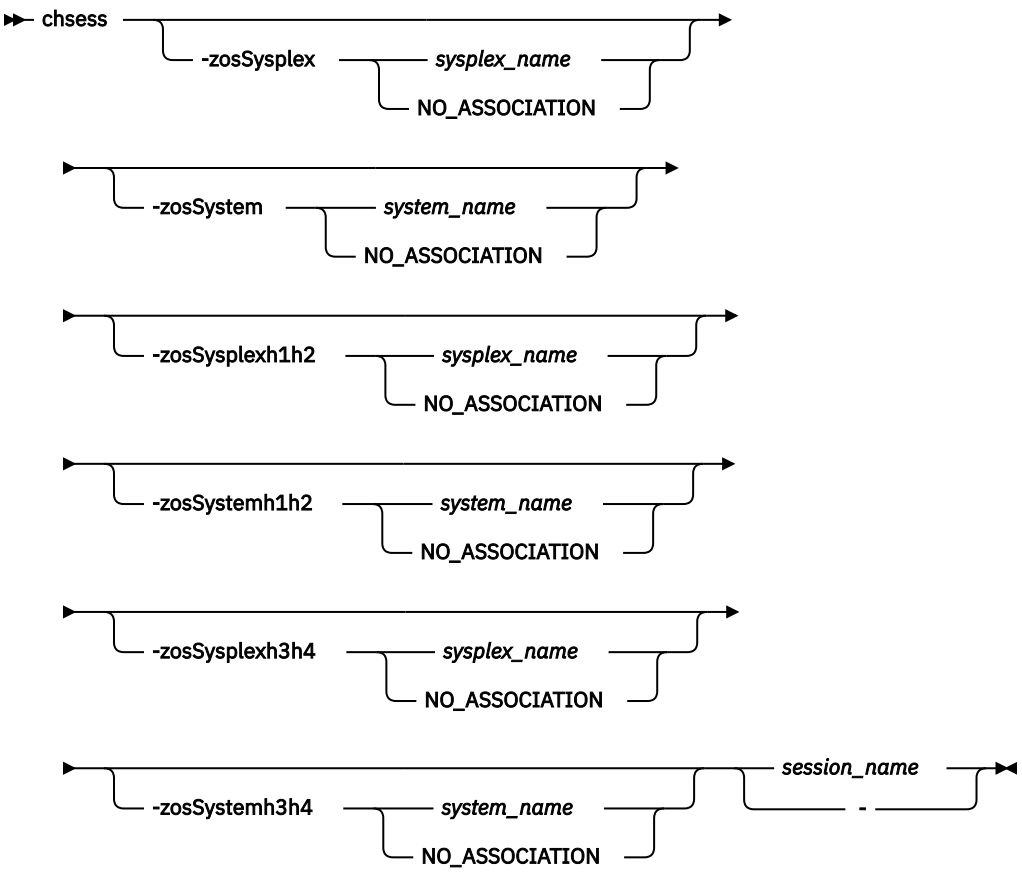

chsess
-help
-h
-?
-quiet
-aftersuspend
hold
release
-autoRestartDelay
delay_time
-expireautoroll_h1
yes
no
-backupfreq_h1
backup_frequency_h1
-backupretention_h1
backup_retention_h1
-coordint
coordination_interval_time
-coordint_h1j2
coordination_interval_time_h1j2
-coordint_h1j3
coordination_interval_time_h1j3
-coordint_h2j3
coordination_interval_time_h2j3
-coordint_h2j1
coordination_interval_time_h2j1
-coordint_h3j1
coordination_interval_time_h3j1
-coordint_h3j2
coordination_interval_time_h3j2
-coordint_h4j1
coordination_interval_time_h4j1


chsess
-cycleperiod
cycle_period
-desc
description
-disableHS
yes
no
-dsinc
yes
no
-dsnocpy
yes
no
-dspers
yes
no
-dspmir
no
preferred
required
-dsRPOwarning_h1j2
dsRPOwarning_value_h1j2
-dsRPOwarning_h1j3
dsRPOwarning_value_h1j3
-dsRPOwarning_h2j3
dsRPOwarning_value_h2j3
-dsRPOwarning_h2j1
dsRPOwarning_value_h2j1
-dsRPOwarning_h3j1
dsRPOwarning_value_h3j1
-dsRPOwarning_h3j2
dsRPOwarning_value_h3j2
-dsRPOwarning_h4j1
dsRPOwarning_value_h4j1
-dsRPOwarning_h1j2
dsRPOwarning_value_h1j2
-dsRPOsevere_h1j2
dsRPOsevere_value_h1j2
-dsRPOsevere_h1j3
dsRPOsevere_value_h1j3
-dsRPOsevere_h2j3
dsRPOsevere_value_h2j3
-dsRPOsevere_h2j1
dsRPOsevere_value_h2j1
-dsRPOsevere_h3j1
dsRPOsevere_value_h3j1
-dsRPOsevere_h4j1
dsRPOsevere_value_h4j1
-dsRPOsevere_h3j2
dsRPOsevere_value_h3j2


chsess
-dstgtpprc
true
false
-enableHardenedFreeze
yes
no
-enableHardwareReserves
yes
no
-enableChangeVolumes
yes
no
-enableAutoRestart
yes
no
-failIfTgtOnline
yes
no
-failIfTgtOnline_fc
yes
no
-groupname group_name
-rmgroup
-manageH1H2withHyperSwap
yes
no
-manageH1H3withHyperSwap
yes
no
-manageH2H3withHyperSwap
yes
no
-manageH3H4withHyperSwap
yes
no


chsess
-maxdrain
max_drain_time
-maxdrain_h1j2
max_drain_time_h1j2
-maxdrain_h1j3
max_drain_time_h1j3
-maxdrain_h2j1
max_drain_time_h2j1
-maxdrain_h2j3
max_drain_time_h2j3
-maxdrain_h3j1
max_drain_time_h3j1
-maxdrain_h3j2
max_drain_time_h3j2
-maxdrain_h4j1
max_drain_time_h4j1
-onPlannedErrorHS
disable
partition
-onUnplannedErrorHS
disable
partition
-PriorityHS
priority_list
-preventreflash
yes
no
-reflash
yes
no
-recovernocopy_h1r1
yes
no
-recoverpersistent_h1r1
yes
no
-recoverypool
svc_recovery_pool_name
-defaultrecoverypool
-rmreserves
yes
no


chsess
-rpo
rpo_value
-rpo_h1h3
rpo_value_h1h3
-rpo_h2h3
rpo_value_h2h3
-rpo_h1j2
rpo_value_h1j2
-rpo_h1j3
rpo_value_h1j3
-rpo_h2j3
rpo_value_h2j3
-rpo_h2j1
rpo_value_h2j1
-rpo_h3j1
rpo_value_h3j1
-rpo_h3j2
rpo_value_h3j2
-rpo_h4j1
rpo_value_h4j1
-schedule
schedule_value
-schedule_h1h3
schedule_value_h1h3
-schedule_h2h3
schedule_value_h2h3
-site1loc
location
-site2loc
location
-site3loc
location
-site4loc
location
-SiteSelectionHS
auto
priority
-svccopyrate
svc_background_copy_rate
-svccopyrate_h2i2
svc_background_copy_rate
-svcinc
yes
no
-svcRPOwarning_h1h2
svcRPOwarning_value_h1h2
-svcRPOsevere_h1h2
svcRPOwarning_value_h1h2



Parameters for sessions for all storage system types

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

-site1loc ***location***
Specifies a location to associate with the **site 1** volume role.

-site2loc ***location***
Specifies a location to associate with the **site 2** volume role.

-site3loc ***location***
Specifies a location to associate with the **site 3** volume role.

-site4loc ***location***
Specifies a location to associate with the **site 4** volume role.

-desc ***description***
Specifies the new description for the session. This description can have up to 250 alphanumeric characters. If the description contains white space, enclose it in single quotation marks.

-groupname ***group_name***
Specifies the new session group for the session to belong to. The group name can have up to 250 alphanumeric characters. If the group name contains white spaces, enclose it in single quotation marks.

-rmgroup
Specifies the session should be removed from the session group it currently belongs to.

session_name... | -
Specifies the name of the session that is to be modified.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Parameters for sessions for IBM DS8000 or TotalStorage Enterprise Storage Server storage systems

-dsinc { yes | no }
For a point-in-time session, specifies whether the FlashCopy relationship is incremental for the next Flash or Start command.

Note: Multiple incremental FlashCopy will be used if the source storage system supports it.

For practice sessions, specifies whether the practice role pair relationship is incremental for the next Flash command. For Global Mirror Either Direction with Two Site Practice sessions, this parameter will apply to both the H1-I1 and H2-I2 role pairs. This parameter is valid for Global Mirror practice sessions only if the source storage system supports multiple incremental FlashCopy. Valid values are `yes` or `no`

-dspers { yes | no }
Specifies whether the next FlashCopy relationship for this session is persistent. Valid values are `yes` or `no`.

For practice sessions, this parameter applies only to sessions for IBM DS8000 version 4.2 or later.

-dsnocpy { yes | no }
For a point-in-time session, specifies whether the FlashCopy relationship is established with a background copy for the next Flash or Start command. Valid values are `yes` or `no`.

For practice sessions, this parameter applies only to sessions for IBM DS8000 version 4.2 or later.

-dspmir { no | preferred | required }
Specifies the Preserve Mirror option for storage systems. You can specify `no`, `preferred`, or `required`. If this option is not specified, the default is no preserve mirror options.

-dstgtpprc { true | false }
Allows the FlashCopy target volume to be a remote mirror and copy source volume if the option is set to `true`. This parameter must be set to `true` for the `dspmir` parameter to take effect. The default option for this parameter is `false`.

-rmreserves { yes | no }
Removes the persistent reserve on the target volumes to allow the establishment of a session. When this parameter is set to `yes`, the setting persists for the session and remains set until you change the value. Warnings are displayed to indicate that the value is set to `yes` when you attempt to start the session.

-failIfTgtOnline { yes | no }
Determines whether the **Start** command fails if a target volume is online. If the parameter is set to `yes`, the target is determined to be online to a host, and the **Start** command fails.

Notes:

- Online means that path groups are present. A path group is necessary, but is not enough to indicate that the volume is online. For example, an LPAR that is not part of a sysplex can be taken down (for example, through a power-off without a shutdown) and path groups display as present, but no LPAR has the volume online. That is, the path groups are present, but IBM z/OS software might think the volumes are offline.
- It cannot be determined with absolute certainty whether the target is online to a host.
- This parameter affects only count key data (CKD) volumes.

-failIfTgtOnline_fc { yes | no }
Determines whether the Flash command fails if a target volume is online. If the parameter is set to `yes`, the target is determined to be online to a host, and the Flash command fails.

Notes:

- Online means that path groups are present. A path group is necessary, but is not enough to indicate that the volume is online. For example, an LPAR that is not part of a sysplex can be taken down (for example, through a power-off without a shutdown) and path groups display as present, but no LPAR has the volume online. That is, the path groups are present, but IBM z/OS software might think the volumes are offline.
- It cannot be determined with absolute certainty whether the target is online to a host.
- This parameter affects only count key data (CKD) volumes.

-aftersuspend { hold | release }
Specifies the session operation after a suspend occurs. This parameter applies to Metro Mirror and Metro Global Mirror sessions. Valid policies are:

hold
Does not allow any updates to the primary volume after a suspend.

release
Allows updates to the primary volume after a suspend.

-expireautoroll_h1 { yes | no }
Specifies whether the Copy Services Management server will automatically expire an entire backup when it detects the hardware has rolled off the backup on at least one volume. Set this option to free up additional space whenever one or more volumes do not have enough backup capacity to form new backups. This can help avoid out-of-space conditions. However, when a backup is automatically expired, it is no longer available for recovery across any of the volumes that contained that backup. By default, this option is not set. When this option is not set, the backup is not automatically expired so that if one or more volumes did not auto roll the backup, those volumes can still be recovered to that backup. To allow recovery to those volumes, you must remove any volumes indicating that they auto rolled that backup, from the session.

Note: If you set this option, but the backup is in a recovery relationship, and the hardware rolls a volume off, Copy Services Manager does not expire it.

-backupfreq_h1*backup_frequency_h1*
Specifies the value in minutes for how often a Safeguarded Copy backup can be taken.

-backupretention_h1*backup_retention_h1*
Specifies the value in hours for how long Safeguarded Copy backups should be retained. After the time has elapsed the backups will be expired.

-recovernocopy_h1r1 { yes | no }
For the h1r1 role pair, specifies whether the recovery relationship is established with a background copy for the next Recover Backup command. Valid values are yes or no.

-recoverpersistent_h1r1 { yes | no }
For the h1r1 role pair, specifies whether the recovery relationship is established with persistence for the next Recover Backup command. Valid values are yes or no. Support for persistent recovery on Safeguarded Copy requires the proper level of DS8000 microcode.

-zosSysplex {*sysplex_name* || NO_ASSOCIATION }
Specifies or clears the z/OS sysplex that is associated with the session. The **-zosSysplex** or **-zosSystem** parameter is required to use the **-SiteSelectionHS** and **-PriorityHS** parameters and the parameters for managing HyperSwap and enabling hardened freeze. **-zosSysplexh1h2** and **-zosSysplexh3h4** relate to the role pair.

sysplex_name
Specifies the z/OS sysplex and host system(separated by a dash "-") that is connected to the storage system.

NO_ASSOCIATION
Clears the associated sysplex if a sysplex is defined for the session.

-zosSystem {*system_name* | NO_ASSOCIATION }
Specifies or clears the z/OS system that is associated with the session. The **-zosSystem** or **-zosSysplex** parameter is required to use the **-SiteSelectionHS** and **-PriorityHS** parameters and the parameters for managing HyperSwap and enabling hardened freeze. **-zosSystemh1h2** and **-zosSystemh3h4** relate to the role pair.

system_name
Specifies the z/OS system and host system(separated by a dash "-") that is connected to the storage system.

NO_ASSOCIATION
Clears the associated system if a system is defined for the session.

-SiteSelectionHS { auto | priority }
For multi-target sessions, determines how HyperSwap Manager selects the target site for a HyperSwap operation.

The following values are valid for this parameter:

auto
Enables HyperSwap Manager to select the target site for a HyperSwap operation. This is the default value.

HyperSwap Manager selects the target site that keeps the most sysplex members active. If multiple target sites are equal candidates for the HyperSwap operation, HyperSwap Manager uses the **priority** value to select the target site. For example, if both site 1 and site 3 are equal, but the **priority** value is **3,2,1**, HyperSwap selects site 3.

priority
Directs HyperSwap Manager to select the target site that is based on the priority list that is specified by the **-PriorityHS** parameter.

-PriorityHS *priority_list*
For multi-target sessions, determines the priority in which HyperSwap Manager selects the target site for a HyperSwap operation. The value for this parameter is a string with the list of sites in order of priority. You can separate the sites by a comma (,) or a semi-colon (;).

The default value is **1,2,3**, which indicates that the first priority is site 1, the second priority is site 2, and the third priority is site 3. If site 1 is the active site, then the first value **1** is ignored. HyperSwap Manager selects site 2 or 3 depending on the HyperSwap status and availability of the sites, with site 2 being the preferred site.

If you enter the parameter **-SiteSelectionHS auto**, this parameter is used only when multiple target sites are equal candidates for a HyperSwap operation.

If you enter the parameter **-SiteSelectionHS priority**, this parameter determines the order in which HyperSwap Manager selects the target site.

-manageH1H2withHyperSwap { yes | no }
-manageH1H3withHyperSwap { yes | no }
-manageH2H3withHyperSwap { yes | no }
Enables the following session types to use Basic HyperSwap.

- Metro Mirror Failover/Failback
- Metro Global Mirror
- Metro Global Mirror with Practice
- Metro Mirror-Metro Mirror

For single-target sessions, use the **-manageH1H2withHyperSwap** parameter. For multi-target sessions, use the applicable parameter for each role pair. For example, if you want to apply this parameter to only the H1>H3 role pair, use **-manageH1H3withHyperSwap**.

The following values are valid values for these parameters:

yes
Enables the following HyperSwap options to be set for the session:

- `-disableHS { yes | no }`
- `-onConfigErrorHS { disable | partition }`
- `-onPlannedErrorHS { disable | partition }`
- `-onUnplannedErrorHS { disable | partition }`

no
Disables HyperSwap options for the session.

-disableHS { yes | no }
Disables HyperSwap for all of the role pairs that are in the session. This parameter is applicable only if a `-manageHxHxwithHyperSwap` parameter is set to `yes`.

If HyperSwap detects a triggering event while it is disabled, it does not perform a swap.

Issuing the `-disableHS no` parameter resets the disable command (`-disableHS yes`), but does not necessarily mean that HyperSwap is enabled. It might mean only that HyperSwap is no longer disabled for operator reasons. For example, the HyperSwap address spaces were not started, a new member was in the process of joining the sysplex, or there was a HyperSwap in progress.

To determine the reasons that HyperSwap might be disabled, see the session messages in the GUI. To view the messages, open the **Sessions** page, select the session, and click **Session Actions** > **View/ Modify** > **View Messages**.

-onPlannedErrorHS { disable | partition }
This optional parameter specifies the policy for the action to be taken when an error occurs during a planned HyperSwap. Valid policies are:

disable
HyperSwap processing is stopped and backed up, and HyperSwap is disabled.

partition
Systems that cannot complete the swap operation are partitioned out of the sysplex, and the HyperSwap continues with the remaining members of the sysplex. This is the default value.

-onUnplannedErrorHS { disable | partition }
Specifies the policy for the action to be taken when an error occurs during an unplanned HyperSwap. Valid policies are:

disable
HyperSwap processing is stopped and backed up, HyperSwap is disabled, and a permanent I/O error is returned to any users of the failing device.

partition
Systems that cannot complete the swap operation are partitioned out of the sysplex, and the HyperSwap continues with the remaining members of the sysplex. This is the default value.

-enableHardenedFreeze { yes | no }
Specifies whether the z/OS Input/Output Supervisor (IOS) is used to manage freeze operations. If this parameter is set to `yes`, the following actions can occur:

- A freeze can occur regardless of whether the copy services management server is started or stopped.
- You can include z/OS system volumes such as paging, database, and WebSphere® Application Server hierarchical file system (HFS) volumes as Metro Mirror volumes in the session. When you set the **-enableHardenedFreeze** parameter to `yes`, IOS manages the freeze operations for all Metro Mirror volumes in the session, which prevents the copy services management server from freezing itself. This parameter does not enable IOS to manage freeze operations for Global Mirror volumes.

IOS support for managing freeze operations is included with HyperSwap. This parameter is ignored if the **-manageH1H2withHyperSwap** parameter is set to `yes`.

This parameter requires two z/OS address spaces: the Basic HyperSwap Management address space and the Basic HyperSwap API address space. For instructions about how to start these address spaces, see "Preparing to use HyperSwap from z/OS" in Knowledge Center.

-enableHardwareReserves { yes | no }
Specifies whether the z/OS Input/Output Supervisor (IOS) will allow hardware reserves on volumes in the session when a HyperSwap configuration has been loaded.

Support for hardware reserves requires the proper level of DS8000 microcode and z/OS IOS maintenance.

-coordint ***coordination_interval_time***
Specifies the new coordination interval time for Global Mirror type sessions. This parameter is meant to be used by advanced users. `-coordint_h1j3`, `-coordint_h2j1`, `-coordint_h1j2`, `-coordint_h3j1`, `-coordint_h3j2`, and `-coordint_h2j3` relate to the role pair.

-rpo ***rpo_value***
Specifies the new consistency group interval time in seconds for the XX-XX role pair. The value of data exposure for the session trends toward this value. This parameter applies only to Global Mirror session types and copy types where the recovery point objective (RPO) is mapped. A value of `0` specifies that the storage system continuously attempt to form consistency groups. The possible range of values is 0 - 65535. The default is 0.

Parameters **-rpo_h1j2**, **-rpo_h1j3**, **-rpo_h2j1**, **-rpo_h3j1**, **-rpo_h3j2**, and **-rpo_h2j3** relate to the role pair.

-dsRPOwarning ***dsRPOwarning_value***
Specifies whether an alert is generated when an RPO threshold is exceeded for a role pair. This parameter applies only to Global Mirror and Metro Global Mirror sessions.

The range of values is 0 - 65535. The default is 0, which specifies that no alerts are generated. If the value is other than 0, it must be greater than the value for the **-rpo** parameter and less than the value for the **-dsRPOsevere** parameter.

Parameters **-dsRPOwarning_h1j2**, **-dsRPOwarning_h1j3**, **-dsRPOwarning_h2j1**, **-dsRPOwarning_h3j1**, **-dsRPOwarning_h3j2**, and **-dsRPOwarning_h2j3** relate to the role pair.

-dsRPOsevere ***dsRPOsevere_value***
Specifies whether an alert is generated and the session status is changed to Severe when an RPO threshold is exceeded for a role pair. This parameter applies only to Global Mirror and Metro Global Mirror sessions.

The range of values is 0 - 65535. The default is 0, which specifies that no alerts are generated. If the value is other than 0, it must be greater than the value for the **-dsRPOwarning** parameter.

Parameters **-dsRPOsevere_h1j2**, **-dsRPOsevere_h1j3**, **-dsRPOsevere_h2j1**, **-dsRPOsevere_h3j1**, **-dsRPOsevere_h3j2**, and **-dsRPOsevere_h2j3** relate to the role pair.

-reflash { yes | no }
For sessions with journal volumes, specifies whether to reflash a consistent set of data to the journal volume after a Recover command is issued to the session. Reflashing to the journal volume ensures that there is a consistent copy of the data to recover from if failures occur during resynchronization. Valid values are yes or no. If you enter no, the journal volumes will not have a consistent copy of the data after the recover operation. However, the space will be available when using space efficient volumes.

-preventreflash { yes | no }
For sessions with practice volumes, specifies whether to allow the session to issue another Flash that will overwrite the existing data on the practice volumes. If the option is set to yes, after a Flash or Recover, the session will not allow another Flash to occur until the Allow Practice Flash command is issued.

-maxdrain ***max_drain_time***
Specifies the new maximum drain time for Global Mirror type sessions. This parameter is meant to be used by advanced users.

If you specify `-maxdrain 0`, the storage system uses its default value instead of zero. Any other positive integer in the valid range is accepted by the storage system. However, when a zero is sent to the storage system, the storage system is instructed to set the value back to its default value.

The `-maxdrain` parameter is related to the DS `-drain` parameter. The default value for the `-drain` parameter is 30240 seconds; the maximum value for the `-maxdrain` parameter is 65,535 seconds.

For more information, see the `mkgmir` command in the *IBM DS8000 Command-Line Interface User's Guide*.

Parameters `-maxdrain_h1j3`, `-maxdrain_h2j3`, `-maxdrain_h2j1`, `-maxdrain_h1j2`, `-maxdrain_h3j1`, and `-maxdrain_h3j2` relate to the role pair.

Parameters for sessions for SAN Volume Controller, Storwize family, or Storwize V7000 Unified storage systems

-svcinc { yes | no }
For a point-in-time session, specifies whether the FlashCopy relationship for the storage systems is incremental for the next Flash or Start command. Valid values are `yes` or `no`.

-svccopyrate ***svc_background_copy_rate***
Specifies the copy rate that the storage systems use to complete the background copy of the FlashCopy relationships. For older storage systems running IBM Spectrum Virtualize, specify a value in the range 0-100; for newer storage systems at release 7.8.1 and higher, specify a value in the range 0-150. The default is 50.

When you specify 0, you are specifying the equivalent of the no-copy option for a TotalStorage Enterprise Storage Server or IBM DS8000 FlashCopy session. If the session is completing a background copy when you change the option, the background copy rate of the consistency group on the storage system will be immediately modified.

The consistency group immediately uses the new rate to complete the background copy.

-svccopyrate_h2i2 ***svc_background_copy_rate***
Specifies the copy rate that the storage systems use to complete the background copy of the FlashCopy relationships. For older storage systems running IBM Spectrum Virtualize, specify a value in the range 0-100; for newer storage systems at release 7.8.1 and higher, specify a value in the range 0-150. The default is 50.

A value of 0 is the equivalent of specifying the no-copy option for a TotalStorage Enterprise Storage Server or IBM DS8000 FlashCopy session. If the session is completing a background copy when you change the option, the background copy rate of the consistency group on the storage system is immediately updated. The consistency group immediately uses that rate to complete the background copy.

-enableChangeVolumes { yes | no }
Specifies whether the use of change volumes is enabled in the copy sets for the session. Change volumes are denoted as C*x*, where *x* identifies the site. These volumes contain point-in-time images that are copied from the H1 and H2 volumes. The C1 volume stores changes from the H1 volume. These changes are sent from the C1 volume to the H2 volume, and then to the C2 volume.

Because the data that is replicated between sites contains point-in-time changes rather than all changes, a lower bandwidth link is required between the sites when change volumes are used. However, the use of change volumes can result in an increase to data exposure. Therefore, you might want to enable or disable this option depending on your network traffic or business requirements.

The valid values for this parameter are `yes` or `no`. The default is `yes`. This parameter applies only to Global Mirror Failover/Failback with Change Volumes sessions.

The images are copied to the change volumes during the cycle period that is defined by the **-cycleperiod** parameter.

The use of this parameter requires that the session is in an inactive state. An example of an inactive state is Defined or Suspended.

-cycleperiod ***cycle_period***
Specifies the period in seconds in which the change volumes are refreshed with a consistent copy of the data. If a copy does not complete in the cycle period, the next cycle period will not start until the copy is complete. The range of possible values is 60 - 86400. The default is 300. This parameter applies only to Global Mirror Failover/Failback with Change Volumes sessions.

-svcRPOwarning_h1h2 *svcRPOwarning_h1h2_value*
Specifies whether an alert is generated when an RPO threshold is exceeded for a H1-H2 role pair. This parameter applies only to Global Mirror Failover/Failback with Change Volumes sessions.

The range of values is 0 - 172800. The default is 0, which specifies that no alerts are generated. If the value is other than 0, it must be greater than the value for the **-cycleperiod** parameter and less than the value for the **-svcRPOsevere_h1h2** parameter.

-svcRPOsevere_h1h2 *svcRPOsevere_h1h2_value*
Specifies whether an alert is generated and the session status is changed to Severe when an RPO threshold is exceeded for a H1-H2 role pair. This parameter applies only to Global Mirror Failover/Failback with Change Volumes sessions.

The range of values is 0 - 172800. The default is 0, which specifies that no alerts are generated. If the value is other than 0, it must be greater than the value for the **-svcRPOwarning_h1h2** parameter.

-enableAutoRestart { yes | no }
Specifies whether the session should restart automatically if it unexpectedly suspends with reason code 1720 or 1920. An automatic restart is attempted for every suspend with reason code 1720 or 1920 a certain number of times (determined be the storage server's gmlinktolerance value) within a 30 minute time period. If the number of allowable automatic restarts is exceeded within the time period, the session will not restart automatically on the next unexpected suspend. Issue a Start command to restart the session, clear the automatic restart counters and enable automatic restarts.

If a Global Mirror with Change Volumes session is running with change volumes disabled, this option causes the session to restart automatically with change volumes enabled and form consistency groups based on the cycle time defined in the session properties. After the condition that caused the suspend with reason code 1720 or 1920 is fixed, you can disable change volumes manually by issuing the **chsess** CLI command with the -enableChangeVolumes option set to No.

Warning: Enabling this option causes the session to be automatically restarted by the server. When this occurs, the secondary site will not be consistent until the relationships are fully re-synced.

-autoRestartDelay *delay_time*
Specifies the amount of time, in seconds, in which the copy services management server will wait after an unexpected suspend with reason code 1720 or 1920 before automatically restarting the session. This option is only valid when the -enableAutoRestart option is set to Yes.

The range of values is 0 - 43200. The default value is 0, which specifies that the session is restarted immediately following a suspend with reason code 1720 or 1920.

recoverypool*svc_recovery_pool_name*

For Safeguarded Copy sessions, specifies the single pool within which the recovery volumes are defined.

defaultrecoverypool

Indicates that the parent pool or pools of the source volumes should be used to define the recovery volume.

Parameters for sessions for FlashSystems/IBM Spectrum Accelerate systems

-rpo *rpo_value*
Specifies the RPO threshold for the session in seconds. The **-rpo** parameter works with the **-schedule** parameter to determine:

- How often FlashSystem/IBM Spectrum Accelerate attempts to form a consistency group.
- Whether the RPO value exceeds the threshold.

If the RPO on the storage system exceeds the RPO threshold for the session, the session changes to the Severe state and an alert is generated. The possible range of values is 30 - 86400. The default is 30.

-schedule *schedule*

For a FlashSystem/IBM Spectrum Accelerate Global Mirror session, this option specifies how often FlashSystem/IBM Spectrum Accelerate forms a consistency group to ensure consistency on the secondary side and achieve the RPO that is set by the -rpo option.

The following are the possible values for –schedule: {never | min_interval | 00:00:30 | 00:00:40 | 00:00:50 | 00:01:00 | 00:01:10 | 00:01:20 | 00:01:30 | 00:01:40 | 00:01:50 | 00:02:00 | 00:05:00 | 00:10:00 | 00:15:00 | 00:30:00 | 01:00:00 | 02:00:00 | 03:00:00 | 04:00:00 | 06:00:00 | 08:00:00 | 12:00:00}

The default is min_interval, which is 20 seconds.

Example: Changing the description of a session

The following command changes the description of the session session1 to MGM session.

```
csmcli> chsess -quiet -desc "MGM session" session1
```

The following output is returned:

```
IWNR1124I  The description for session session1 was modified successfully.
The new description is MGM session.
```

Example: Changing the session site locations

The following command changes location of each site in Metro Global Mirror session session2.

```
csmcli> chsess -quiet -site1loc Boulder -site2loc Tucson -site3loc Marana session2
```

The following output is returned:

```
IWNR1096I  The locations for sessions session2 and Site 3 were set successfully.
```

Example: Disabling HyperSwap for a session

The following command disables HyperSwap for session session3.

```
csmcli> chsess -quiet -disableHS yes session3
```

The following output is returned:

```
IWNR5411E  Basic HyperSwap is disabled by operator for session session3.
```

Example: Setting the cycle period for a Global Mirror Failover/Failback with Change Volumes session

The following command sets the cycle period for session session4. The cycle period is the period in seconds during which a point-in-time image is copied to the change volumes.

```
csmcli> chsess -quiet -cycleperiod 567 session4
```

The following output is returned:

```
IWNR1228I The options for session session4 have been set successfully.
```

Example: Setting the target site and priority for a HyperSwap operation for a Metro Mirror multi-target session

The following command directs HyperSwap Manager to select the target site for a HyperSwap operation based on the priority list for session session5. In this example, the target site priority is site 3, site 2, and site 1.

```
csmcli> chsess -quiet -SiteSelectionHS priority -PriorityHS 3,2,1 session5
```

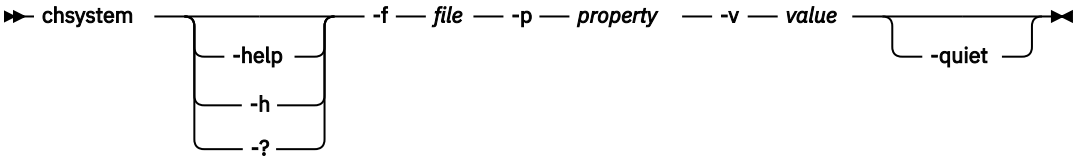
The following output is returned:

```
IWNR1228I The options for session session5 have been set successfully.
```

chsystem

Use the **chsystem** command to make changes to system settings files for the server. The server may need to be restarted for changes to take effect. **Note:** This command can only be issued by a user with Administrator authority.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-f file
Specifies the system file that needs to be updated. Valid system file parameters are "server", "bootstrap", "essclient", and "zosclient".

-p property
Specifies the system property to be updated in the system file. This should be the exact property name that will change in the file.

-v value
Specifies the value to be set for the system property. This should be an exact string matching the value that you want to set. Values can contain any printable character.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

Note: See the “rmserver.properties file” on page 212 for more information about Copy Services Manager server configuration settings.

Example: Changing the https port for this server

```
csmcli> chsystem -f bootstrap -p https_port_var -v 9559
```

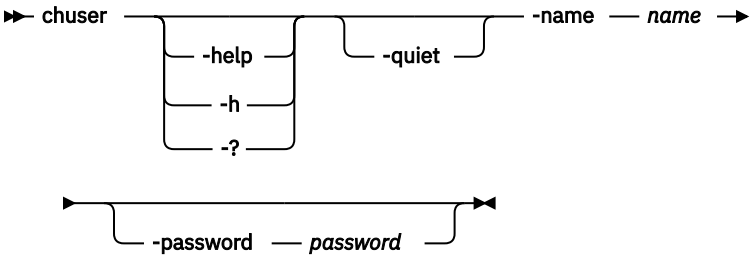
The following output is returned:

```
Are you sure you want to change system properties for the server? [y/n]:y
IWNR4200I [Feb 2, 2017 9:45:40 AM] Successfully updated property https_port_var
to value 9559 in property file bootstrap.properties.
```

chuser

Use the **chuser** command to change the password for a user in the basic user registry. This command is not available when running on a z/OS system. **Note:** This command can only be issued for the user that is currently logged in. You cannot change a password for another user.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

-name ***name***
Specifies a user name you want to change the password for in the basic user registry.

-password ***password***
Specifies the password to set for the new user. If you do not include this parameter, you will be prompted for the password. If prompted,
the password will be masked and you will be prompted to confirm the password by retyping it. If the parameter is used, it will display in plain text but no additional prompting will occur. The maximum password length is 104 characters.

Example: Changing a user password

The following command will update the password for user bob.

```
csmcli> chuser -name bob
```

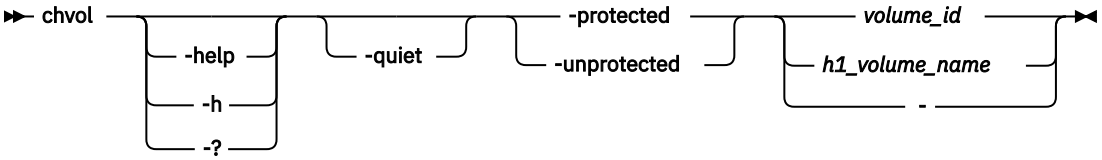
The following output is returned:

```
Please enter a password for user bob:
Please confirm the password for user bob:
IWNR4038I Successfully updated the password for user bob.
```

chvol

Use the **chvol** command to change the protection setting for a volume. You cannot change the protection setting for a volume that is in a session.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

-protected
Marks the volume or volumes as protected. It specifies that the volumes cannot be used in an add copy set action.

-unprotected
Marks the volume or volumes as unprotected. It specifies that the volumes can be used in an add copy set action.

***volume_id* | *volume_name* | -**
Specifies the volume for which you want to change the protection setting.

For IBM® DS8000 and IBM TotalStorage Enterprise Storage Server Model 800 storage systems, use the volume ID for this parameter.

For other storage systems, you can use the volume ID or name for this parameter.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Protecting a volume by using a volume ID

The following command marks the volume DS8000:2107.04131:VOL:0001 as protected.

```
csmcli> chvol -protected DS8000:2107.04131:VOL:0001
```

The following output is returned:

```
Are you sure you want to change volume DS8000:2107.04131:VOL:0001? [y/n]:y
 IWNE9300I  The set protection command completed without any errors. There
were 1 element(s) protected and 0 element(s) unprotected.

IWNE9302I  The element DS8000:2107.04131:VOL:0001 has been protected.
```

Example: Unprotecting a volume by using a volume ID

The following command marks the volume DS8000:2107.04131:VOL:0001 as unprotected.

```
csmcli> chvol -unprotected DS8000:2107.04131:VOL:0001
```

The following output is returned:

```
Are you sure you want to change volume DS8000:2107.04131:VOL:0001?
[y/n]:y
```

```
IWNE9300I  The set protection command completed without any errors. There
were 0 element(s) protected and 1 element(s) unprotected.
IWNE9303I  The element DS8000:2107.04131:VOL:0001 has been unprotected.
```

Example: Protecting a volume by using a volume name

The following command marks the volume `STORWIZE-V7000:VOL:FREEBIRD2:myvolume1` as protected.

```
csmcli> chvol -protected STORWIZE-V7000:VOL:FREEBIRD2:myvolume1
```

The following output is returned:

```
Are you sure you want to change volume
STORWIZE-V7000:VOL:FREEBIRD2:7(myvolume1)? [y/n]:y
IWNE9300I  The set protection command completed without any errors. There
were 1 element(s) protected and 0 element(s) unprotected.

IWNE9302I  The element STORWIZE-V7000:VOL:FREEBIRD2:7(myvolume1)
has been protected.
```

Example: Unprotecting a volume by using a volume name

The following command marks the volume `STORWIZE-V7000:VOL:FREEBIRD2:myvolume1` as unprotected.

```
csmcli> chvol -uprotected STORWIZE-V7000:VOL:FREEBIRD2:myvolume1
```

The following output is returned:

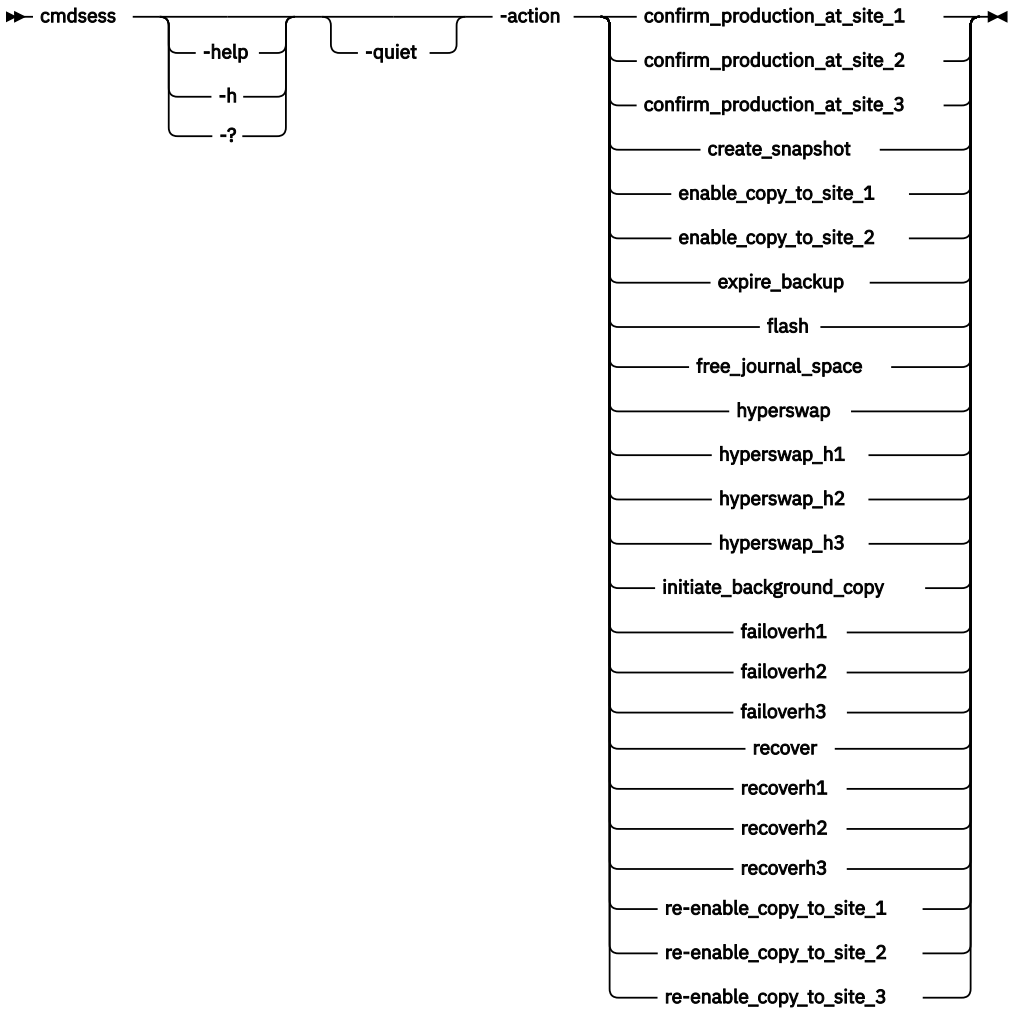
```
Are you sure you want to change volume
STORWIZE-V7000:VOL:FREEBIRD2:7(myvolume1)? [y/n]:y
IWNE9300I  The set protection command completed without any errors. There
were 0 element(s) protected and 1 element(s) unprotected.

IWNE9302I  The element STORWIZE-V7000:VOL:FREEBIRD2:7(myvolume1)
has been unprotected.
```

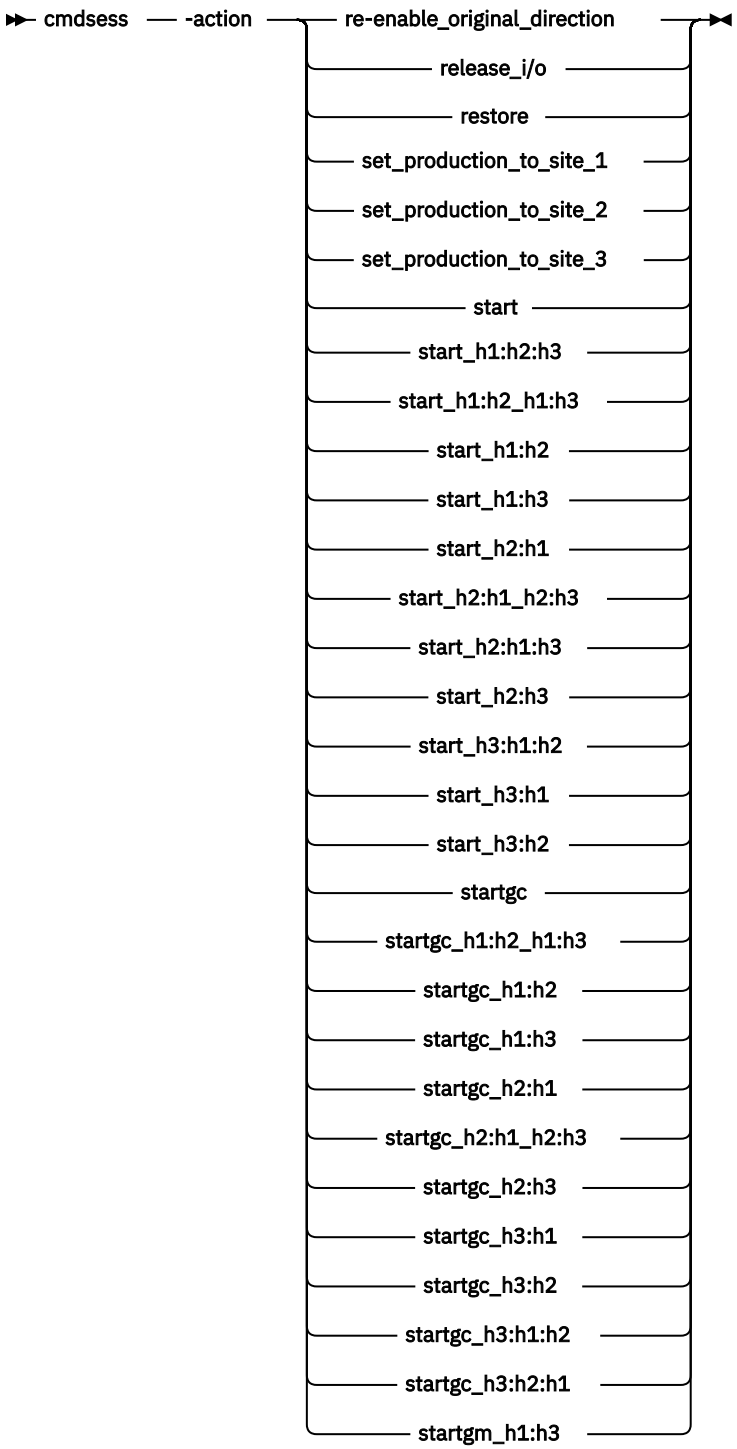
cmdsess

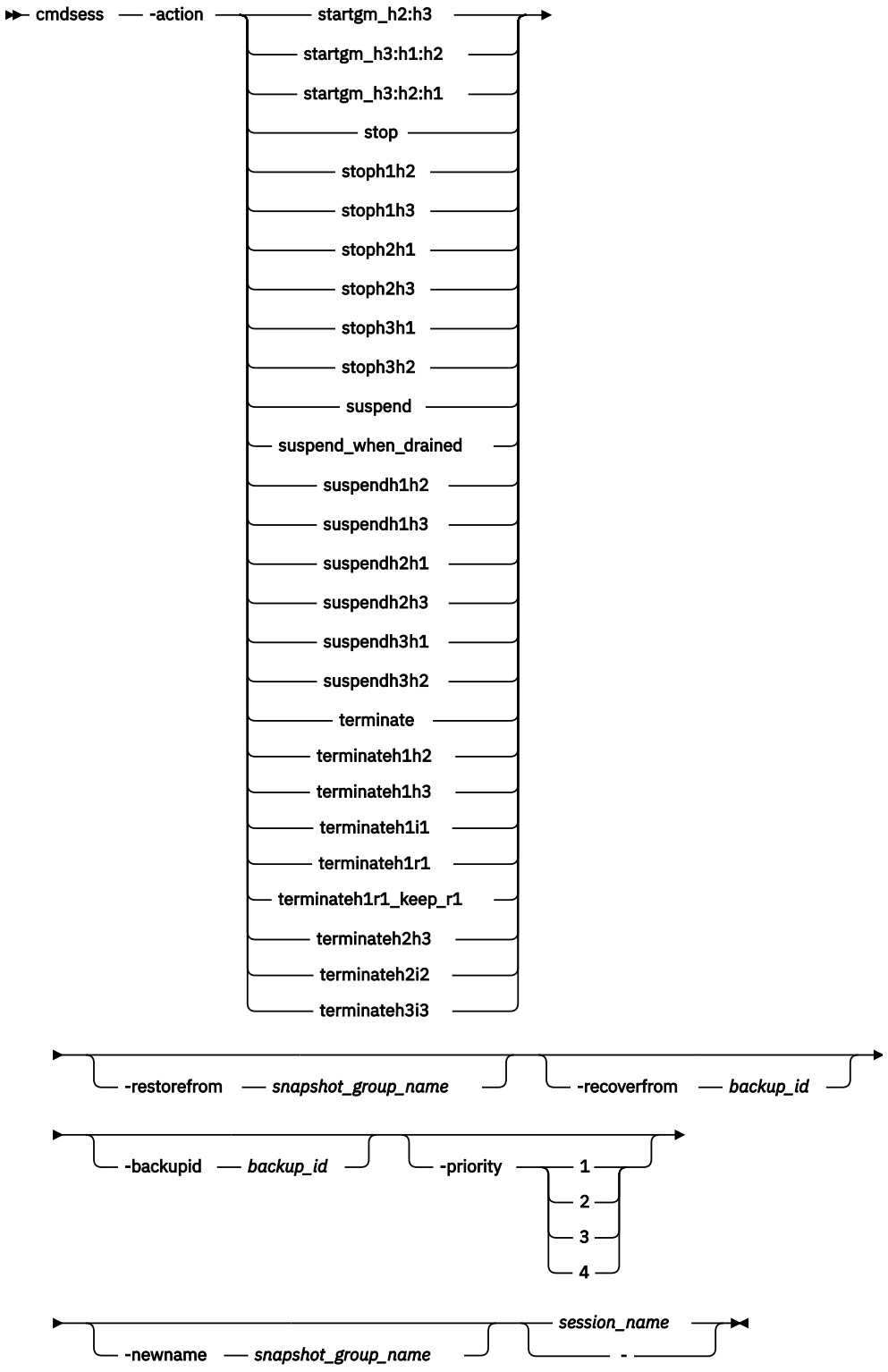
Use the **cmdsess** command to run a specific action against a session.

Syntax

Tip: To list all of the session actions that can be run for a session, use the **lssessactions** command.


cmdsess
-help
-h
-?
-quiet
-action
confirm_production_at_site_1
confirm_production_at_site_2
confirm_production_at_site_3
create_snapshot
enable_copy_to_site_1
enable_copy_to_site_2
expire_backup
flash
free_journal_space
hyperswap
hyperswap_h1
hyperswap_h2
hyperswap_h3
initiate_background_copy
failoverh1
failoverh2
failoverh3
recover
recoverh1
recoverh2
recoverh3
re-enable_copy_to_site_1
re-enable_copy_to_site_2
re-enable_copy_to_site_3


cmdsess
-action
re-enable_original_direction
release_i/o
restore
set_production_to_site_1
set_production_to_site_2
set_production_to_site_3
start
start_h1:h2:h3
start_h1:h2_h1:h3
start_h1:h2
start_h1:h3
start_h2:h1
start_h2:h1_h2:h3
start_h2:h1:h3
start_h2:h3
start_h3:h1:h2
start_h3:h1
start_h3:h2
startgc
startgc_h1:h2_h1:h3
startgc_h1:h2
startgc_h1:h3
startgc_h2:h1
startgc_h2:h1_h2:h3
startgc_h2:h3
startgc_h3:h1
startgc_h3:h2
startgc_h3:h1:h2
startgc_h3:h2:h1
startgm_h1:h3



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

-action ***action_type***
Specifies the action type (command) depending on the state and type of session. The possible action types are displayed in the syntax diagram and are described in the *IBM Copy Services Manager User's Guide*.

-restorefrom ***snapshot_group_name***
Specifies the name of the snapshot group that you want to use to restore the data in the H1 volumes for the session. The snapshot group must be in the session.

This parameter is required if the **-action** parameter value is `restore` and the session is for XIV storage systems.

-backupid ***backup_id***
Specifies the ID of the backup that you want to use to for the specified command.

This parameter is required if the **-action** parameter value is *expire_backup,*, *recover_backup*, or *terminateh1r1* and the session is a Safeguarded Copy session

-restorefrom ***snapshot_group_name***
Specifies the new name for the snapshot group that you want to use to restore the data in the H1 volumes for the session. The snapshot group must be in the session.

This parameter is optional and only used if the **-action** parameter value is `restore` and the session is for XIV storage systems.

-priority { 1 | 2 | 3 | 4 }
Specifies the priority in which the snapshot group is deleted from the session. The value is the number 1 - 4. A value of 1 specifies that the snapshot group is deleted last. A value of 4 specifies that the snapshot group is deleted first.

This parameter is optional and only used if the **-action** parameter value is `create_snapshot`.

***session_name* | -**

Specifies the name of the session that the action will run against.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Starting a session

The following command runs the **Start H1->H2->H3** action on session `session1`:

```
csmcli> cmdsess -action start_h1:h2:h3 session1
```

The following output is returned:

```
IWNR1813W  This command will initiate the copying of data from
Site 1 to Site 2 and Site 3 for session session1, overwriting any data on Site 2
and Site 3 for any inactive copy sets. For ESS/DS devices, exactly one path will
be established between each LSS pair without existing paths. Do you want to
continue? [y/n]:y

IWNR1027I  The command Start H1->H2->H3 in session session1 has completed
successfully.
```

Example: Reversing the direction of replication

The following command runs the **Enable Copy to Site 1** action on the `session1` session without prompting for confirmation:

```
csmcli> cmdsess -quiet -action enable_copy_to_site_1 session1
```

The following output is returned:

```
IWNR1027I  The command Enable Copy to Site 1 in session session1 has
completed successfully.
```

For multi-target session types, the equivalent parameter is **set_production_to_site_*x***, where *x* is the production site. For example, the parameter **set_production_to_site_2** enables data replication from Site 2 to Site 1 and Site 3.

Example: Creating a snapshot group in a FlashSystem/IBM Spectrum Accelerate snapshot session

The following command creates a snapshot group in session snap1:

```
csmcli> cmdsess -action create_snapshot snap1
```

The following output is returned:

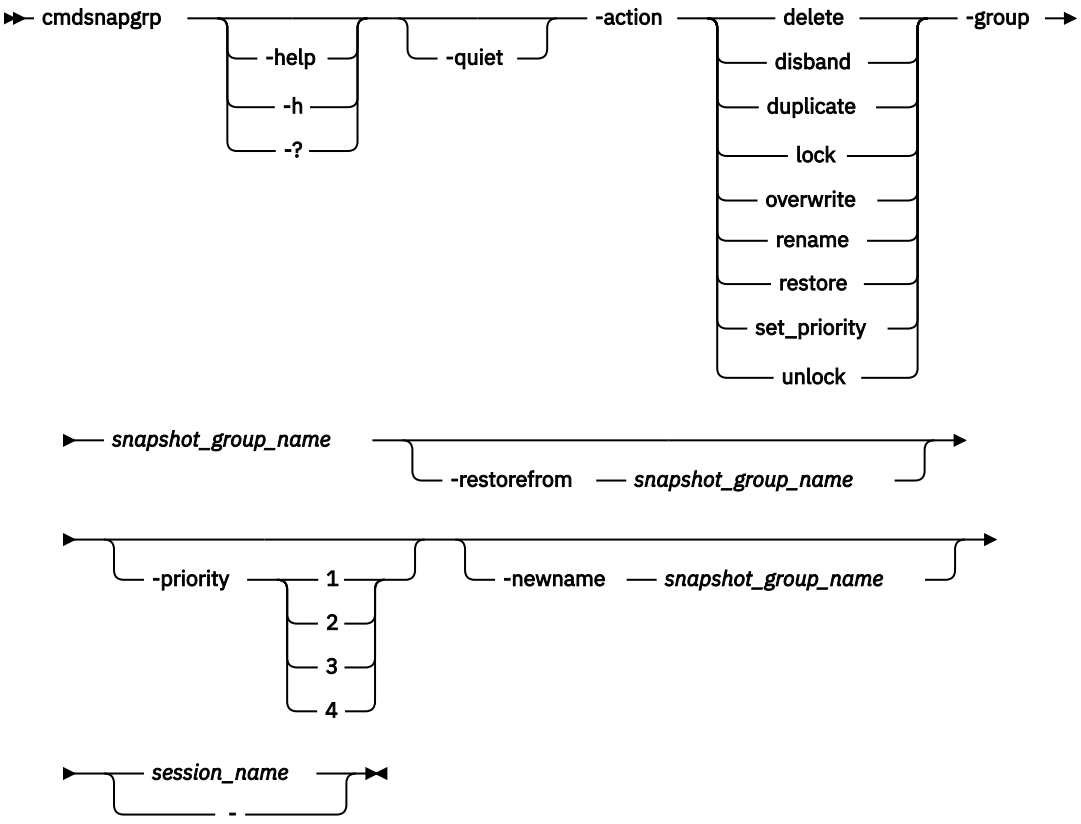
```
IWNR1855W  This command will create a new snapshot group containing
snapshots of the source volumes in session snap1. Do you want to continue? [y/n]:y

IWNR1026I  The Create Snapshot command in session snap1 has completed.
```

cmdsnapgrp

Use the **cmdsnapgrp** command to run a specific action against a snapshot group that is in a FlashSystem/IBM Spectrum Accelerate snapshot session.

A snapshot group is a grouping of snapshots of individual volumes in a consistency group at a specific point in time.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

-action *action_type*
Specifies the action that you want to complete for a snapshot group in a session. The valid values are:

delete
Deletes the snapshot group and all the individual snapshots that are in the group from the session and from FlashSystem/IBM Spectrum Accelerate.

If the deleted snapshot group is the last snapshot group that is associated with the session, the session returns to the Defined state.

disband
Disbands the snapshot group. When a snapshot group is disbanded, the snapshot group no longer exists. All snapshots in the snapshot group become individual snapshots that are no longer associated to the consistency group or the session.

After a snapshot group is disbanded, it is no longer shown in or managed by the copy services management server. If the disbanded snapshot group is the last snapshot group that is associated with the session, the session returns to the Defined state.

duplicate
Duplicates the snapshot group. When a snapshot group is duplicated, a new snapshot group is created with new snapshots for all volumes that are in the duplicated group. A name for the duplicated snapshot group is generated automatically by FlashSystem/IBM Spectrum Accelerate.

lock
Locks a snapshot group. If the snapshot group is locked, write operations to the snapshots within the snapshot group are prevented. By default, a snapshot group is locked when it is created.

This action is valid only if the snapshot group is unlocked.

overwrite
Overwrites the snapshot group to reflect the data that is on the master volume.

rename
Renames the snapshot group.

To specify the new name, use the **-newname** parameter.

restore
Restores the contents of a snapshot group by using another snapshot group in the session. Both of the snapshot groups must contain the same subset of volumes.

To specify the snapshot group from which you want to restore, use the **-restorefrom** parameter.

set_priority
Sets the priority in which a snapshot group is deleted. The value is the number 1 - 4. A value of 1 specifies that the snapshot group is deleted last. A value of 4 specifies that the snapshot group is deleted first.

To set the deletion priority, use the **-priority** parameter.

unlock
Unlocks a snapshot group. If the snapshot group is unlocked, write operations to the snapshots within the snapshot group are enabled and the snapshot group is shown as modified if you run the **lssnapgrp** command.

This action is valid only if the snapshot group is locked.

-group *snapshot_group_name*
Specifies the name of the snapshot group that you want to run the action against.

-restorefrom *snapshot_group_name*
Specifies the name of the snapshot group that you want to use to restore the snapshot group that is defined by the **-group** parameter.

This parameter is required if the **-action** parameter value is restore.

-priority { 1 | 2 | 3 | 4 }
Specifies the priority in which the snapshot group will be deleted from the session. The value is the number 1 - 4. A value of 1 specifies that the snapshot group is deleted last. A value of 4 specifies that the snapshot group is deleted first.

This parameter is required if the **-action** parameter value is `set_prioirity`.

-newname *snapshot_group_name*
Specifies the new name for the snapshot group.

This parameter is required if the **-action** parameter value is `rename`.

***session_name* | -**

Specifies the name of the session that contains the snapshot group.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Deleting a snapshot group

The following command deletes the snapshot group `snap1_002.snap_group_00018` in the session `snap1`.

```
csmcli> cmdsnapgrp -group snap1_002.snap_group_00018 -action delete -quiet snap1
```

The following output is returned:

```
IWNR1322I The Delete command has completed for snapshot groups
snap1_002.snap_group_00018 in session snap1.
```

Example: Disbanding a snapshot group

The following command disbands the snapshot group `snap1_002.snap_group_00017` in the session `snap1`.

```
csmcli> cmdsnapgrp -group snap1_002.snap_group_00017 -action disband -quiet snap1
```

The following output is returned:

```
IWNR1322I The Disband command has completed for snapshot groups
snap1_002.snap_group_00017 in session snap1.
```

Example: Duplicating a snapshot group

The following command duplicates the snapshot group `snap1_002.snap_group_0001` in the session `snap1`.

```
csmcli> cmdsnapgrp -group snap1_002.snap_group_0001 -action duplicate -quiet snap1
```

The following output is returned:

```
IWNR1322I The Duplicate command has completed for snapshot groups
snap1_002.snap_group_0001 in session snap1.
```

Example: Locking a snapshot group

The following command locks the snapshot group `snap1_002.snap_group_0001` in the session `snap1`.

```
csmcli> cmdsnapgrp -group snap1_002.snap_group_0001 -action lock -quiet snap1
```

The following output is returned:

```
IWNR1322I The Lock command has completed for snapshot groups
snap1_002.snap_group_0001 in session snap1.
```

Example: Overwriting a snapshot group

The following command overwrites the snapshot group snap1_002.snap_group_0001 in the session snap1.

```
csmcli> cmdsnapgrp -group snap1_002.snap_group_0001 -action overwrite -quiet snap1
```

The following output is returned:

```
IWNR1322I The Overwrite command has completed for snapshot groups
snap1_002.snap_group_0001 in session snap1.
```

Example: Renaming a snapshot group

The following command renames the snapshot group snap1_002.snap_group_00016 to snapgroup1 in the session snap1.

```
csmcli> cmdsnapgrp -group snap1_002.snap_group_00016 -action rename
-newname snapgroup1 -quiet snap1
```

The following output is returned:

```
IWNR1326I The snapshot group snap1_002.snap_group_00016 in session
snap1 was renamed to snapgroup1.
```

Example: Restoring a snapshot group

The following command restores the snapshot group snap1_002.snap_group_0001 from snap1_002.snap_group_00017 in the session snap1.

```
csmcli> cmdsnapgrp -group snap1_002.snap_group_0001 -action restore
-restorefrom snap1_002.snap_group_00017 -quiet snap1
```

The following output is returned:

```
IWNR1325I The snapshot group snap1_002.snap_group_0001 in session
snap1 was restored from snapshot group snap1_002.snap_group_00017.
```

Example: Setting the deletion priority for a snapshot group

The following command sets a deletion priority of 4 for the snapshot group snap1_002.snap_group_0001 in the session snap1.

```
csmcli> cmdsnapgrp -group snap1_002.snap_group_0001 -action set_priority -priority 4
-quiet snap1
```

The following output is returned:

```
IWNR1324I The deletion priority for snapshot groups
snap1_002.snap_group_0001 in session snap1 was set to 4.
```

Example: Unlocking a snapshot group

The following command unlocks the snapshot group snap1_002.snap_group_0001 in the session snap1.

```
csmcli> cmdsnapgrp -group snap1_002.snap_group_0001 -action unlock -quiet snap1
```

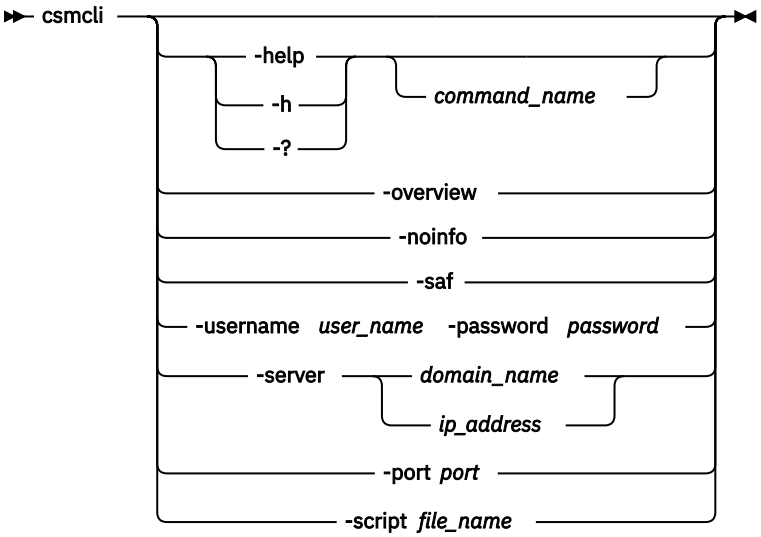
The following output is returned:

```
IWNR1322I The Unlock command has completed for snapshot groups
snap1_002.snap_group_0001 in session snap1.
```

csmcli

The `csmcli` command is the Copy Services Manager command-line interface (CLI) program. This command can be used either on its own, using the associated options and arguments, or interactively by starting `csmcli` with no parameters or arguments to start an interactive session.

Syntax



Parameters

`-help | -h | -?` [*command_name*]
Displays help for the specified command. If you do not specify a command name, this option displays help for the `csmcli` command. If you specify more parameters and arguments other than a command name, those parameters and arguments are ignored.

`-overview`
Displays overview information about using the CLI program.

`-noinfo`
Removes the copyright, version, and build information when you start the `csmcli`.

`-saf`
Queries the SAF facility defined in `repcli.properties` to optionally bypass the password prompt and use the user that is currently logged into the OMVS shell or user specified in a BPXBATCH job calling the CLI. The access of a user is validated as a member of the facility if all prerequisite configurations were completed and expected permissions were set correctly.

`-username` *user_name*
Specifies the Copy Services Manager user name with which you want to log in.

`-password` *password*
Specifies the password for the Copy Services Manager user name with which you want to log in.

Important: When you specify this option, the password is displayed as plain text. Using this form of authentication can cause a security exposure.

If you specify a user name but not a password, and Copy Services Manager does not find the password in an authentication file, you are prompted for the password. If prompted for the password, the password does not display in plain text.

`-server` {*domain_name* |*ip_address*}
Sets the domain name or IP address of the Copy Services Manager server to which you want to connect.

Remember: The server domain name or IP address is used only during this CLI session.

-port *port*
Sets the port number to be used by the CLI program to connect to the Copy Services Manager server. The default value is 5110.

Remember: The port number is used only during this CLI session.

-script*file_name*
Runs the set of command strings in the specified file outside of an interactive CLI session. If you specify this parameter, you must specify a file name.

The format options that are specified by using the `setoutput` command apply to all commands in the script.

command_string
Runs the specified command string outside of a CLI session.

Description

You can run `csmcli` commands locally from the management server or remotely by accessing the management server by using a remote-access utility, such as Secure Shell (SSH) or Telnet.

You can run the `csmcli` command without any parameters (or with only the **username** and **password** parameters) to start an interactive CLI session. If the **username** and **password** parameters are not entered initially, you will be prompted to enter them.

Remember:

You can also go to the installation directory and double-click the `csmcli.bat` or `csmcli.sh` file to start a csmcli session in interactive mode. The default directory paths to these executable files for each operating system are provided in the following table.

Operating system	Default directory
z/OS	*path_prefix*/opt/IBM/CSM/CLI/
Windows	C:\Program Files\IBM\CSM\CLI
Linux or AIX	*path_prefix*/opt/IBM/CSM/CLI

On Linux systems, you must enter the CLI program name (`csmcli`) in lowercase. Command input can be either lowercase, uppercase, or mixed case, unless specific command parameters require case sensitivity.

Each CLI command issues a return value and message. Warning and informational messages are written to the standard output stream (stdout). Error messages are written to the standard error stream (stderr). If a syntax error occurs while one of the commands in the script is running, the script exits at the point of failure and returns to the system prompt.

Start an interactive CLI session

This example illustrates how to start a CLI session if you did not set up an authentication configuration file.

```
shell> csmcli -username admin -password admin
```

Start an interactive CLI session using -saf

This example illustrates how to start a CLI session using the **-saf** parameter for authentication and run a command, simultaneously.

```
shell> csmcli -saf mksess -cptype mmf0fb test1
```

Set the server and port for the management server

This example illustrates how to set the server domain name to `localhost` and port number to `5110` for the local management server.

```
shell> csmcli -server localhost -port 5110
```

Run several commands by using a script file

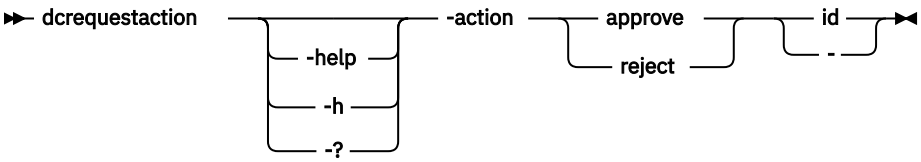
This example illustrates how to run several commands by using a script file name `cli_script.txt`.

```
shell> csmcli -script cli_script.txt
```

dcrequestaction

Use the **dcrequestaction** command to run a specified scheduled task.
Tip: To list all of the Dual Control requests, use the **lsdcrequests** command.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

id | -
Specifies the ID for the Dual Control request that will be approved or rejected.

Example: Approving Dual Control request 2

The following command approves the Dual Control request with an ID of 2, for issuing a Flash command to a session.

```
dcrequestaction -quiet -action approve 2
```

The following output is returned:

```
IWNR1026I [Jan 24, 2019 10:42:15 AM] The Flash command in the

8kFC session completed.
```

Example: Rejecting Dual Control request 3

The following command rejects the Dual Control request with an ID of 3.

```
csmcli> dcrequestaction -quiet -action reject 3
```

The following output is returned:

```
IWNR2605I [Jan 24, 2019 10:43:02 AM] Dual Control notification request
```

```
3 was rejected by user bob with the following reason: rejected from cli.
```

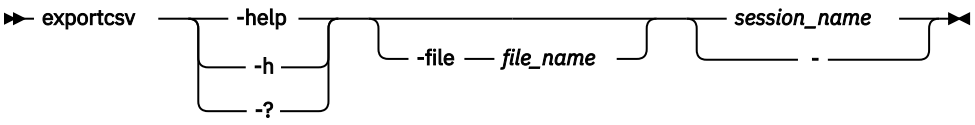
exportcsv

Use the **exportcsv** command to export the copy sets in a session to a comma-separated values (CSV) file or to the console. You are prompted to overwrite the CSV file if it exists.

For IBM® DS8000® and IBM TotalStorage Enterprise Storage Server Model 800 storage systems, the volume ID is provided in the CSV file.

For other storage systems, the volume ID is provided in the CSV file if the volume does not have a name. If the volume has a name, the name is provided.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-file ***file_name***
Specifies the name and path of the CSV file. If you do not specify this parameter, the CSV output is displayed on the command-line interface.

session_name **| -**
Specifies the name of the session from which you are exporting the copy sets.

Example: Exporting copy sets to a file

The following command exports the copy sets in session `session1` to the file `c:\session1.csv`.

```
csmcli> exportcsv -file c:\session1.csv session1
```

The following output is returned:

```
Exporting...
IWNC6506I  The export copy set command for session session1 succeeded.  The
file was exported to the path: c:\session1.csv.
```

Example: Exporting copy sets to standard out

The following command exports the copy sets in session `session1` to standard output:

```
csmcli> exportcsv session1
```

The following output is returned:

```
Exporting...
#203
#Metro Global Mirror w/ Practice
#Aug 25 1:44:16 PM

H1,H2,H3,I3,J3
DS8000:2107.NK791:VOL:1500,DS8000:2107.MW931:VOL:1500,
DS8000:2107.04131:VOL:1500,DS8000:2107.04131:VOL:1505,
DS8000:2107.04131:VOL:150A
DS8000:2107.NK791:VOL:1501,DS8000:2107.MW931:VOL:1501,
DS8000:2107.04131:VOL:1501,DS8000:2107.04131:VOL:1506,
DS8000:2107.04131:VOL:150B
DS8000:2107.NK791:VOL:1502,DS8000:2107.MW931:VOL:1502,
```

```
DS8000:2107.04131:VOL:1502,DS8000:2107.04131:VOL:1507,
DS8000:2107.04131:VOL:150C
DS8000:2107.NK791:VOL:1503,DS8000:2107.MW931:VOL:1503,
DS8000:2107.04131:VOL:1503,DS8000:2107.04131:VOL:1508,
DS8000:2107.04131:VOL:150D
DS8000:2107.NK791:VOL:1504,DS8000:2107.MW931:VOL:1504,
DS8000:2107.04131:VOL:1504,DS8000:2107.04131:VOL:1509,
DS8000:2107.04131:VOL:150E
ESS:2105.FCA57:VOL:1500,DS8000:2107.NF111:VOL:1505,
DS8000:2107.04131:VOL:1600,DS8000:2107.04131:VOL:1605,
DS8000:2107.04131:VOL:160A
ESS:2105.FCA57:VOL:1501,DS8000:2107.NF111:VOL:1506,
DS8000:2107.04131:VOL:1601,DS8000:2107.04131:VOL:1606,
DS8000:2107.04131:VOL:160B
ESS:2105.FCA57:VOL:1502,DS8000:2107.NF111:VOL:1507,
DS8000:2107.04131:VOL:1602,DS8000:2107.04131:VOL:1607,
DS8000:2107.04131:VOL:160C
ESS:2105.FCA57:VOL:1503,DS8000:2107.NF111:VOL:1508,
DS8000:2107.04131:VOL:1603,DS8000:2107.04131:VOL:1608,
DS8000:2107.04131:VOL:160D
ESS:2105.FCA57:VOL:1504,DS8000:2107.NF111:VOL:1509,
DS8000:2107.04131:VOL:1604,DS8000:2107.04131:VOL:1609,
DS8000:2107.04131:VOL:160E

IWNR1301I  The export of a copy set for session session1 succeeded.
```

Example: Exporting copy sets to standard out where the volume name is provided in the output

The following command exports the copy sets in the FlashSystem/IBM Spectrum Accelerate Global Mirror Failover/Failback session `xiv_gm_1` to standard output.

```
csmcli> exportcsv xiv_gm_1
```

The following output is returned:

```
Exporting...
#xiv_gm_1
#Global Mirror Failover/Failback
##Aug 25 9:48:26 AM

H1,H2
XIV:VOL:7803448:myvolume1,XIV:VOL:7804988:myvolume2

IWNR1301I The export of a copy set for session xiv_gm_1 succeeded.
```

exportgmdata

Use the **exportgmdata** command to export data for a Global Mirror role pair to a comma-separated value (CSV) file. You can then use the data in the CSV file to analyze trends in your storage environment that affect your recovery point objective (RPO).

Attention: Because historical data is purged when you delete a session or set the management server as the standby server, export data before you complete these actions.

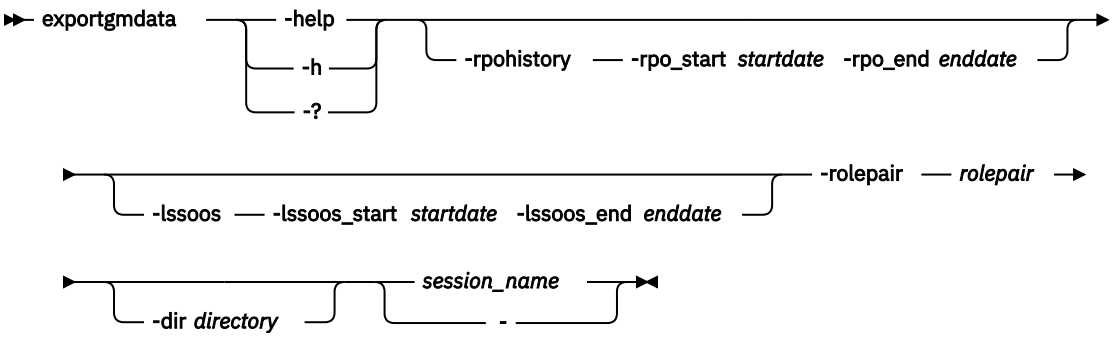
This command can create two types of CSV files: a file that contains data about the RPO and a file that contains data about logical subsystem (LSS) out-of-sync tracks. You can use both files to better analyze trends.

For example, the file that contains data for the RPO might show that the RPO threshold is often exceeded on a particular day and time. You can then view the file that contains data for LSS out-of-sync tracks to see whether a particular LSS or set of LSSs have high out-of-sync track values for that day and time.

Syntax

This command is available for the following storage systems:

- Model 800
- IBM® DS8000®



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-rpohistory
Specifies that the CSV file contains data for the RPO. The data includes the average RPO for the dates that you select and information that is related to the formation of consistency groups.

RPO data is only available for DS8000 sessions using Global Mirror and Global Mirror with Change Volume sessions.

-rpo_start ***startdate***
Specifies the start date for the RPO data that is in the CSV file. The format is yyyy-mm-dd.

By default, the date range maximum is 31 days of data.

This parameter is required if the **-rpohistory** parameter is present.

-rpo_end ***enddate***
Specifies the end date for the RPO data that is in the CSV file. The format is yyyy-mm-dd.

This parameter is required if the **-rpohistory** parameter is present.

-lssoos
Specifies that the export file contains data for the out-of-sync tracks in that are in the LSSs.

Data for LSS out-of-sync tracks is only available for DS8000 storage systems.

-lssoos_start ***startdate***
Specifies the start date for the LSS out-of-sync track data that is in the CSV file. The format is yyyy-mm-dd.

By default, the date range maximum is seven days of data.

This parameter is required if the **-lssoos** parameter is present.

-lssoos_end ***enddate***
Specifies the end date for the LSS out-of-sync track data that is in the CSV file. The format is yyyy-mm-dd.

This parameter is required if the **-lssoos** parameter is present.

-rolepair ***rolepair***
Specifies the role pair for which you are exporting the data.

-dir ***directory***
Specifies the output directory for the CSV files on the system from which exportgmdata is run. This parameter is optional and if not provided, the files will be created on the server.

session_name **| -**
Specifies the name of the session for which you are exporting the data.

Example: Exporting RPO data to an export file

The following command exports RPO data to the file `gmsession1H1-J2rpo2012-02-28-16-18-25.csv`. The confirmation message contains the path to the file.

```
csmcli> exportgmdata -rpohistory -rpo_start 2012-02-01 -rpo_end 2012-02-28
-rolepair h1-j2 gmsession1
```

The following output is returned:

```
IWNR1262I The data for session gmsession1 was exported.
The CSV file is located on the server at: C:\Program Files\IBM\CSM\
\wlp\usr\servers\csmServer\exportdir\
gmsession1H1-J2rpo2012-02-28-16-18-25.csv
```

Example: Exporting LSS out-of-sync track data to an export file

The following command exports LSS out-of-sync track data to the file `gmsession1H1-J2lssoos2012-02-28-16-45-46.csv`. The confirmation message contains the path to the file.

```
csmcli> exportgmdata -lssoos -lssoos_start 2012-02-01 -lssoos_end 2012-02-08
-rolepair h1-j2 gmsession1
```

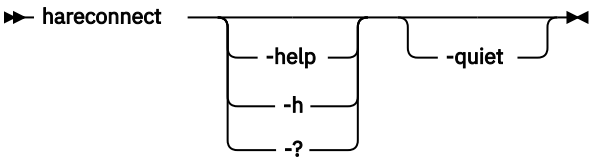
The following output is returned:

```
IWNR1262I The data for session gmsession1 was exported.
The CSV file is located on the server at: C:\Program Files\IBM\CSM\
\wlp\usr\servers\csmServer\exportdir\
gmsession1H1-J2lssoos2012-02-28-16-45-46.csv
```

hareconnect

Use the **hareconnect** command to reconnect the active and standby servers for high availability (HA).

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers `yes` to all confirmation prompts.

Example: Reconnecting the active and standby management servers

The following command reconnects the active and standby management servers.

```
csmcli> hareconnect
```

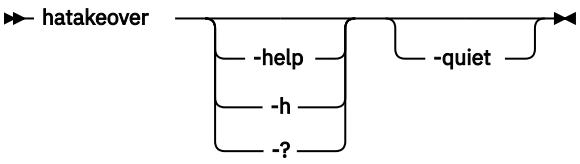
The following output is returned:

```
IWNR3052I  Successfully reconnected with the high availability
server csm1.storage.tucson.ibm.com from the server csm2.storage.tucson.ibm.com.
```

hatakeover

Use the **hatakeover** command to change the standby server to the active server.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

Description

Note: For the several commands that implement high-availability with the definition of a standby server, the standby server must be at the same level of the copy services management code as the active server.

Example: Changing the standby server to the active server

The following command changes the standby server to the active server.

```
csmcli> hatakeover
```

The following output is returned:

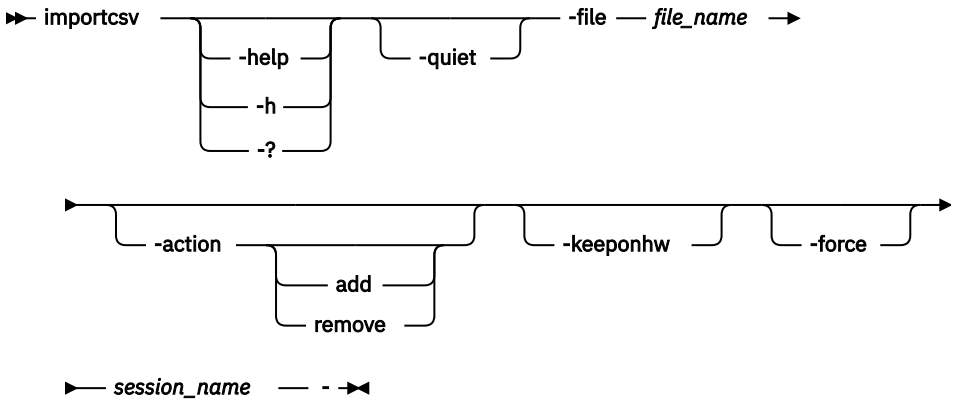
```
IWNR3063I  Successfully issued the takeover to the standby server
csm2.storage.tucson.ibm.com with the active HA server
csm1.storage.tucson.ibm.com.
```

importcsv

Use the **importcsv** command to parse a comma-separated values (CSV) file to create copy sets for a session.

The CSV file is parsed and copy sets are created from the data in the file. The CSV file must contain data for all the necessary roles in the session for which the copy sets are being created.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers `yes` to all confirmation prompts.

-file ***file_name***
A required parameter that specifies the name of the CSV file.

-action { add | remove }
An optional parameter that specifies whether to add or remove copysets from a CSV file. The default action when this parameter is not specified is add.

-keeponhw
Specifies that all of the base relationships (Metro Mirror, Global Copy, Snapshot, and FlashCopy) on the storage system are kept even though the copy set is removed from the session. The relationships are removed from any consistency groups that are defined on the storage system. Valid only when -action is remove.

-force
Forces the removal of the copy set despite any errors that occur when removing the copy set relationships from the storage system. When a forced removal is complete, any relationships that remain on the storage system for that copy set must be removed manually using the storage system interface. + Valid only when -action is remove.

***session_name* | -**
Specifies the name of the session for which you are creating or removing copy sets.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Importing a CSV file for a session

The following CSV file is named `session1.csv`:

```
#session1,
#FlashCopy,
#Oct 2 10:03:18 AM

H1,T1
DS8000:2107.FRLL1:VOL:1004,DS8000:2107.FRLL1:VOL:1104
DS8000:2107.FRLL1:VOL:1011,DS8000:2107.FRLL1:VOL:1101
DS8000:2107.FRLL1:VOL:1005,DS8000:2107.FRLL1:VOL:1105
```

Example: Importing a file into a session without prompting for a confirmation

The following command imports the file into the session `session2` without prompting for a confirmation:

```
csmcli> importcsv -quiet -file session1.csv session2
```

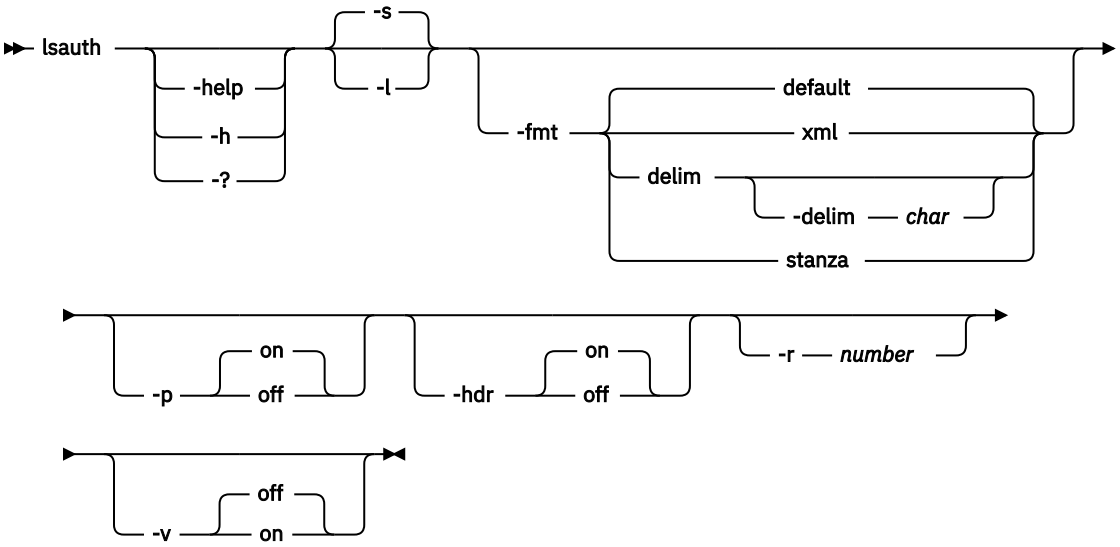
The following output is returned:

```
IWNR2001I  The pair was successfully created in session session2 for
copy set
DS8000:2107.FRLL1:VOL:1004 with source DS8000:2107.FRLL1:VOL:1004 and target
DS8000:2107.FRLL1:VOL:1104.

IWNR2001I  The pair was successfully created in session session2 for copy set
DS8000:2107.FRLL1:VOL:1011 with source DS8000:2107.FRLL1:VOL:1011 and target
DS8000:2107.FRLL1:VOL:1101.

IWNR2001I  The pair was successfully created in session session2 for copy set
DS8000:2107.FRLL1:VOL:1005 with source DS8000:2107.FRLL1:VOL:1005 and target
DS8000:2107.FRLL1:VOL:1105.
```

lsauth

Use the **lsauth** command to list the name, authorization level, and session permission for each user or user group.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s
Displays default information about each user and user group, including the name, classification, and role.

-l
Displays detailed information for each user and user group, including:

Column label	Details
User name	The user name for each authorization and session that the user has permission to manage.

Column label	Details
Classification	The type: `User`, `Group`, `LDAP user`, `LDAP group`, or `Unknown user`.
Role	The role: `Administrator`, `Operator`, `Monitor`, or `User Administrator`.
Session	The session name if the role is `Operator`, `All Sessions` if the user was set to manage all sessions, or a dash (`-`) if the role is `Administrator` or `Monitor`.

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim` *`char`*, where *`char`* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r ***number***
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of `1` - `100`. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

Example: Listing all users and user groups

The following command lists all currently defined users and user groups.

```
csmcli> lsauth
```

The following output is returned:

```
Name    Classification Role
=====================================
csmuser User           Administrator
```

Example: Listing detailed authorization information

The following command lists detailed information about the user `csmuser`.

```
csmcli> lsauth -l
```

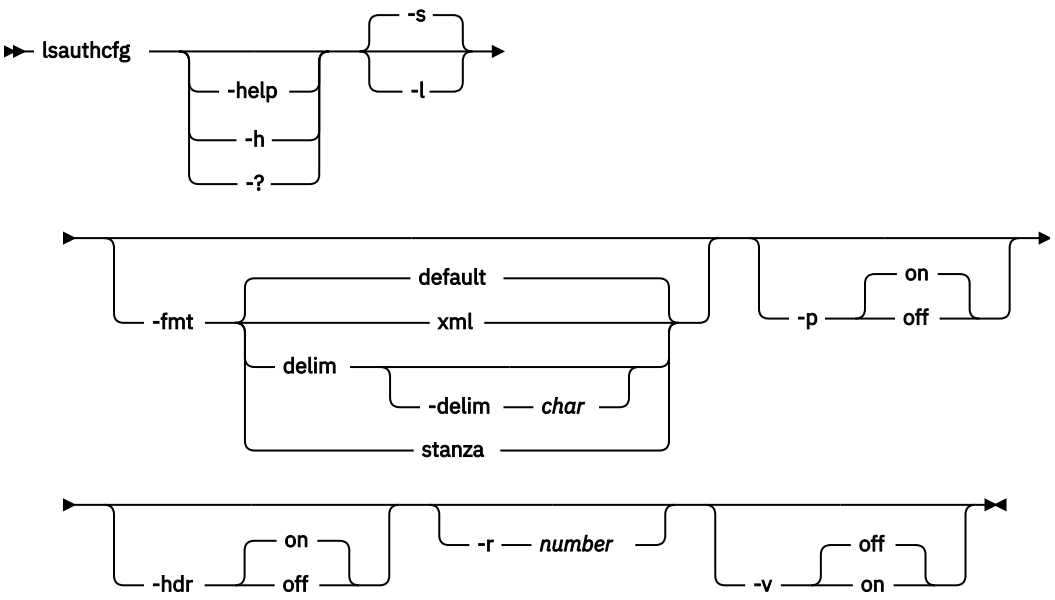
The following output is returned:

```
Name    Classification Role          Session
=============================================
csmuser User           Administrator -
```

lsauthcfg

Use the **lsauthcfg** command to show the configuration being used for server base authentication, if any.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s
Displays default information about each user and user group, including the name, classification, and role.

-l

Displays detailed information for each user and user group, including:

Column label	Details
Server	The domain or IP address of the LDAP or Active Directory server being used for user authentication.
Port	The LDAP or Active Directory server |port number.
Role	The role of authentication server: Primary or Failover.
Type	The type of authentication server: LDAP or Active Directory.
BindDN	The binding DN of the user configured to access the LDAP server.
BaseDN	The LDAP base DN
Username	The username being used to access the Active Directory domain.
Domain	The domain of the user represented by |the username field.
Custom	If 'Yes', indicates the current LDAP or Active Directory configuration was not created using the provided API. It was manually created by the user and extends a basic LDAP configuration by including additional parameters. If 'No', indicates the configuration is a basic configuration.

-fmt { default | xml | delim | stanza }

Specifies the format of the output. You can specify one of these values:

default

Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml

Specifies that the output is displayed in XML format.

delim

Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim` *`char`*, where *`char`* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza

Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }

Specifies whether to display one page of text at a time or all text at once.

on

Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off

Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }

Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r *number*
Specifies the number of rows per page to display when the -p parameter is specified. You can specify a value of 1 - 100. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

Example: Listing the configured LDAP servers

The following command lists the LDAP servers that are configured for user authentication.

```
csmcli> lsauthcfg
```

The following output is returned:

```
Server                           Port Role     Type
================================================
tb080-ui.storage.tucson.ibm.com 1389 Primary  LDAP
test.ldap.server                1234 Failover LDAP
test.ldap2.server               5678 Failover LDAP
```

Example: Listing the configured Active Directory server

The following command lists the Active Directory servers that are configured for user authentication.

```
csmcli> lsauthcfg -l -fmt stanza
```

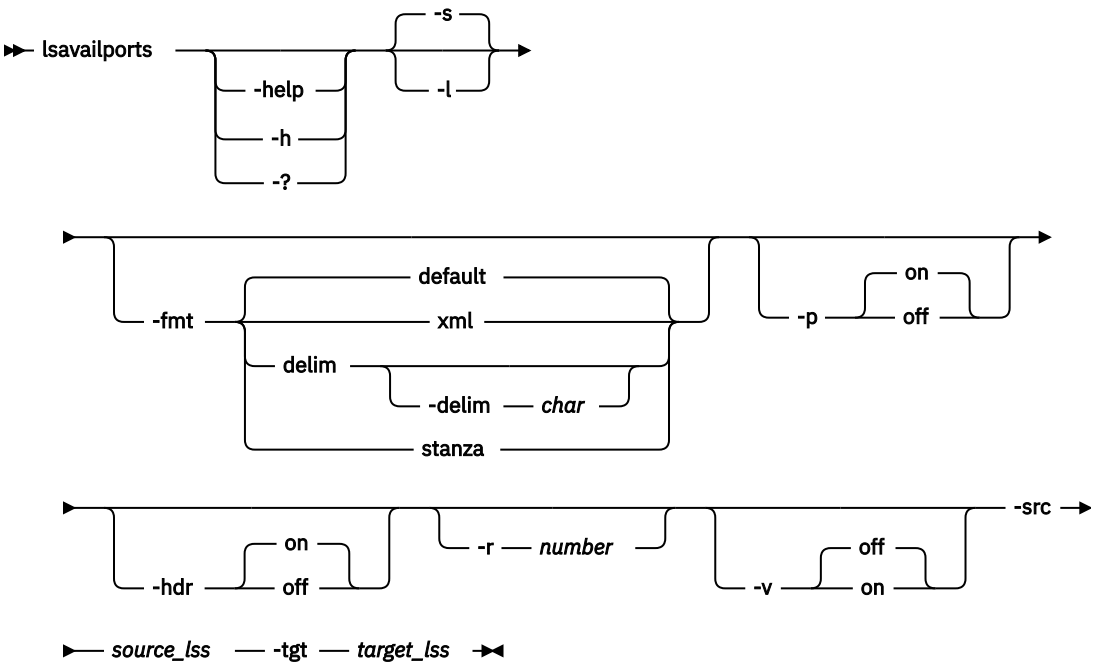
The following output is returned:

```
Server   nestorman.tuc.stglabs.ibm.com
Port     389
Role     Primary
Type     Active Directory
BindDN   cn=Administrator,cn=users,dc=HMIADDOM,dc=COM
BaseDN   cn=users,dc=HMIADDOM,dc=COM
Username Administrator
Domain   HMIADDOM.COM
Custom   No
```

lsavailports

Use the **lsavailports** command to display the port configuration types for a specific path.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s
Displays default information, including the source and target LSS and the type of port configuration.

-l
Displays detailed information for each port, including:

Column label	Details
Source	Origin of the path; for ESS, an LSS.
Target	Target of the path; for ESS, an LSS.
Type	The configuration of the port (such as Enterprise Systems Connection [ESCON] or Fibre Channel).

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim char`, where *char* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r ***number***
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of `1` - `100`. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

-src ***source_lss***
Specifies the source LSS (for example, `ESS:2105.FCA57:LSS:21`).

-tgt ***target_lss***
Specifies the target LSS (for example, `ESS:2105.FCA57:LSS:21`).

Example: Listing port configuration for paths

The following command lists the port configuration used for each path with source LSS `DS8000:2107.04131:LSS:15` and target LSS `ESS:2105.FCA57:LSS:15`.

```
csmcli> lsavailports -src DS8000:2107.04131:LSS:15 -tgt ESS:2105.FCA57:LSS:15
```

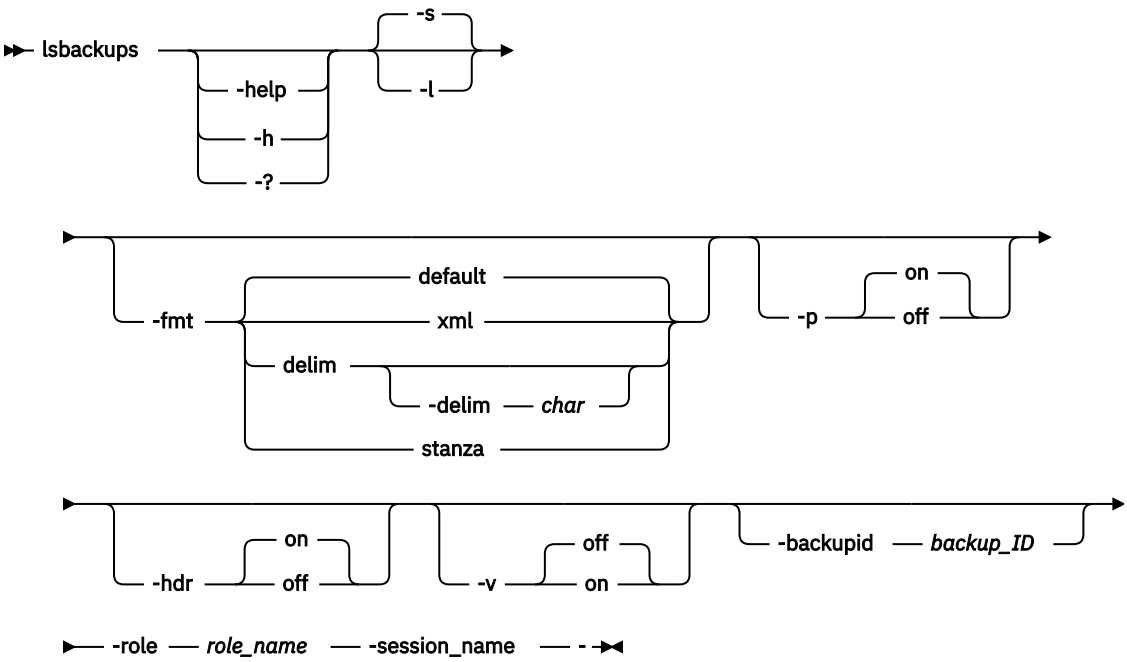
The following output is returned:

```
Source                           Target                          Type
=============================================================================
DS8000:2107.04131:LSS:15.0x0330  ESS:2105.FCA57:LSS:15.0x008C  Fibre Channel
DS8000:2107.04131:LSS:15.0x0110  ESS:2105.FCA57:LSS:15.0x000C  Fibre Channel
DS8000:2107.04131:LSS:15.0x0110  ESS:2105.FCA57:LSS:15.0x008C  Fibre Channel
DS8000:2107.04131:LSS:15.0x0110  ESS:2105.FCA57:LSS:15.0x0088  Fibre Channel
DS8000:2107.04131:LSS:15.0x0110  ESS:2105.FCA57:LSS:15.0x0028  Fibre Channel
```

lsbackups

Use the **lsbackups** command to display the backups for a specified session and role.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s
Displays default information, including the source and target LSS and the type of port configuration.

-l
Displays detailed information for each port, including:

Column label	Details
Backup ID	Identification for the backup
Time	Timestamp for when the backup was taken
Session Name	The name of the session
Role	The name of the role backed up
isValid	Whether the backup is considered valid
Last Result	The last result of the backup
Copy Sets	The number of copysets in the backup
Blocking Expansion	Whether the backup is blocking expansion for one or more volumes

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim char`, where *char* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

-backupid ***backup_ID***
Specifies the id number for the backup. This value is used to filter the list of backups returned. Only the backup with the given id number will be displayed.

-role ***role_name***
Specifies that only backups that are associated with the specified role name are displayed.

-session_name |-
Specifies the name of the session used to display backups.

Example: Listing backups for a given session

The following command lists the backups used for a session named MyBackupSess and role H1.

```
csmcli> lsbackups -role h1 MyBackupSess
```

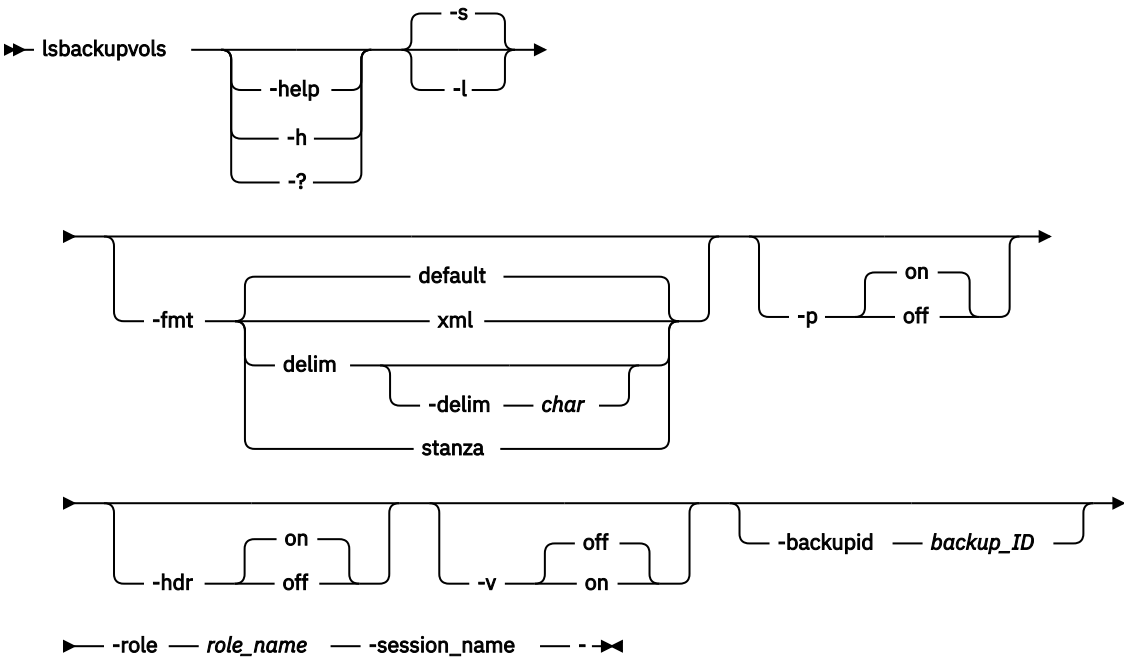
The following output is returned:

```
Backup    Backup                          Session        is            Last       Copy
Blocking
ID        Time                            Name           Recoverable   Result     Sets
Expansion
=============================================================================================
====
47676786  2018-06-13 14:37:50.495-0500  MySafeGuard    yes           IWNRxxxI   5      yes
67676786  2018-06-12 14:37:50.495-0500  MySafeGuard    yes           IWNRxxxI   3
77676786  2018-06-11 14:37:50.495-0500  MySafeGuard    yes           IWNRxxxI   3
87676786  2018-06-10 14:37:50.495-0500  MySafeGuard    no            IWNRxxxE   3
97676786  2018-06-09 14:37:50.495-0500  MySafeGuard    yes           IWNRxxxI   3
```

lsbackupvols

Use the **lsbackupvols** command to display the volumes included in a given backup for the specified session and role.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s
Displays default information, including the source and target LSS and the type of port configuration.

-l
Displays detailed information for each port, including:

Column label	Details
Backup ID	Identification for the backup
Volume ID	Volume identification
Volume Name	User defined name for the volume
Time	Timestamp for when the backup was taken

Column label	Details
isError	Is there an error associated with this volume on the backup
Last Result	The last result of the backup
Expansion Blocked	Whether volume expansion is blocked

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim` *`char`*, where *`char`* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

-backupid ***backup_ID***
Specifies the id number for the backup.

-role ***role_name***
Specifies that only backups that are associated with the specified role name are displayed.

-session_name |-
Specifies the name of the session used to display backups.

Example: Listing volumes for a given backup

The following command lists the volumes associated with a given backup for a session named MyBackupSess and role H1.

```
csmcli> lsbackupvols -role h1 -backupID 47676786 MyBackupSess
```

The following output is returned:

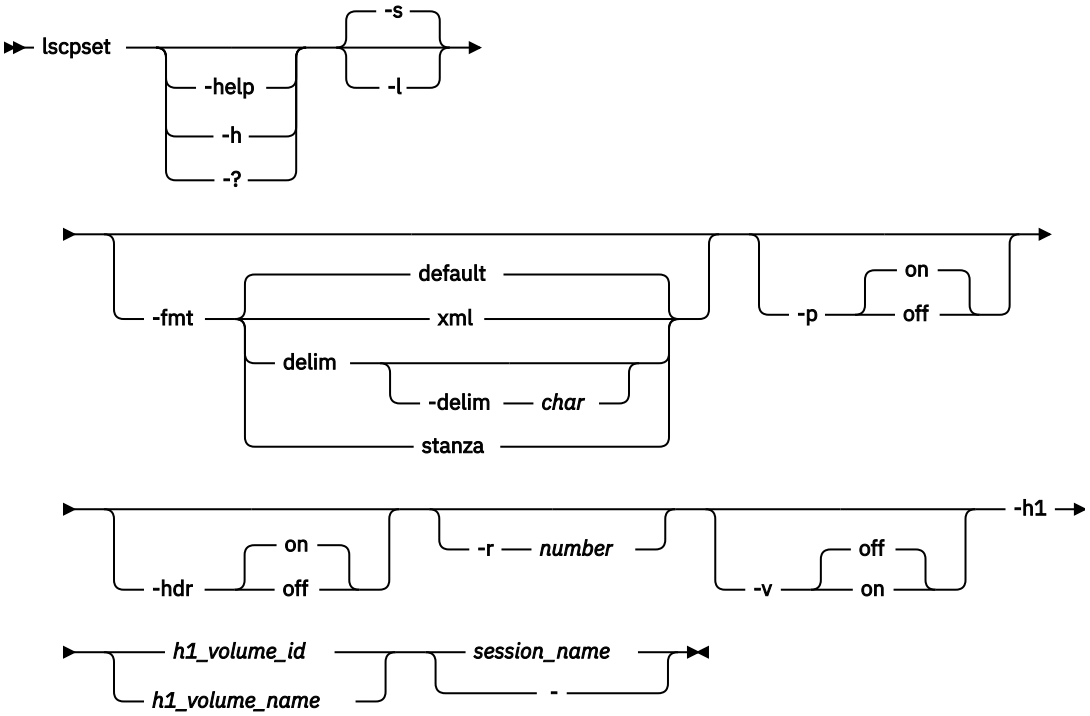
```
Volume                          Volume    Backup     Backup
is      Last       Expansion
ID                              Name      ID         Time
Error   Result     Blocked
================================================================================
====================
DS8000:2107.ZA851:VOL:1000   CSM000   47676786   2018-06-13 14:37:50.495-0500
no      IWNRxxxI   yes
DS8000:2107.ZA851:VOL:1001   CSM001   47676786   2018-06-12 14:37:50.495-0500
no      IWNRxxxI
DS8000:2107.ZA851:VOL:1002   CSM002   47676786   2018-06-11 14:37:50.495-0500
no      IWNRxxxI
DS8000:2107.ZA851:VOL:1003   CSM003   47676786   2018-06-10 14:37:50.495-0500
yes     IWNRxxxE
DS8000:2107.ZA851:VOL:1004   CSM004   47676786   2018-06-09 14:37:50.495-0500
on      IWNRxxxI
```

lscpset

Use the **lscpset** command to list the IDs and number of volumes for the copy sets that are in a session.

Tip: Use the **showcpset** command to list the volumes in a copy set and use the **lsvol** command to display the status of volumes in a copy set.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s | -l
Displays the following information.

Column Label	Details
H1 Volume ID	The ID of the volume at host site 1. This ID is used to identify a copy set in a session. The volume ID is displayed regardless of whether you provide the volume ID or name for the **-h1** parameter.
Session	The name of the session that contains the copy set.
Volumes	The number of volumes that are associated with the copy set.

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim` *`char`*, where *`char`* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r ***number***
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of `1` - `100`. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

-h1 {*h1_volume_id* | *h1_volume_name*}
Specifies the volume at host site 1.

For IBM DS8000 and IBM TotalStorage Enterprise Storage Server Model 800 storage systems, use the volume ID for this parameter.

For other storage systems, you can use the volume ID or name for this parameter.

***session_name* | -**
Specifies the name of the session that contains the copy sets.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Listing the IDs of all copy sets that are in a session

The following command lists the volume IDs and the number of volumes that are associated with the copy sets in a session called `session1`:

```
csmcli> lscpset session1
```

The following output is returned.

```
H1 Volume ID               Session       Volumes
=============================================
DS8000:2107.NK791:VOL:1500 session1      5
DS8000:2107.NK791:VOL:1501 session1      5
DS8000:2107.NK791:VOL:1502 session1      5
DS8000:2107.NK791:VOL:1503 session1      5
DS8000:2107.NK791:VOL:1504 session1      5
ESS:2105.FCA57:VOL:1500    session1      5
ESS:2105.FCA57:VOL:1501    session1      5
ESS:2105.FCA57:VOL:1502    session1      5
ESS:2105.FCA57:VOL:1503    session1      5
ESS:2105.FCA57:VOL:1504    session1      5
```

Example: Listing a specific copy set that is in a session

The following command lists the number of volumes for a specific copy set in the session `fc1`. In this example, the volume name `CSMRegr_vol08` is provided for the copy set in the command. The corresponding volume ID is shown in the output.

```
lscpset -h1 STORWIZE-V7000:VOL:TPCRTBIRD2:CSMRegr_vol08 fc1
```

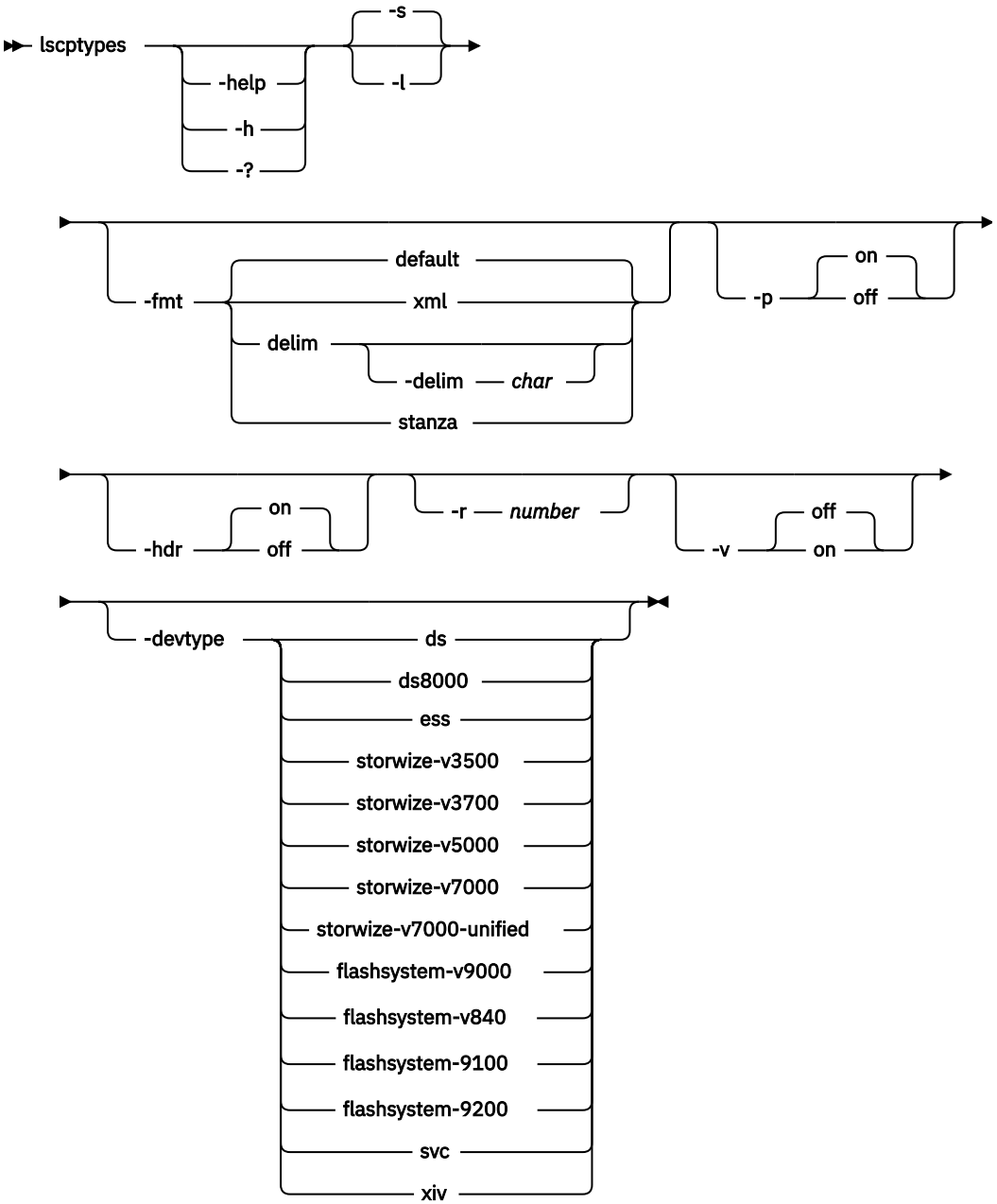
The following output is returned:

```
H1 Volume ID                    Session       Volumes
=================================================
STORWIZE-V7000:VOL:TPCRTBIRD2:7 fc1           2
```

lscptypes

Use the **lscptypes** command to display the session types and the storage systems that you can use with the session types.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s | -l
Displays the following information.

Column label	Details
Copy Type	The abbreviated name of the session type. For example, mgm is an abbreviation for Metro Global Mirror. The abbreviated session type name is used as a parameter value for the `mksess` command.
Full Name	The full name of the session type. For example, Metro Global Mirror.
Device Types	The storage systems that can be used with the session type. The values are: `DS8000`, `ESS`, `SAN Volume Controller`, `STORWIZE-V3700`, `STORWIZE-V3500`, `STORWIZE-V5000`, `STORWIZE-V7000`, `STORWIZE-V7000-Unified`, `FLASHSYSTEM V9000`, `FLASHSYSTEM-V840`, `FLASHSYSTEM-9100, FLASHSYSTEM-9200` and `XIV`.

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim` *`char`*, where *`char`* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r ***number***
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of 1 - 100. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

-devtype { ds | ess | storwize-v3500 | storwize-v3700 | storwize-v5000 | storwize-v7000 | flashsystem-v9000 | flashsystem-v840 | svc | flashsystem-a9000 | flashsystem-9100| flashsystem-9200| xiv }
Specifies the session types that are available for specific storage system types. The parameter values are:

- **ds**: IBM DS8000
- **ds8000**: IBM DS8000
- **ess**: IBM TotalStorage Enterprise Storage Server Model 800
- **storwize-v3500**: IBM Storwize V3500
- **storwize-v3700**: IBM Storwize V3700
- **storwize-v5000**: IBM Storwize V5000
- **storwize-v7000**: IBM Storwize V7000
- **storwize-v7000-unified**: IBM Storwize V7000 Unified
- **flashsystem-v9000**: IBM FlashSystem V9000
- **flashsystem-v840**: IBM FlashSystem V840
- **flashsystem-9100**: IBM FlashSystem 9100
- **flashsystem-9200**: IBM FlashSystem 9200
- **svc**: IBM System Storage SAN Volume Controller
- **xiv**: FlashSystem/IBM Spectrum Accelerate

Example: Listing all session types and storage systems

The following command lists all the session types that you can use.

```
csmcli> lscptypes
```

The following output is returned:

```
Copy Type Full Name           Device Types
=============================================================================================================
====
fc        FlashCopy           DS8000, ESS, SVC, STORWIZE-V7000, STORWIZE-V7000-Unified,
                              STORWIZE-V5000, STORWIZE-V3700, STORWIZE-V3500, FLASHSYSTEM V9000,
                              FLASHSYSTEM V840, FLASHSYSTEM 9100, FLASHSYSTEM 9200

snap      Snapshot            XIV

mmsd      Metro Mirror        DS8000, ESS, SVC, STORWIZE-V7000, STORWIZE-V7000-Unified,
          Single Direction    STORWIZE-V5000, STORWIZE-V3700, STORWIZE-V3500, FLASHSYSTEM V9000,
                              FLASHSYSTEM V840, FLASHSYSTEM 9100, FLASHSYSTEM 9200

mmfofb    Metro Mirror        DS8000, ESS, SVC, STORWIZE-V7000, STORWIZE-V7000-Unified,
          Failover/Failback   STORWIZE-V5000, STORWIZE-V3700, STORWIZE-V3500, FLASHSYSTEM V9000,
                              FLASHSYSTEM V840, FLASHSYSTEM 9100, FLASHSYSTEM 9200

mmfofbxiv Metro Mirror        XIV
          Failover/Failback

pmm       Metro Mirror        DS8000, ESS
          Failover/Failback
          w/ Practice

pmmsvc    Metro Mirror        SVC, STORWIZE-V7000, STORWIZE-V7000-Unified, STORWIZE-V5000
          Failover/Failback   STORWIZE-V3700, STORWIZE-V3500, FLASHSYSTEM V9000, FLASHSYSTEM V840
```

```
          w/ Practice         FLASHSYSTEM 9100, FLASHSYSTEM 9200

gmsd      Global Mirror       DS8000, ESS
          Single Direction

gmsdsvc   Global Mirror       SVC, STORWIZE-V7000, STORWIZE-V7000-Unified,
          Single Direction    STORWIZE-V3700, STORWIZE-V3500, FLASHSYSTEM V9000, FLASHSYSTEM V840
                              , FLASHSYSTEM 9100, FLASHSYSTEM 9200

gmfofb    Global Mirror       DS8000, ESS
          Failover/Failback

gmfofbsvc Global Mirror       SVC, STORWIZE-V7000, STORWIZE-V7000-Unified,
          Failover/Failback   STORWIZE-V3700, STORWIZE-V3500, FLASHSYSTEM V9000, FLASHSYSTEM V840
                              FLASHSYSTEM 9100, FLASHSYSTEM 9200

gmfofbxiv Global Mirror       XIV
          Failover/Failback

pgm       Global Mirror       DS8000, ESS
          Failover/Failback
          w/ Practice

pgmsvc    Global Mirror       SVC, STORWIZE-V7000, STORWIZE-V7000-Unified,
          Failover/Failback   STORWIZE-V3700, STORWIZE-V3500, FLASHSYSTEM V9000, FLASHSYSTEM V840
          w/ Practice         FLASHSYSTEM 9100, FLASHSYSTEM 9200

pgm2s     Global Mirror       DS8000, ESS
          Either Direction
          w/ Two Site Practice

mgm       Metro Global Mirror DS8000, ESS

pmgm      Metro Global Mirror DS8000, ESS
          w/ Practice

mm_mm     Metro Mirror -      DS8000
          Metro Mirror

gmcvsvc   Global Mirror      SVC, STORWIZE-V7000, STORWIZE-V7000-Unified,
          Failover/Failback  STORWIZE-V3700, STORWIZE-V3500, FLASHSYSTEM V9000, FLASHSYSTEM V840
          w/ Change Volumes  FLASHSYSTEM 9100FLASHSYSTEM 9200

mm_gm     Metro Mirror -     DS8000
          Global Mirror

mm_gmp    Metro Mirror -     DS8000
          Global Mirror
          w/ Practice

mm_gm_s3gm Metro Mirror -    DS8000
           Global Mirror
           w/ Site 3
           Global Mirror
mm_gm_4s   Metro Mirror -    DS8000
           Global Mirror
           w/ Site 4
           Replication
```

Example: Listing session types for IBM DS8000 storage systems

```
csmcli> lscptypes -devtype ds
```

The following output is returned:

```
Copy Type Full Name           Device Types
=============================================================================================
fc        FlashCopy           DS8000, ESS, SVC, STORWIZE-V7000, STORWIZE-V7000-Unified,
                              STORWIZE-V5000, STORWIZE-V3700, STORWIZE-V3500, FLASHSYSTEM V9000,
                              FLASHSYSTEM V840, FLASHSYSTEM 9100

mmsd      Metro Mirror        DS8000, ESS, SVC, STORWIZE-V7000, STORWIZE-V7000-Unified,
          Single Direction    STORWIZE-V5000, STORWIZE-V3700, STORWIZE-V3500, FLASHSYSTEM V9000,
                              FLASHSYSTEM V840, FLASHSYSTEM 9100

mmfofb    Metro Mirror        DS8000, ESS, SVC, STORWIZE-V7000, STORWIZE-V7000-Unified,
          Failover/Failback   STORWIZE-V5000, STORWIZE-V3700, STORWIZE-V3500, FLASHSYSTEM V9000,
                              FLASHSYSTEM V840, FLASHSYSTEM 9100

pmm       Metro Mirror        DS8000, ESS
          Failover/Failback
          w/ Practice
```

```
gmsd        Global Mirror       DS8000, ESS
            Single Direction

gmfofb      Global Mirror       DS8000, ESS
            Failover/Failback

pgm         Global Mirror       DS8000, ESS
            Failover/Failback
            w/ Practice

pgm2s       Global Mirror       DS8000, ESS
            Either Direction
            w/ Two Site Practice

mgm         Metro Global Mirror DS8000, ESS

pmgm        Metro Global Mirror DS8000, ESS
            w/ Practice

mm_mm       Metro Mirror -      DS8000
            Metro Mirror

mm_gm       Metro Mirror -      DS8000
            Global Mirror

mm_gmp      Metro Mirror -      DS8000
            Global Mirror
            w/ Practice

mm_gm_s3gm  Metro Mirror -      DS8000
             Global Mirror
             w/ Site 3
             Global Mirror

migration    Migration -    DS8000, ESS

mm_gm_4s    Metro Mirror -    DS8000
             Global Mirror
             w/ Site 4
             Replication

mm_mm_4s    Metro Mirror -    DS8000
             Metro Mirror
             w/ Site 4
             Replication
```

Example: Listing session types supported for an XIV system

```
csmcli> lscptypes -devtype xiv
```

The following output is returned:

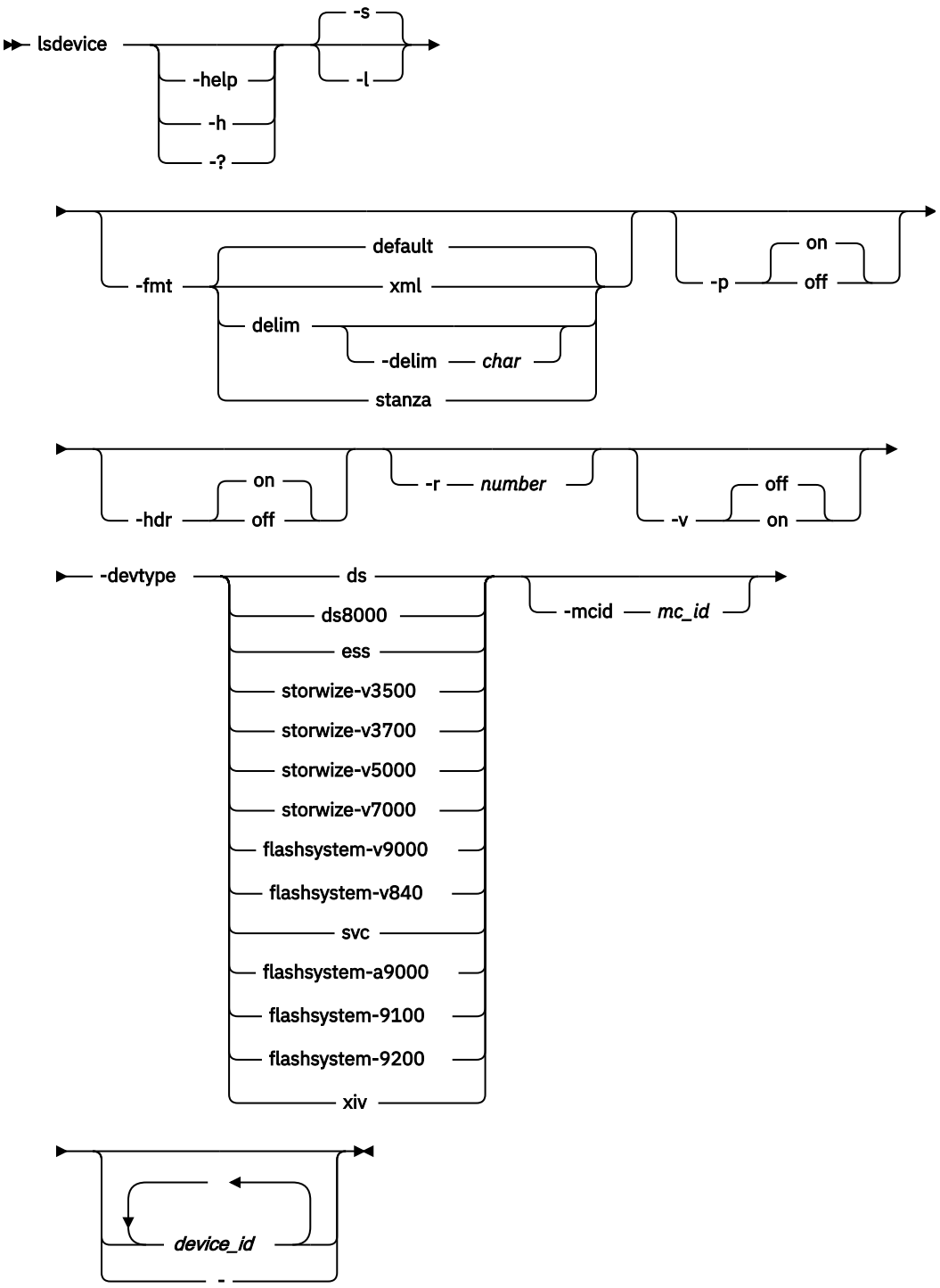
```
Copy Type    Full Name           Device Types
=============================================================================
snap         Snapshot            XIV

mmfofbxiv    Metro Mirror        XIV
             Failover/Failback

gmfofbxiv    Global Mirror       XIV
             Failover/Failback
```

lsdevice

Use the **lsdevice** command to list storage systems and properties.

Tip: To list storage systems that can be discovered through an IBM z/OS connection, use the **lsstorcandidate** command.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s
Displays default information for each storage system, including the device ID, connection type, device type, and local server connection status.

-l

Displays the following detailed information for each storage system.

Column Label	Details
Device ID	The name, nickname, or model-serial-manufacturer of the storage system.
Connection Type	The connection type. The values are: `Direct`, `HMC`, or `ZOS Connection`.
Device Type	The storage system type. The values are: , `DS8000`, `ESS`, `SAN Volume Controller`, `STORWIZE-V3500`, `STORWIZE-V3700`, `STORWIZE-V5000`, `STORWIZE-V7000`, `FLASHSYSTEM-V9000`, `FLASHSYSTEM-V840`, `FLASHSYSTEM-A9000`, `FLASHSYSTEM-9100`,`FLASHSYSTEM-9200`, and `XIV`.
Device IP Address	The IP address or host name for the nodes or clusters that are used by the storage system. If there are multiple nodes or clusters, the values in this column are delimited by a semicolon. For example, *ip_address*;*ip_address*.
Local Server Connection	The state of the direct connections to the local management server. If there are multiple servers, the values in this column are delimited by a semicolon. For example, *cluster0_status*;*cluster1_status*.
Remote Server Connection	The state of the direct connections to the remote management server. If there are multiple servers, the values in this column are delimited by a semicolon. For example, *cluster0_status*;*cluster1_status*.
Connection ID	The ID for the Hardware Management Console (HMC) or IBM z/OS host system that is used to connect the storage system.
Location	The location of the storage system.
Manufacturer	The manufacturer of the storage system.
Device Name	The user-defined name of the storage system.

-fmt { default | xml | delim | stanza }

Specifies the format of the output. You can specify one of these values:

default

Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml

Specifies that the output is displayed in XML format.

delim

Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim` *`char`* , where *`char`* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r ***number***
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of 1 - 100. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

-devtype { ds | ess | storwize-v3500 | storwize-v3700 | storwize-v5000 | storwize-v7000 | flashsystem-v9000 | flashsystem-v840 | svc | flashsystem-a9000 | flashsystem-9100| flashsystem-9200| xiv }
Specifies the type of storage system. The parameter values are:

- **ds**: IBM DS8000
- **ds8000**: IBM DS8000
- **ess**: IBM TotalStorage Enterprise Storage Server Model 800
- **storwize-v3500**: IBM Storwize V3500
- **storwize-v3700**: IBM Storwize V3700
- **storwize-v5000**: IBM Storwize V5000
- **storwize-v7000**: IBM Storwize V7000 or IBM Storwize V7000 Unified
- **flashsystem-v9000**: IBM FlashSystem V9000
- **flashsystem-v840**: IBM FlashSystem V840
- **svc**: IBM System Storage SAN Volume Controller
- **flashsystem-a9000**: IBM FlashSystem A9000
- **flashsystem-9100**: IBM FlashSystem 9100
- **flashsystem-9200**: IBM FlashSystem 9200
- **xiv**: FlashSystem/IBM Spectrum Accelerate

-mcid ***mc_id***
Specifies storage systems that are connected through a specific management console.

device_id... | -
Specifies one or more storage systems by ID. The storage system ID is in the element ID format (for example, `ess:box:2105.fca57`). Separate multiple storage system IDs with a space.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Listing all storage systems

The following command lists information for all storage systems.

```
csmcli> lsdevice -devtype ds
```

The following output is returned:

```
Device ID             Connection Type Device Type Local Server Connection
=============================================================================
DS8000:BOX:1234.56789 Direct          DS8000      Connected;Connected
DS8000:BOX:1234.56789 ZOS Connection  DS8000      Connected
DS8000:BOX:1234.AB123 HMC             DS8000      Connected;Connected
```

Example: Listing detailed attributes for all storage systems

The following command lists detailed information for all storage systems.

```
csmcli> lsdevice -l -devtype ds -fmt stanza
```

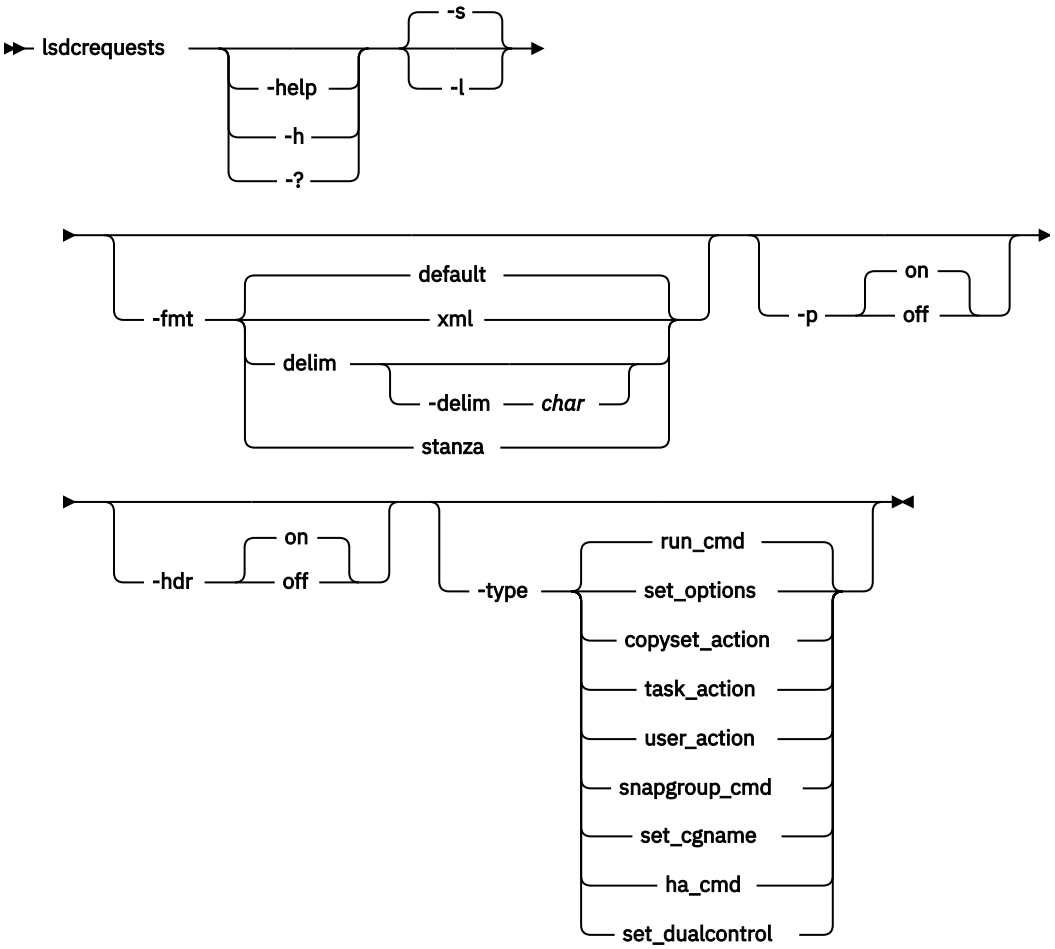
The following output is returned:

```
Device ID                DS8000:BOX:1234.56789
Connection Type          Direct
Device Type              DS8000
Device IP Address        -
Local Server Connection  Connected;Connected
Remote Server Connection -
Connection ID            -
Location                 None
Manufacturer             IBM
Device Name              -

Device ID                DS8000:BOX:1234.56789
Connection Type          ZOS Connection
Device Type              DS8000
Device IP Address        -
Local Server Connection  Connected
Remote Server Connection -
Connection ID            ZOS:abc68.storage.sacramento.xyz.com:5858
Location                 None
Manufacturer             IBM
Device Name              -

Device ID                DS8000:BOX:1234.AB123
Connection Type          HMC
Device Type              DS8000
Device IP Address        -
Local Server Connection  Connected;Connected
Remote Server Connection -
Connection ID            HMC:Stg8k11.storage.sacramento.xyz.com
Location                 None
Manufacturer             IBM
Device Name              -
```

lsdcrequests

Use the **lsdcrequests** command to display all Dual Control requests created by or requiring approval from the current user.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-l | -s
Displays detailed information for each location, including:

Column label	Details
ID	Identification for the Dual Control request
Type	Type of Dual Control request
Requesting User	User requesting the change
Time	Time when the request was created
Summary	Summary of the requested event

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim` *char*, where *char* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

-type { run_cmd | set_options | copyset_action | task_action | user_action | snapgroup_cmd | set_cgname | ha_cmd | set_dualcontrol }
Specifies that only requests with the specified type are displayed.

Example: Listing all requests visible to the current user

```
csmcli> lsdcrequests -l
```

The following output is returned:

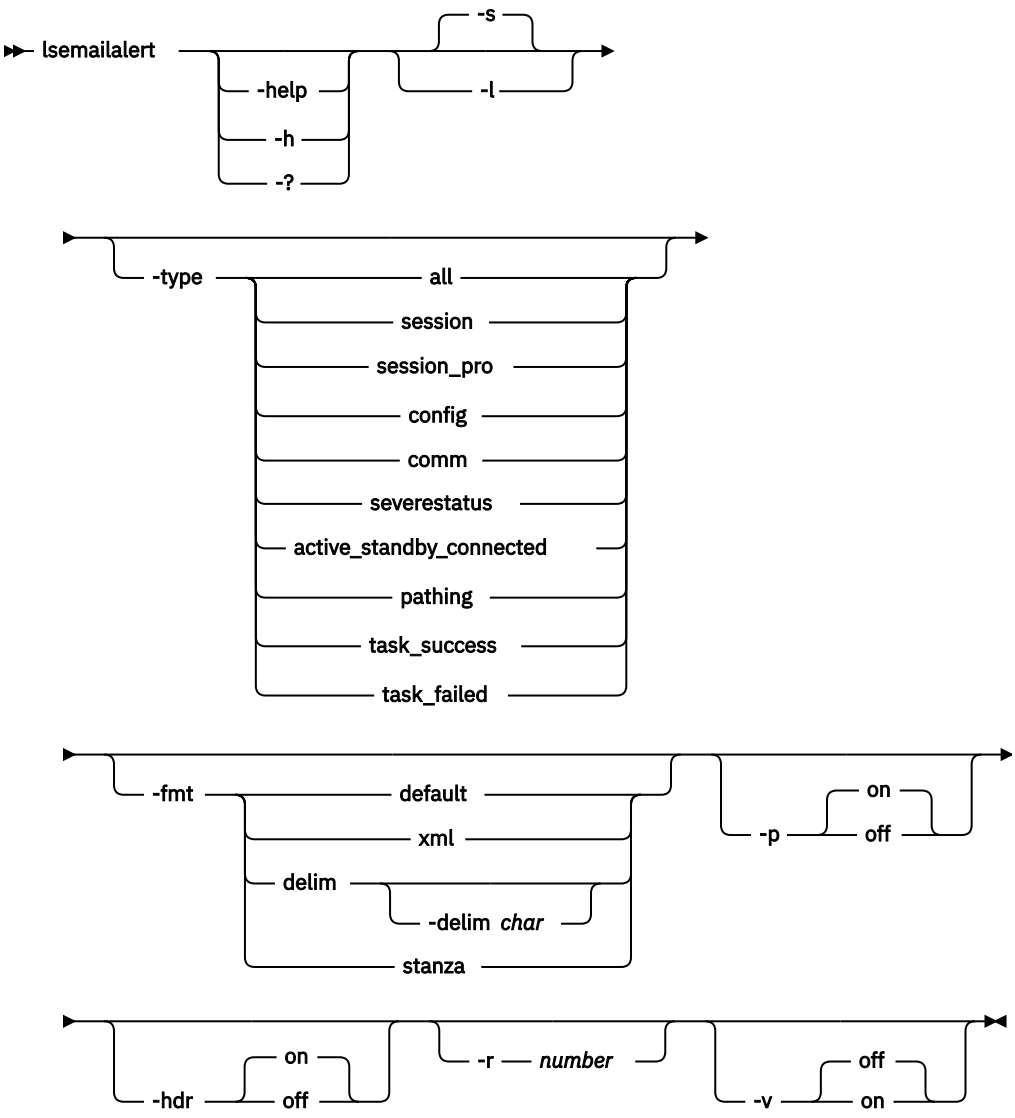
```
ID  Type     Requesting
             User             Time

============================================================
```

```
1   RUN_CMD  bob             2018-07-23 12:20:00.008-0500

Summary
=======================================
IWNR2608I [Jan 30, 2019 1:36:37 PM] User csmadmin requested to enable

Dual Control at Wed Jan 30 13:34:40 PST 2019.
```

lsemailalert

Use the **lsemailalert** command to show the recipient list of e-mail addresses to send e-mail alerts to.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-l | -s
Displays details for recipient list, including the following information.

Column label	Details
E-mail Address	The e-mail address alerts will be sent to.
Type	Type of alert

-type { all | session | session_rpo | config | comm | severestatus | active_standby_connected | active_standby_disconnected | pathing | task_success | task_failed }
Specifies that only email addresses with the given type are displayed.

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim` *char*, where *char* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r ***number***
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of `1 - 100`. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

Example: Listing the recipient list of e-mail addresses to send e-mail alerts to

```
csmcli> lsemailalert
```

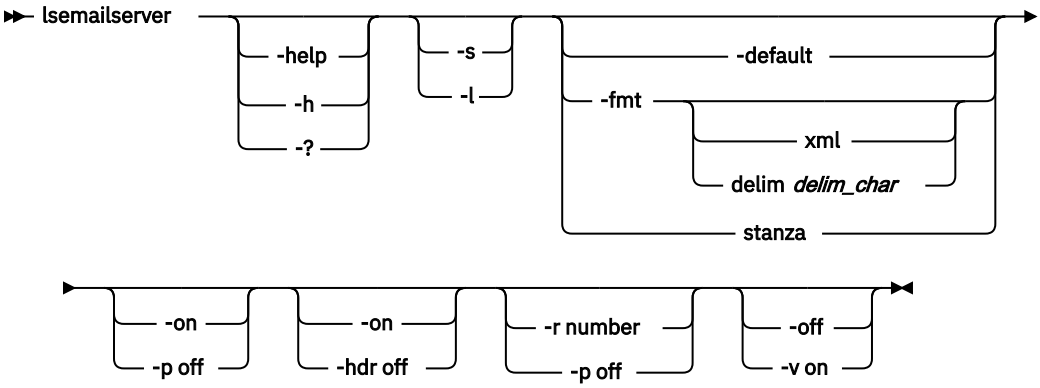
The following output is returned:

```
E-mail Address    Type
========================
user2@us.ibm.com  all
user@us.ibm.com   session
```

lsemailserver

Use the **lsemailserver** command to show the configuration being used for e-mail alerts, if any.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-recipient email_address[,email_address]
Specifies the e-mail addresses to be added to the alert recipient list. Multiple e-mail addresses can be added using a comma separated list.

-l | -s
Displays details for the recipient list, including the following information.

Column label	Details
Server	The hostname or IP address of the SMTP server being used for e-mail alerts.
Port	The SMTP server port number.
Reply-To	The reply-to e-mail address used for e-mails sent.

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim char`, where *char* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r ***number***
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of `1` - `100`. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

Example: Listing the SMTP server configuration used for e-mail alerts

```
csmcli> lsemailserver
```

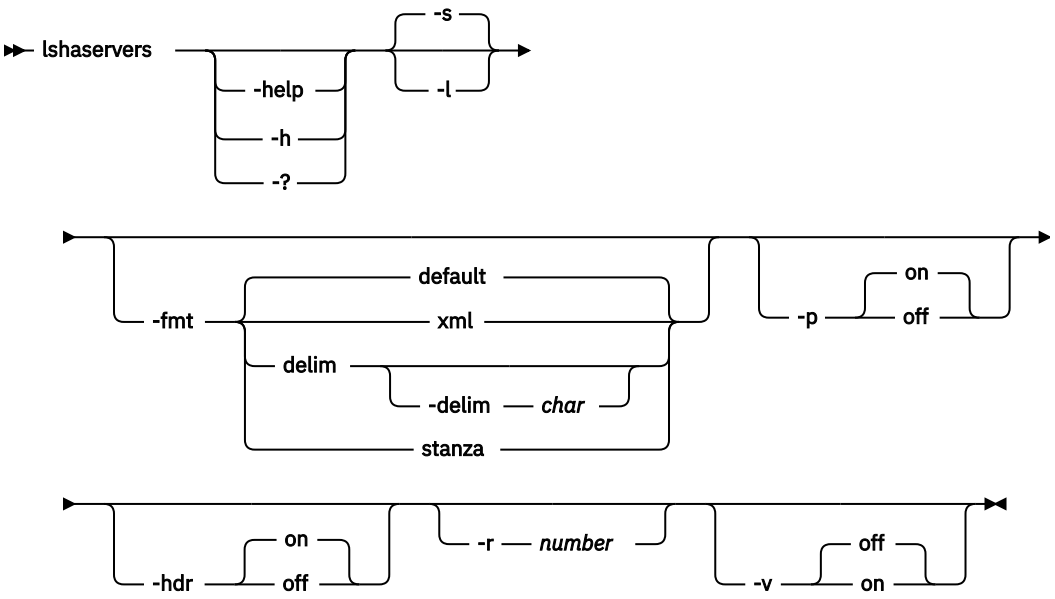
The following output is returned:

```
Server           Port Reply-To
=====================================
na.relay.ibm.com 25   user@us.ibm.com
```

lshaservers

Use the **lshaservers** command to show the status of each active and standby management server.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-l | -s
Displays detailed information for each management server, including:

Column label	Details
Server	The domain or IP address of the management server
Role	The role of management server: `Active` or `Standby`
Status	The status of the relationship
Port	The standby management server port number. This port is used for communication between the active and standby management server. This port number is initially set at installation time. **Important:** The port number for the standby management server must be the same on both the management server and the standby management server in a high-availability relationship. If you change the standby management server port number on either the management server or the standby management server, you must also change the port number on the other server.

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim char`, where *char* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r ***number***
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of `1` - `100`. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

Example: Listing management server status

The following command lists the status of the active and standby management servers.

```
csmcli> lshaservers
```

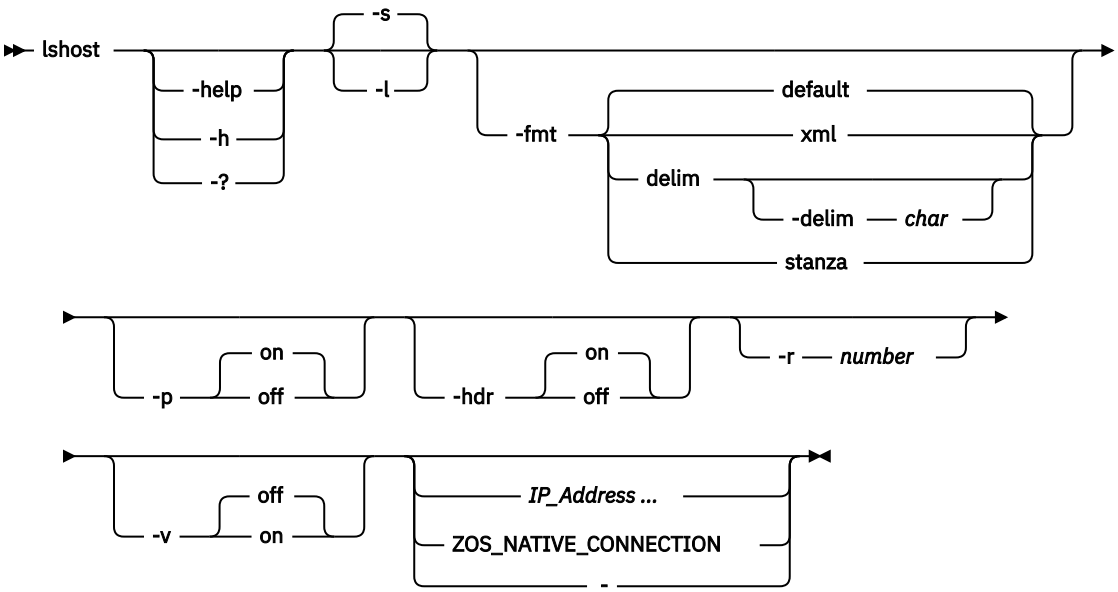
The following output is returned:

```
Server                   Role     Status        Port
=======================================================
system1.csm.example.com  ACTIVE   Synchronized  5120
system2.csm.example.com  STANDBY  Synchronized  5120
```

lshost

Use the **lshost** command to view host systems that are added to the copy services management server.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s
Specifies that default information for each host system is displayed.

-l
Specifies that the following detailed information for each host system is displayed:

Column Label	Details
Host System	If the IBM z/OS host system is the system on which the copy services management server is installed, ZOS_NATIVE_CONNECTION is shown in this column. For AIX and z/OS host systems that are connected by using an IP address or host name, the IP address or host name is shown.
Port	The port number for the connection to the host system.

Column Label	Details
Type	The type of host system. One of the following values is shown: **AIX** The host is an AIX system. **ZOS_NATIVE** The host is the z/OS system on which the copy services management server is installed. **ZOS_IP** The host is a z/OS system that is connected by using an IP address or host name.
Local Status	The status of the connection between the copy services management server and the host system.
Remote Status	In high availability (HA) environments that have an active and standby management server, the status of the connection between the remote server and the host system. If you are running the `lshost` command on the active server, the remote server is the standby server. If you are running the command on the standby server, the remote server is the active server. If the status of a host connection at the remote copy services management server cannot be determined, Unknown displays. This status might be because the HA configuration is disconnected or the status was not sent from the remote copy services management server.
Connection Message	If connection to the host system failed, an error message is shown.

-fmt { default | xml | delim | stanza }

Specifies the format of the output. You can specify one of these values:

default

Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml

Specifies that the output is displayed in XML format.

delim

Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim` *`char`*, where *`char`* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza

Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r ***number***
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of `1 - 100`. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

IP_Address **| ZOS_NATIVE_CONNECTION | -**
If you want to view specific host systems only, specifies the IP or host name for the host system or the value `ZOS_NATIVE_CONNECTION`.

If you want to list information for an AIX host system or a z/OS host system that is connected by using an IP address or host name, enter the IP address or host name for this parameter.

If the copy services management server is installed on the host system, enter `ZOS_NATIVE_CONNECTION` for this parameter.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Listing all host systems

The following command lists default information about all host systems that are added to the copy services management server.

```
csmcli> lshost
```

The following output is returned:

```
Host System Port Type    Local Status
=====================================================
192.0.2.0   9930 AIX     Connected
192.0.2.1   9990 Unknown Disconnected
```

Example: Listing detailed information for all host systems

The following command lists detailed information about the host system connections.

```
csmcli> lshost -l
```

The following output is returned:

```
Host System Port Type   Local Status Remote Status Connection Message
=================================================================
192.0.2.2   5858 ZOS_IP Connected    -             -
```

Example: Listing information for the native Z/OS host system

If the copy services management server is installed on the z/OS host system, the following command lists default information about the z/OS host system connection.

```
csmcli> lshost ZOS_NATIVE_CONNECTION
```

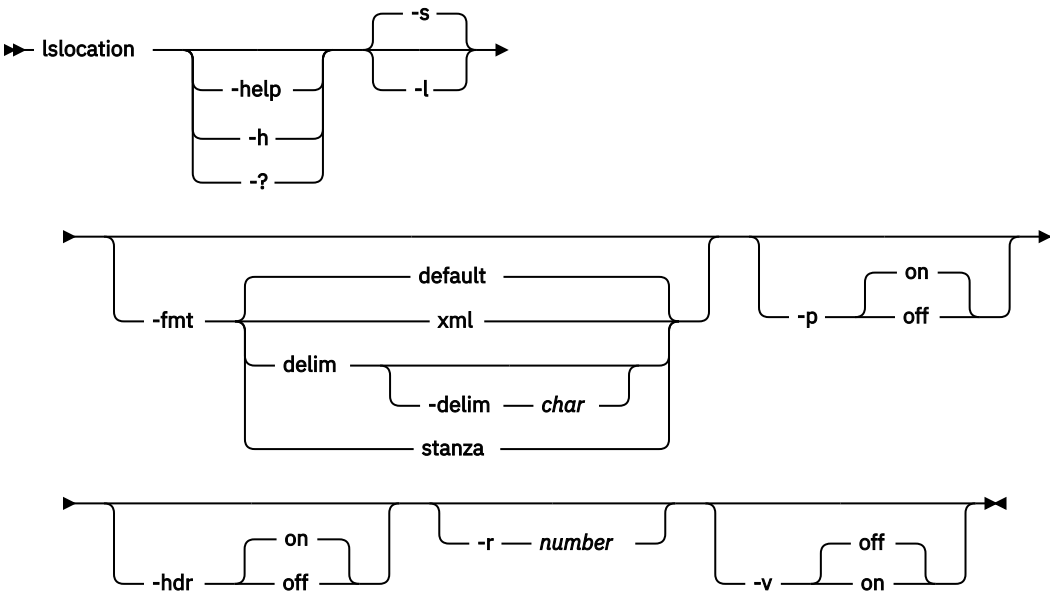
The following output is returned:

```
Host System             Port Type       Local Status
================================================
ZOS_NATIVE_CONNECTION   5858 ZOS_NATIVE Connected
```

lslocation

Use the **lslocation** command to list all defined locations.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-l | -s
Displays detailed information for each location, including:

Column label	Details
Location	An integer representing the location.
Details	The alphanumeric text string that was given to the location. The string can be descriptive of the location.

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim char`, where *char* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r *number*
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of `1` - `100`. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

Example: Listing locations

The following command lists all locations.

```
csmcli> lslocation
```

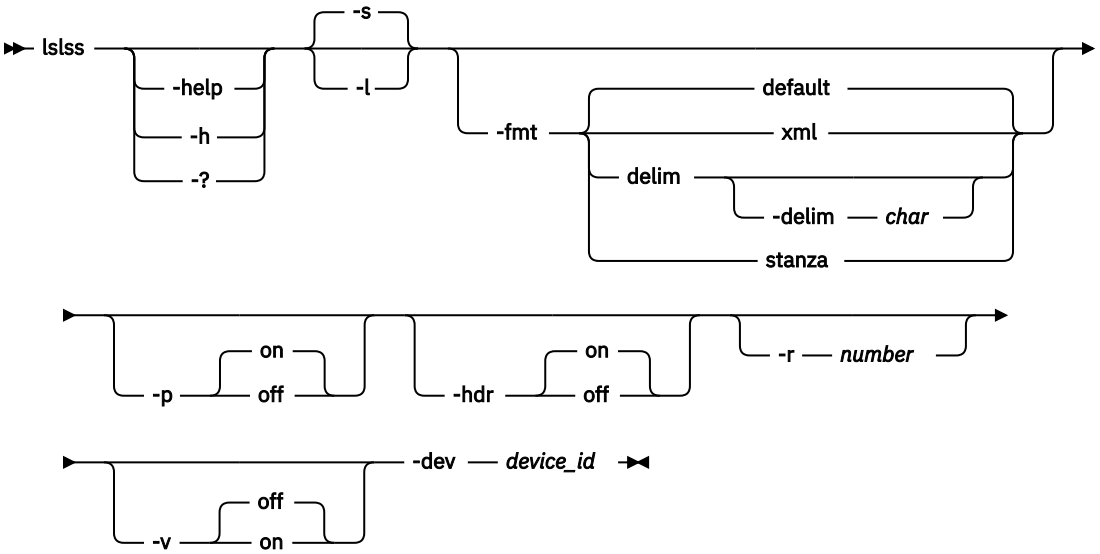
The following output is returned:

```
Location  Details
=================
1         Boulder
3         Marana
2         Tucson
```

lslss

Use the **lslss** command to list the logical subsystems (LSSes) for the specified DS or ESS storage system. You can use this output with the **mkpath** command.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-l | -s
Displays detailed information for each storage system, including:

Column label	Details
Device	Storage system of the LSSs
LSS ID	LSS identifier

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim char`, where *char* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r ***number***
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of `1` - `100`. The default value is `22`.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

-dev ***device_id***
Lists information for the specified DS or ESS storage system.

Example: Listing LSS for a storage system

The following command lists all available LSSs associated with the storage system `DS8000:BOX:2107.04131`.

```
csmcli> lslss -dev DS8000:BOX:2107.04131
```

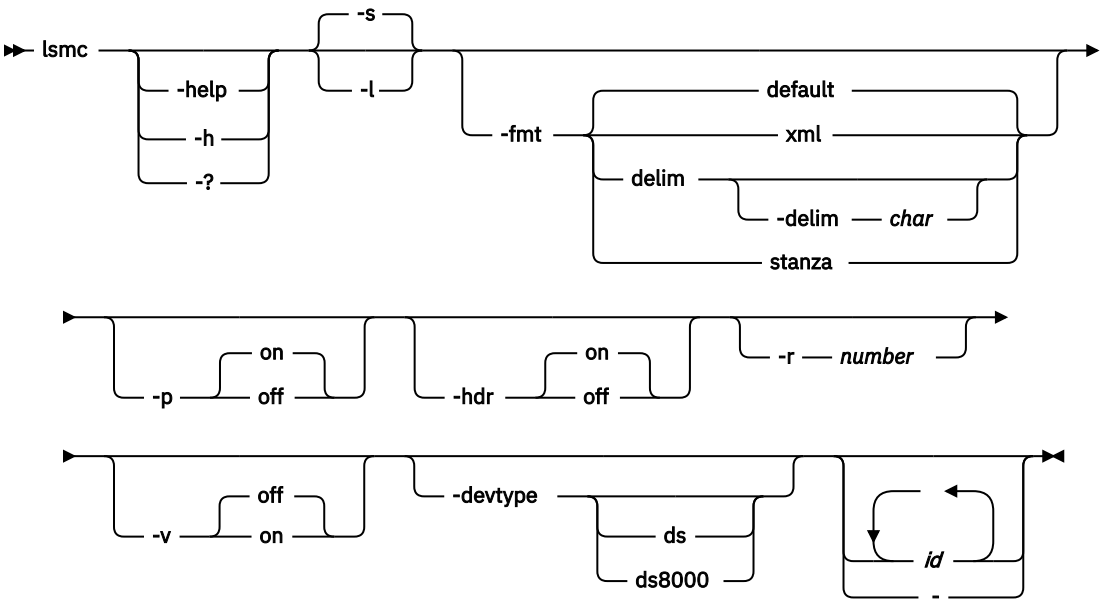
The following output is returned:

```
Device                LSS
=============================================
DS8000:BOX:2107.04131 DS8000:2107.04131:LSS:00
DS8000:BOX:2107.04131 DS8000:2107.04131:LSS:01
DS8000:BOX:2107.04131 DS8000:2107.04131:LSS:02
DS8000:BOX:2107.04131 DS8000:2107.04131:LSS:03
DS8000:BOX:2107.04131 DS8000:2107.04131:LSS:04
DS8000:BOX:2107.04131 DS8000:2107.04131:LSS:05
DS8000:BOX:2107.04131 DS8000:2107.04131:LSS:06
DS8000:BOX:2107.04131 DS8000:2107.04131:LSS:07
DS8000:BOX:2107.04131 DS8000:2107.04131:LSS:08
DS8000:BOX:2107.04131 DS8000:2107.04131:LSS:09
DS8000:BOX:2107.04131 DS8000:2107.04131:LSS:0A
DS8000:BOX:2107.04131 DS8000:2107.04131:LSS:0B
DS8000:BOX:2107.04131 DS8000:2107.04131:LSS:0C
DS8000:BOX:2107.04131 DS8000:2107.04131:LSS:0D
DS8000:BOX:2107.04131 DS8000:2107.04131:LSS:0E
DS8000:BOX:2107.04131 DS8000:2107.04131:LSS:0F
DS8000:BOX:2107.04131 DS8000:2107.04131:LSS:10
DS8000:BOX:2107.04131 DS8000:2107.04131:LSS:11
DS8000:BOX:2107.04131 DS8000:2107.04131:LSS:12
DS8000:BOX:2107.04131 DS8000:2107.04131:LSS:14
```

lsmc

Use the **lsmc** command to display a summary of management consoles and settings.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s
Displays default information for each management console, including the ID and local server connection.

-l
Displays detailed information for each management console, including:

Column label	Details
Management console ID	The ID of the management console.
Management console IP	The cluster 0 IP address or domain.
Local Server Connection	The connection status of the management console to the local server.
Location	The associated location of the management console or None.

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim char`, where *char* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r ***number***
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of `1` - `100`. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

-devtype ds | ds8000
Displays information for the specified device type. You can specify one of these values:

ds - any DS device
ds8000 - only DS8000 devices

id... | -
Displays only the threshold settings for one or more specified management console IDs. The management console ID is in the element ID format (for example, `HMC:9.11.222.333`). Separate multiple IDs with a blank space.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Listing management consoles

The following command lists the management consoles and settings for all DS storage systems.

```
csmcli> lsmc -devtype ds -l
```

The following output is returned:

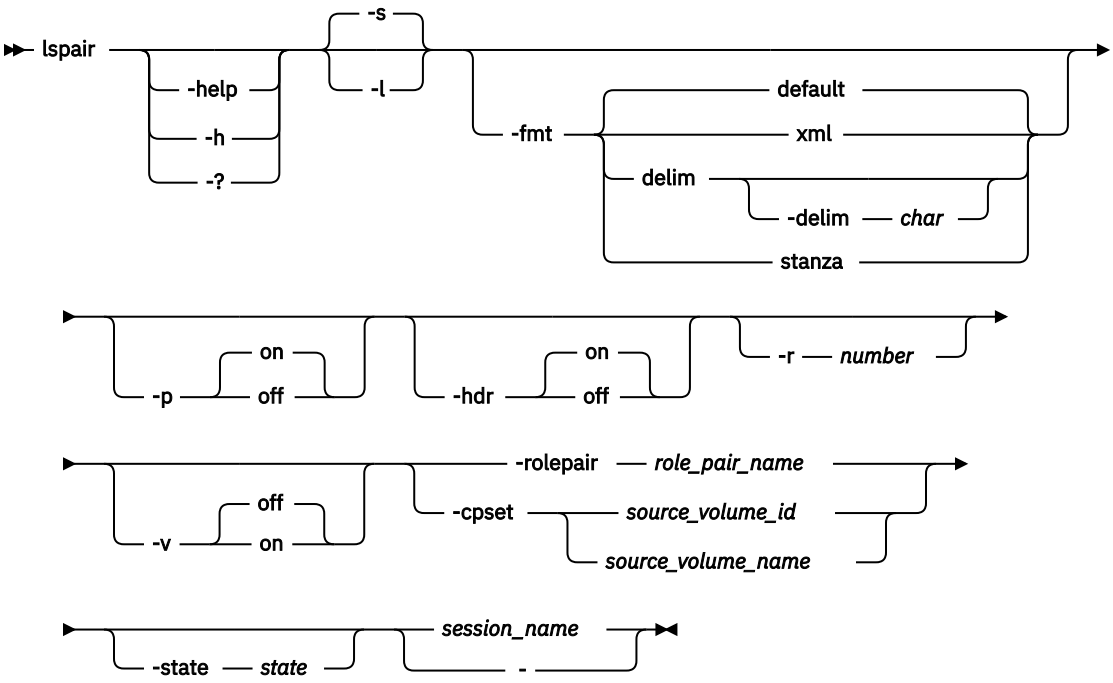
```
MC ID                    HMC:2002:90B:E006:222:9:11:223:2
MC IP address            2002:90b:e006:222:9:11:223:2
Local Server Connection  Connected
Location                 tucson
```

lspair

Use the **lspair** command to list the copy pairs for a specified role pair or to list the copy pairs for a specified copy set.

Important: The **lspair** command is not used for FlashSystem/IBM Spectrum Accelerate Snapshot sessions because copy pairs do not exist in this session type.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s
Specifies that default information for each copy pair is displayed. The default information is the source and target volumes in the pair and the role pair.

-l
Displays the following detailed information for each copy pair.

Column Label	Details
Source Volume	The ID of the source volume in the copy pair. The volume ID is displayed regardless of whether you provide the volume ID or name for the **-cpset** parameter.
Target Volume	The ID of the target volume in the copy pair.
Role Pair	The associated role pair for the copy pair. For sample role pair values, see the **-rolepair** parameter.

Column Label	Details

State	The state of the copy pair. The valid values include:
	`Defined`
	`Preparing`
	`Prepared`
	`Target Available`
	`Suspended`

Recoverable	Specifies `Yes` or `No` to indicate whether the copy pair is recoverable.
Copying	Specifies `Yes` or `No` to indicate whether the copy pair is copying data.
Progress	The overall copy progress that is associated with the copy pair (if applicable).
New	Specifies `Yes` or `No` to indicate whether the copy pair is a new pair.
Copy Set	The host site 1 volume ID of the copy set with which the copy pair is associated.
Timestamp	The date and time that the copy pair was suspended, if applicable.
Last Result	The last message that was issued for the copy pair. If message ends in `E` or `W`, the copy pair is an exception pair.

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim` *`char`*, where *`char`* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r ***number***
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of `1` - `100`. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

-rolepair ***role_pair_name***
Specifies that only copy pairs that are associated with the specified role pair name are displayed. Role pair names are defined by the **lsrolepairs** command.

The following list provides sample role-pair names:

- `h1-h2`
- `h1-h3`
- `h1-i1`
- `h1-i2`
- `h1-i3`
- `h1-j2`
- `h1-t1`
- `h2-i1`
- `h2-i2`
- `h2-i3`
- `h2-j1`
- `h2-j3`
- `h3-i3`
- `i1-j1`
- `i2-j2`
- `i3-j3`

This parameter is mutually exclusive with the **-cpset** parameter.

-cpset {*source_volume_id* | *source_volume_name*}
Specifies that only copy pairs that are associated with the specified source volume of a copy set are displayed.

For IBM DS8000 and IBM TotalStorage Enterprise Storage Server Model 800 storage systems, use the volume ID for this parameter.

For other storage systems, you can use the volume ID or name for this parameter.

This parameter is mutually exclusive with the **-rolepair** parameter.

-state ***state***
Specifies that only copy pairs in a specified state are displayed. You can specify one of these states:

- `Defined`

- Preparing
- Prepared
- TargetAvailable
- Suspended

***session_name* | -**
Specifies that only copy pairs for the specified session are displayed.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Listing all copy pairs for a specific role pair

The following command lists the copy pairs that are associated with role pair h1-h2 in the session session1:

```
csmcli> lspair -rolepair h1-h2 session1
```

The following output is returned:

```
Source Volume               Target Volume               Role Pair
============================================================
DS8000:2107.NK791:VOL:1500  DS8000:2107.MW931:VOL:1500  H1-H2
DS8000:2107.NK791:VOL:1501  DS8000:2107.MW931:VOL:1501  H1-H2
DS8000:2107.NK791:VOL:1502  DS8000:2107.MW931:VOL:1502  H1-H2
DS8000:2107.NK791:VOL:1503  DS8000:2107.MW931:VOL:1503  H1-H2
DS8000:2107.NK791:VOL:1504  DS8000:2107.MW931:VOL:1504  H1-H2
ESS:2105.FCA57:VOL:1500     DS8000:2107.NF111:VOL:1505  H1-H2
ESS:2105.FCA57:VOL:1501     DS8000:2107.NF111:VOL:1506  H1-H2
ESS:2105.FCA57:VOL:1502     DS8000:2107.NF111:VOL:1507  H1-H2
ESS:2105.FCA57:VOL:1503     DS8000:2107.NF111:VOL:1508  H1-H2
ESS:2105.FCA57:VOL:1504     DS8000:2107.NF111:VOL:1509  H1-H2
```

Example: Listing all copy pairs in a specific state

The following command lists the copy pairs that are associated with role pair h2-i3 in the session session1 and are in the Suspended state:

```
csmcli> lspair -rolepair h2-i3 -state Suspended session1
```

The following output is returned:

```
Source Volume              Target Volume              Role Pair
============================================================
DS8000:2107.MW931:VOL:1500 DS8000:2107.04131:VOL:1505 H2-I3
DS8000:2107.MW931:VOL:1501 DS8000:2107.04131:VOL:1506 H2-I3
DS8000:2107.MW931:VOL:1502 DS8000:2107.04131:VOL:1507 H2-I3
DS8000:2107.MW931:VOL:1503 DS8000:2107.04131:VOL:1508 H2-I3
DS8000:2107.MW931:VOL:1504 DS8000:2107.04131:VOL:1509 H2-I3
DS8000:2107.NF111:VOL:1505 DS8000:2107.04131:VOL:1605 H2-I3
DS8000:2107.NF111:VOL:1506 DS8000:2107.04131:VOL:1606 H2-I3
DS8000:2107.NF111:VOL:1507 DS8000:2107.04131:VOL:1607 H2-I3
DS8000:2107.NF111:VOL:1508 DS8000:2107.04131:VOL:1608 H2-I3
DS8000:2107.NF111:VOL:1509 DS8000:2107.04131:VOL:1609 H2-I3
```

Example: Listing detailed information for all copy pairs for a specific copy set

The following command lists detailed information about the copy pairs that are associated with the copy set DS8000:2107.NK791:VOL:1500 in the session session1. The **-fmt stanza** parameter specifies that the output is displayed as one keyword-value pair per line.

```
csmcli> lspair -l -fmt stanza -cpset DS8000:2107.NK791:VOL:1500 session1
```

The following output is returned:

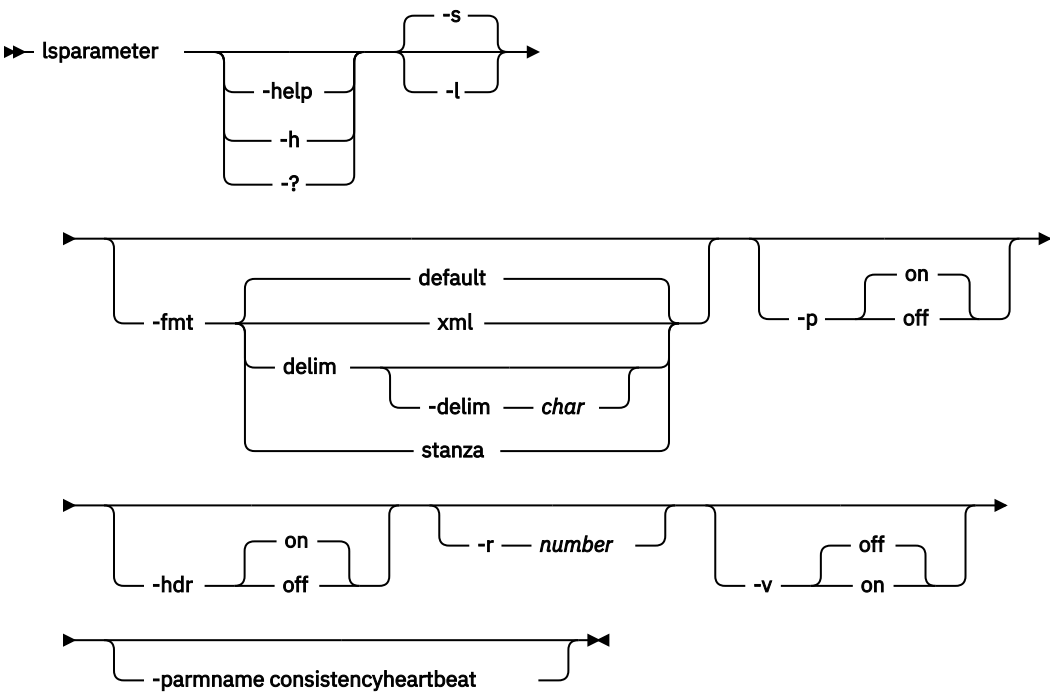
```
Source Volume DS8000:2107.04131:VOL:1500
Target Volume DS8000:2107.04131:VOL:1505
Role Pair     H3-I3
State         Defined
```

```
Recoverable   No
Copying       No
Progress      -
New           Yes
Copy Set      DS8000:2107.NK791:VOL:1500
Timestamp     n/a
Last Result   IWNR2024I

Source Volume DS8000:2107.04131:VOL:1505
Target Volume DS8000:2107.04131:VOL:150A
Role Pair     I3-J3
State         Defined
Recoverable   No
Copying       No
Progress      -
New           Yes
Copy Set      DS8000:2107.NK791:VOL:1500
Timestamp     n/a
Press Enter To Continue...

Last Result   IWNR2013I

Source Volume DS8000:2107.MW931:VOL:1500
Target Volume DS8000:2107.04131:VOL:150A
Role Pair     H2-J3
State         Defined
Recoverable   No
Copying       No
Progress      -
New           Yes
Copy Set      DS8000:2107.NK791:VOL:1500
Timestamp     n/a
Last Result   IWNR2024I

...
```

lsparameter

Use the **lsparameter** command to list Metro Mirror heartbeat setting.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s
Displays default information for each system parameter, including the parameter name and value.

-l
Displays detailed information for each system parameter, including:

Column label	Details
Parameter Name	Value of the system parameter
Value	The value of the system parameter (for example, Yes or No).
Parm Name	Name of the system parameter

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim` *`char`*, where *`char`* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r *number*
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of `1` - `100`. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

-parmname consistencyheartbeat
Displays whether the Metro Mirror heartbeat is enabled (on) or disabled (off).

Example: Listing all parameters

The following command lists detailed information about all parameters.

Note: Only the heartbeat setting is currently supported and returned by this command.

```
csmcli> lsparameter -l
```

The following output is returned:

```
Parameter Name                 Value Parm Name
=======================================================
The heartbeat function is set  on    consistencyheartbeat
```

Example: Displaying the Metro Mirror heartbeat setting

The following command displays the current setting for the Metro Mirror heartbeat.

```
csmcli> lsparameter -parmname consistencyheartbeat
```

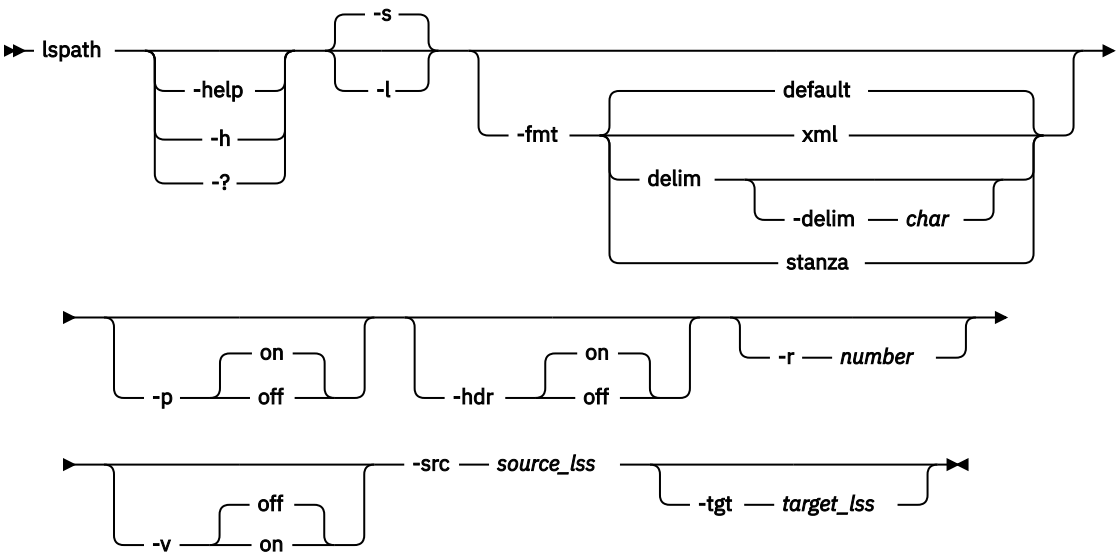
The following output is returned:

```
Parameter Name                 Value
==================================
The heartbeat function is set  on
```

lspath

Use the **lspath** command to display paths between ESS and DS devices. You can then use this information for a remote copy.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s
Displays default information for each path, including the source and target LSS, path type, status, and whether the path was auto-generated.

-l
Displays detailed information for each path, including:

Column label	Details
Source	Origin of the path. For ESS, this is an LSS. For the format of this field, see the `mkpath` command.
Target	Target of the path. For ESS this is an LSS. For the format of this field, see the `mkpath` command.
Type	ESCON (ESS or DS only) or Fibre Channel.
Status	Whether the path is currently established or not.
Auto-Generated	Yes, if the path was generated by the copy services management server. No, if you specified the path.

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim` *`char`*, where *`char`* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r ***number***
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of `1 - 100`. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

-src ***source_lss***
Specifies the source LSS. This must be specified in the format *type.serial.lss(hex).port(hex)* (for example, `ESS:2105.FCA18:LSS:10.00FF`).

-tgt ***target_lss***
Specifies the target LSS. This must be specified in the format **type.serial.lss(hex).port(hex)** (for example, `ESS:2105.FCA18:LSS:10.00FF`).

Example: Listing all paths with the same source LSS

The following command lists all paths that use source LSS `DS8000:2107.04131:LSS:15`.

```
csmcli> lspath -src DS8000:2107.04131:LSS:15
```

The following output is returned:

```
Source                          Target                          Type
=============================================================================
DS8000:2107.04131:LSS:15.0x0330 DS8000:2107.NF111:LSS:15.0x0030 Fibre Channel
DS8000:2107.04131:LSS:15.0x0110 ESS:2105.FCA57:LSS:15.0x000C    Fibre Channel
DS8000:2107.04131:LSS:15.0x0110 DS8000:2107.NK791:LSS:15.0x0032 Fibre Channel

Status      Auto-Generated
==========================
Established Yes
Established Yes
Established Yes
```

Example: Listing information about a specific path

The following command lists information about the path with source LSS `DS8000:2107.04131:LSS:15`.

```
csmcli> lspath -src DS8000:2107.04131:LSS:15 -tgt ESS:2105.FCA57:LSS:15
```

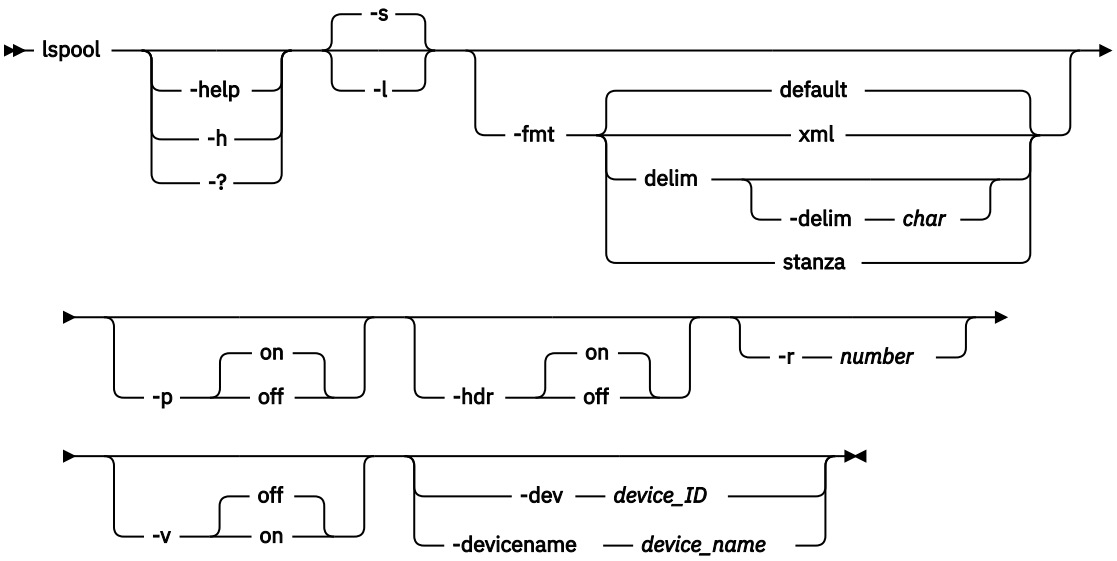
The following output is returned:

```
Source                          Target                       Type
==========================================================================
DS8000:2107.04131:LSS:15.0x0110 ESS:2105.FCA57:LSS:15.0x000C Fibre Channel

Status      Auto-Generated
==========================
Established Yes
```

lspool

Use the **lspool** command to list pools that are on FlashSystems/IBM Spectrum Accelerate.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s | -l
Displays the following information:

Column Label	Details
Device Name	The name of the FlashSystem/IBM Spectrum Accelerate that contains the pools.
Device ID	The ID of the FlashSystem/IBM Spectrum Accelerate that contains the pools.
Pool Name	The name of the pool.
Pool ID	The ID for the pool.

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim char`, where *char* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r ***number***
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of `1` - `100`. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

-dev ***device_ID*** **and -devicename** ***device_name***
Both of these parameters specify that only pools on a specific storage system are displayed. The **-dev** parameter specifies that the storage system is determined by the ID for the system. The **-devicename** parameter specifies that the storage system is determined by the name of the storage system.

The **-dev** and **-devicename** parameters are mutually exclusive.

If the **-dev** or **-devicename** parameter is not provided, the output shows the pools for all FlashSystems/IBM Spectrum Accelerate.

Example: Listing pools on all FlashSystems/IBM Spectrum Accelerate

The following command lists the pools that are on all FlashSystems/IBM Spectrum Accelerate.

```
csmcli> lspool -l
```

The following output is returned:

```
Device Name         Device ID             Pool Name       Pool ID
================================================================================
XIV 1300202 Troy    XIV:BOX:1300202       mysnappool1     XIV:POOL:1300202:100929
XIV 1300202 Troy    XIV:BOX:1300202       mysnappool2     XIV:POOL:1300202:100930
XIV 1300202 Troy    XIV:BOX:1300202       mysnappool3     XIV:POOL:1300202:100931
XIV 1300202 Troy    XIV:BOX:1300202       mysnappool4     XIV:POOL:1300202:112412
XIV_B               XIV:BOX:1566078       healthcare      XIV:POOL:1566078:436473
```

```
XIV_B                XIV:BOX:1566078       mysnappool1     XIV:POOL:1566078:436474
XIV_B                XIV:BOX:1566078       yogapool        XIV:POOL:1566078:436475
```

Example: Listing pools on a specific FlashSystem/IBM Spectrum Accelerate by storage system ID

The following command lists the pools that are on the FlashSystem/IBM Spectrum Accelerate with the ID `XIV:BOX:1300202`.

```
csmcli> lspool -dev XIV:BOX:1300202 -l
```

The following output is returned:

```
Device Name         Device ID             Pool Name       Pool ID
================================================================================
XIV 1300202 Troy    XIV:BOX:1300202       mysnappool1     XIV:POOL:1300202:100929
XIV 1300202 Troy    XIV:BOX:1300202       mysnappool2     XIV:POOL:1300202:100930
XIV 1300202 Troy    XIV:BOX:1300202       mysnappool3     XIV:POOL:1300202:100931
XIV 1300202 Troy    XIV:BOX:1300202       mysnappool4     XIV:POOL:1300202:112412
```

Example: Listing pools on a specific FlashSystem/IBM Spectrum Accelerate by storage system name

The following command lists the pools that are on the FlashSystem/IBM Spectrum Accelerate that is named `XIV:BOX:1300202 Troy`.

```
csmcli> lspool -devicename 'XIV:BOX:1300202 Troy'
```

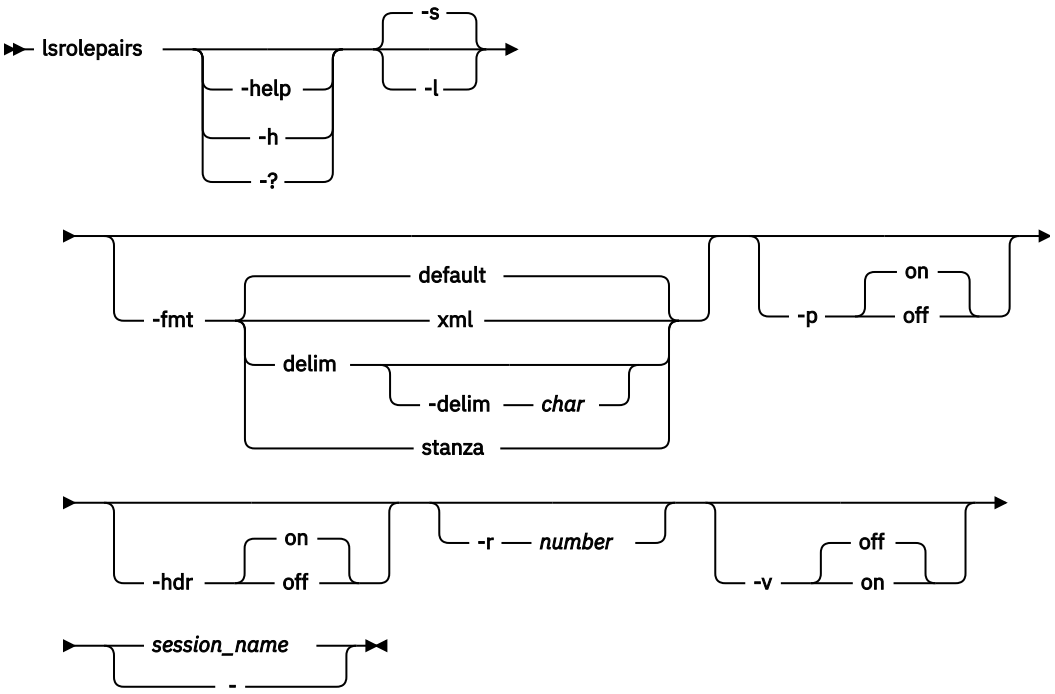
The following output is returned:

```
Device Name         Device ID             Pool Name       Pool ID
================================================================================
XIV 1300202 Troy    XIV:BOX:1300202       mysnappool1     XIV:POOL:1300202:100929
XIV 1300202 Troy    XIV:BOX:1300202       mysnappool2     XIV:POOL:1300202:100930
XIV 1300202 Troy    XIV:BOX:1300202       mysnappool3     XIV:POOL:1300202:100931
XIV 1300202 Troy    XIV:BOX:1300202       mysnappool4     XIV:POOL:1300202:112412
```

lsrolepairs

Use the **lsrolepairs** command to display role pairs in a session.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s
Displays default information for each role pair, including the role name, session (copy) type, and whether the role pair is recoverable, has errors, or is in the process of copying data.

-l
Displays detailed information for each role pair, including:

Column label	Details
Name	System-generated text string used to identify a role pair. The value listed here is what is to be entered on the `lspair` command.
Recoverable	An indicator of whether the role pair is recoverable. Value values are `Yes` or `No`.
Error	An indicator of whether the role pair has errors. Value values are `Yes` or `No`.
Copying	An indicator of the role pair is in the process of copying data. Value values are `Yes` or `No`.
Progress	The overall copy progress associated with the role pair.
Copy Type	The current session (copy) type of the role pair.
Error Volumes	Total number of volumes in an exception state.
Recoverable Pairs	Number of recoverable pairs
Copying Pairs	Number of copying pairs
Total Pairs	Total number of pairs
Recovery Time	An indicator of the time to which the session is recoverable. Includes both date and time. For point-in-time copy, this is the time that the copy was taken. For continuous synchronous remote copy, this is the time at which the **Freeze** and **Run** commands were issued. This field is blank if Recoverable is set to `No`.
CG Name	This is the user defined consistency group name for the role pair. If the user did not explicitly set a consistency group name for the role pair, or one is not allowed to be set for this role pair, a dash (-) will be displayed.

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim char`, where *char* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r ***number***
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of `1` - `100`. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

***session_name* | -**
Specifies the session name for which you display the role pairs.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Description

To see the volumes that are in a copy set, use the **showcpset** command.

To see the status of volumes that are in a copy set, use the **lsvol** command.

Example: Listing role pairs in a session

The following command lists information about the role pairs in the session `session1`.

```
csmcli> lsrolepairs session1
```

The following output is returned:

```
Name  Recoverable Error Copying Copy Type
=======================================
H1-H2 No          Yes   Yes     MM
H2-J3 No          No    No      GM
H1-I3 No          No    No      GC
```

```
I3-J3 No          No    No      FC
H1-J3 No          No    No      GM
H3-I3 No          No    No      FC
H2-I3 No          No    Yes     GC
H1-H3 No          No    No      GC
```

Example: Listing detailed information for the role pairs in a session

The following command lists detailed information about the role pairs in the session `session1`.

```
csmcli> lsrolepairs -fmt stanza -l session1
```

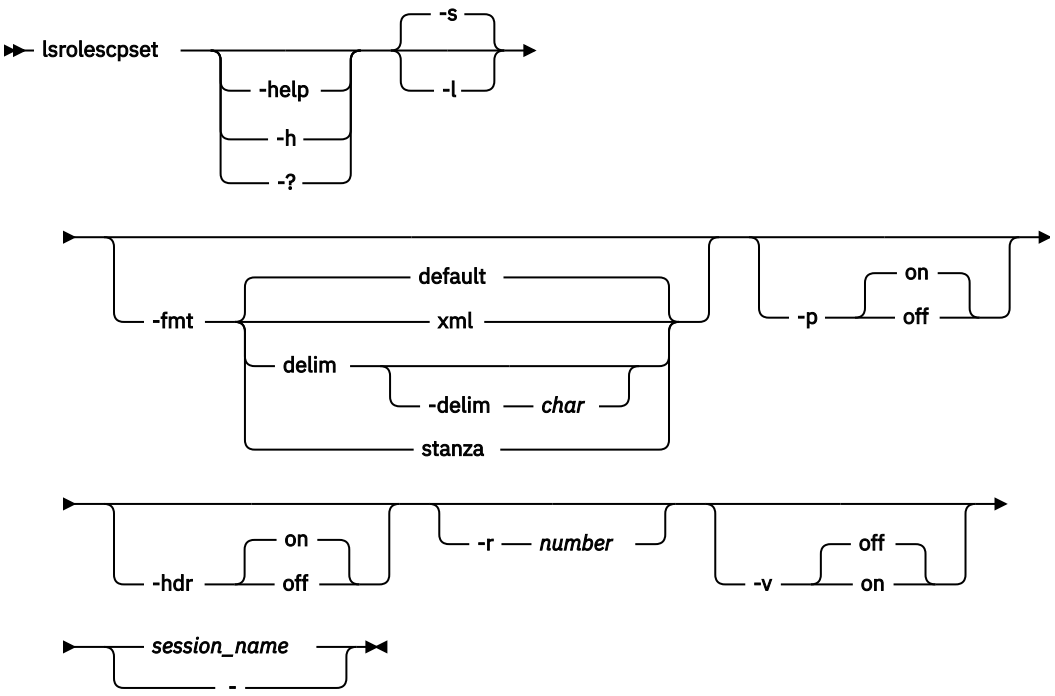
The following output is returned:

```
Name              H1-H2
Recoverable       No
Error             Yes
Copying           Yes
Copy Type         MM
Progress          66
Error Volumes     5
Recoverable Pairs 5
Copying Pairs     5
Total Pairs       10
Recovery Time     n/a
CG Name           -

Name              H2-J3
Recoverable       No
Error             No
Copying           No
Copy Type         GM
Progress          -
Error Volumes     0
Recoverable Pairs 0
Copying Pairs     0
Total Pairs       10
Recovery Time     n/a
CG Name           -

Name              H1-I3
Recoverable       No
Error             No
Copying           No
Copy Type         GC
Progress          -
Error Volumes     0
Recoverable Pairs 0
Copying Pairs     0
Total Pairs       10
Recovery Time     n/a
CG Name           0F
```

lsrolescpset

Use the **lsrolescpset** command to list the volume roles in the specified session.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-l | -s
Displays detailed information for each session, including:

Column Label	Details
Name	Short name for the role.
Description	Description of the role.

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim` *`char`*, where *`char`* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

`stanza`
Specifies that the output is displayed as one keyword-value pair per line.

`-p { on | off }`
Specifies whether to display one page of text at a time or all text at once.

`on`
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

`off`
Displays all text at once. This is the default value when the command is run in single-shot mode.

`-hdr { on | off }`
Specifies whether to display the table header. You can specify one of these values:

`on`
Displays the table header. This is the default value.

`off`
Hides the table header.

`-r` ***`number`***
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of `1` - `100`. The default value is 22.

`-v { on | off }`
Specifies whether to enable verbose mode. You can specify one of these values:

`on`
Enables verbose mode.

`off`
Disables verbose mode. This is the default value.

`session_name` **`| -`**
Specifies the session name for which you are going to list the roles of the copy set.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Listing copy set roles

The following command lists the volume roles in session `session1`.

```
csmcli> lsrolescpset session1
```

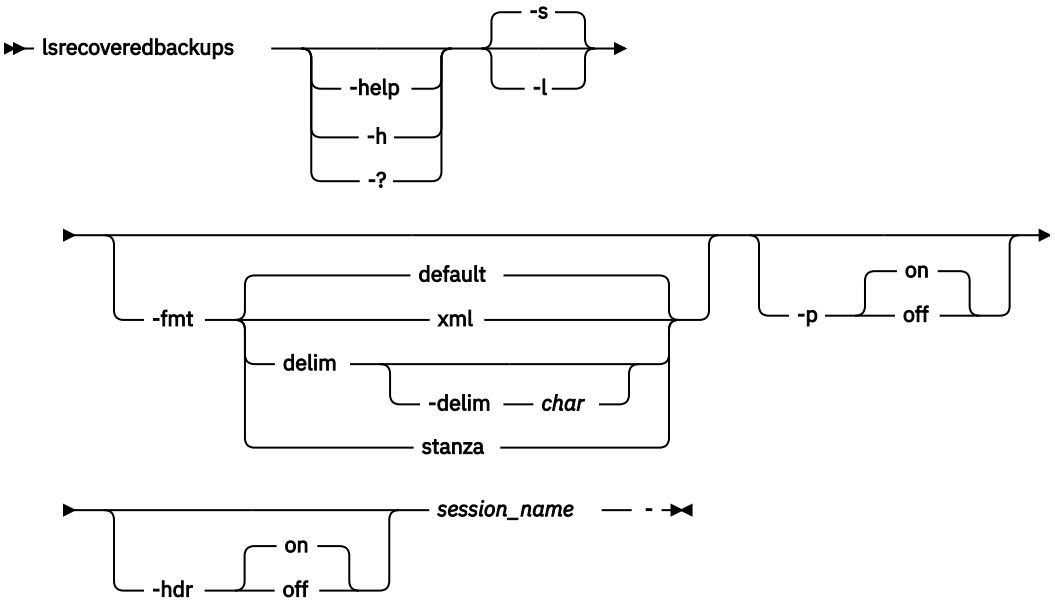
The following output is returned:

```
Name Description
=========================
H1   Host on Site1
H2   Host on Site2
H3   Host on Site3
I3   Intermediate on Site3
J3   Journal on Site3
```

lsrecoveredbackups

Use the **lsrecoveredbackups** command to display the backups with recovery relationships for a specified session.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-l | -s
Displays detailed information for recovered backups, including:

Column label	Details
Backup ID	An integer representing the identification for the backup.
Backup Time	The date and time when the backup was taken.
Session Name	The alphanumeric text string for the name of the session.
isError	Whether the recovered backup has an error.
Copy Sets	An integer indicating the number of copysets in the backup.

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim char`, where *char* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

***session_name* | -**
Specifies the name of the session used to display backups.

Example: Listing recovered backups for a given session

The following command lists detailed information about all parameters.

```
csmcli> lsrecoveredbackups csmguigrp1
```

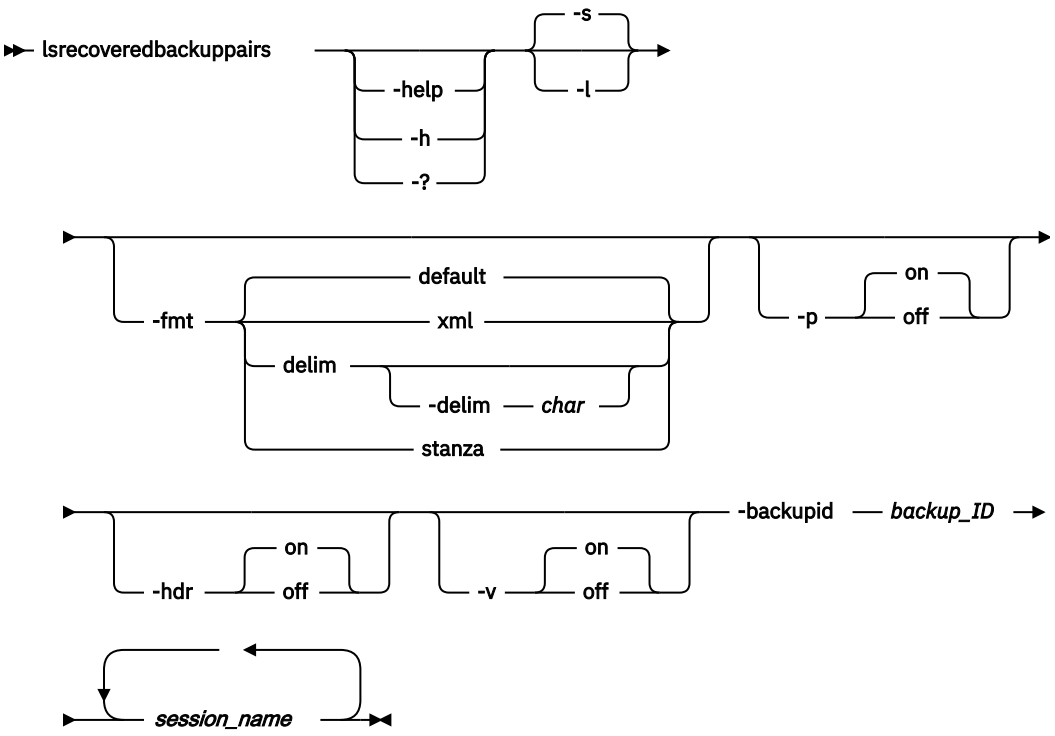
The following output is returned:

```
Backup Time Backup ID Session Name isError Copy Sets
=====================================================================
2021-04-21 13:17:22 CDT 1619029157 csmguigrp1 No 5
2021-04-21 13:17:57 CDT 1619029190 csmguigrp1 No 5
```

lsrecoveredbackuppairs

Use the **lsrecoveredbackuppairs** command to display the H1-R1 pairs for a specified session and backup ID.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s
Displays the default information for each copy pair. The default information is the source and target volumes in the pair and the role pair.

-l
Displays detailed information for recovered backups, including:

Column label	Details
Source Volume	The ID of the source volume in the copy pair. The volume ID is displayed regardless of whether you provide the volume ID or name for the **-cpset** parameter.
Target Volume	The ID of the target volume in the copy pair.
Role Pair	The associated role pair for the copy pair.

Column label	Details

State	The state of the copy pair. The valid values include:
	`Defined`
	`Preparing`
	`Prepared`
	`Target Available`
	`Suspended`

Recoverable	Specifies `Yes` or `No` to indicate whether the copy pair is recoverable.
Copying	Specifies `Yes` or `No` to indicate whether the copy pair is copying data.
Progress	The overall copy progress that is associated with the copy pair, if applicable.
New	Specifies `Yes` or `No` to indicate whether the copy pair is a new pair.
Copy Set	The host site 1 volume ID of the copy set with which the copy pair is associated.
Timestamp	The date and time when the copy pair was suspended, if applicable.
Last Result	The last message that was issued for the copy pair. If message ends in `E` or `W`, the copy pair is an exception pair.

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim` *`char`*, where *`char`* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r ***number***
Specifies the number of rows per page to display when the -p parameter is specified. You can specify a value of 1 - 100. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

-backupid ***backup_ID***
Specifies the identification number of the backup. This value is used to filter the list of backups that are returned. Only the backup with the given identification number is displayed.

***session_name* | -**
Specifies the name of the session used to display backups.

Example: Listing recovered backups for the H1-R1 pairs a given session

The following command lists detailed information about all parameters.

```
csmcli> lsrecoveredbackuppairs -backupid 1619029157 -l csmguigrp1
```

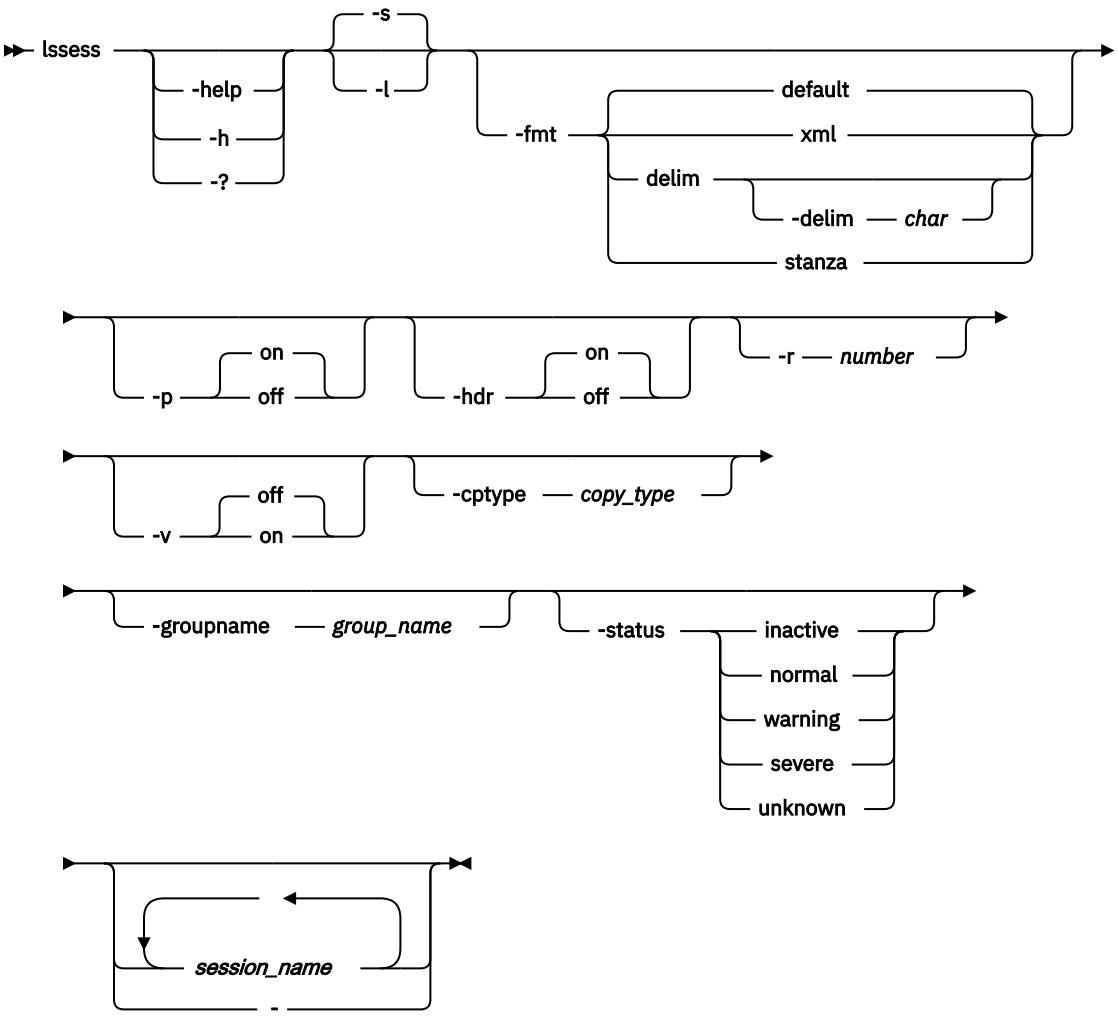
The following output is returned:

```
Source Volume                  Target Volume                   Role Pair State
Recoverable Copying Progress New Copy Set                       Timestamp
Last Result
=============================================================================================
=============================================================================================
======
STORWIZE-V7000:VOL:FAB3-DEV13:5 STORWIZE-V7000:VOL:FAB3-DEV13:46 H1-R1     Target Available
Yes         No      -        No  STORWIZE-V7000:VOL:FAB3-DEV13:36 2021-04-21 15:27:00.814-0500
IWNR2022I
STORWIZE-V7000:VOL:FAB3-DEV13:6 STORWIZE-V7000:VOL:FAB3-DEV13:47 H1-R1     Target Available
Yes         No      -        No  STORWIZE-V7000:VOL:FAB3-DEV13:37 2021-04-21 15:27:00.814-0500
IWNR2022I
STORWIZE-V7000:VOL:FAB3-DEV13:7 STORWIZE-V7000:VOL:FAB3-DEV13:48 H1-R1     Target Available
Yes         No      -        No  STORWIZE-V7000:VOL:FAB3-DEV13:38 2021-04-21 15:27:00.814-0500
IWNR2022I
STORWIZE-V7000:VOL:FAB3-DEV13:8 STORWIZE-V7000:VOL:FAB3-DEV13:49 H1-R1     Target Available
Yes         No      -        No  STORWIZE-V7000:VOL:FAB3-DEV13:39 2021-04-21 15:27:00.814-0500
IWNR2022I
STORWIZE-V7000:VOL:FAB3-DEV13:9 STORWIZE-V7000:VOL:FAB3-DEV13:50 H1-R1     Target Available
Yes         No      -        No  STORWIZE-V7000:VOL:FAB3-DEV13:40 2021-04-21 15:27:00.814-0500
IWNR2022I
```

lssess

Use the **lssess** command to display sessions and their status.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s
Displays default information for each session, including the session name, status, state, and session type.

-l
Displays the following detailed information for each session.

Column Label	Details
Name	The user-defined name of the session.
Status	The status level. The values are: `Inactive`, `Normal`, `Warning`, `Severe`, or `Unknown`.

Column Label	Details
State	The session state. The values are: `Defined`, `Preparing`, `Prepared`, `Suspended`, `Suspended (Partial)`, or `Target Available`.
Copy Type	The session type. For a list of values, see the **-cptype** parameter.
Recoverable	Specifies whether a session is recoverable. The values are `yes` or `no`.
Copying	Specifies whether a copying operation is taking place. The values are `yes` or `no`.
Copy Sets	The number of copy sets that are in the session.
Error	Specifies whether a session has errors. The values are `yes` or `no`.
Group	Specifies that only sessions belonging to the session *group_name* are displayed.

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim` *`char`*, where *`char`* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r *number*
Specifies the number of rows per page to display when the -p parameter is specified. You can specify a value of 1 - 100. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

-cptype *copy_type*
Specifies the session type. The storage systems that are available for a session differ by session type. The following parameter values are listed by storage system type. For a full listing issue the **lscptypes** command.

IBM TotalStorage Enterprise Storage Server Model 800, IBM DS8000

- fc: FlashCopy
- hs: Basic HyperSwap
- mmsd: Metro Mirror Single Direction
- mmfofb: Metro Mirror Failover/Failback
- pmm: Metro Mirror Failover/Failback with Practice
- mm_mm: Metro Mirror - Metro Mirror (This session type is available only for IBM DS8000 storage systems with a microcode level that supports single source to multi-target relationships.)
- gmsd: Global Mirror Single Direction
- gmfofb: Global Mirror Failover/Failback
- gm2s: Global Mirror Either Direction
- pgm: Global Mirror Failover/Failback with Practice
- pgm2s: Global Mirror Either Direction with Two Site Practice
- mgm: Metro Global Mirror
- pmgm: Metro Global Mirror with Practice
- sgc: Safeguarded Copy
- mm_gm: Metro Mirror - Global Mirror
- mm_gmp: Metro Mirror - Global Mirror with Practice
- mm_gm_s3_gm: Metro Mirror - Global Mirror w/ Site 3 Global Mirror
- mm_gm_4s: Metro Mirror - Global Mirror w/ Site 4 Replication
- mm_mm_4s: Metro Mirror - Metro Mirror w/ Site 4 Replication

IBM Storwize V3500

- fc: FlashCopy

IBM System Storage SAN Volume Controller, IBM Storwize V7000, IBM Storwize V7000 Unified, IBM Storwize V5000, IBM Storwize V3700, IBM FlashSystem V840, IBM FlashSystem V9000, IBM FlashSystem 9100, IBM FlashSystem 9200

- fc: FlashCopy
- mmsd: Metro Mirror Single Direction
- mmfofb: Metro Mirror Failover/Failback
- pmmsvc: Metro Mirror Failover/Failback with Practice
- gmsdsvc: Global Mirror Single Direction
- gmfofbsvc: Global Mirror Failover/Failback

- pgmsvc: Global Mirror Failover/Failback with Practice
- gmcvsvc: Global Mirror Failover/Failback with Change Volumes

FlashSystem/IBM Spectrum Accelerate

- snap: Snapshot
- mmfofbxiv: Metro Mirror Failover/Failback
- gmfofbxiv: Global Mirror Failover/Failback
- mm_gm_xiv: Metro Mirror - Global Mirror

-groupname ***group_name***
Specifies that only sessions belonging to the session *group_name* are displayed.

-status inactive | normal | warning | severe | unknown
Specifies that only sessions with the specified status of Inactive, Normal, Warning, Severe, or Unknown are displayed.

session_name... **| -**
Specifies that only sessions with a specified session name are displayed. Separate multiple session names with a space between each name. All sessions are displayed by default.

Alternatively, use a dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Listing all sessions

The following command lists information about all sessions.

```
csmcli> lssess
```

The following output is returned:

```
Name      Status  State             Copy Type                         Group
==========================================================================
session1  Normal  Target Available  Metro Global Mirror w/ Practice  -
```

Example: Listing sessions that have errors

The following command lists detailed information about sessions that have a status of Severe.

```
csmcli> lssess -status severe
```

The following output is returned:

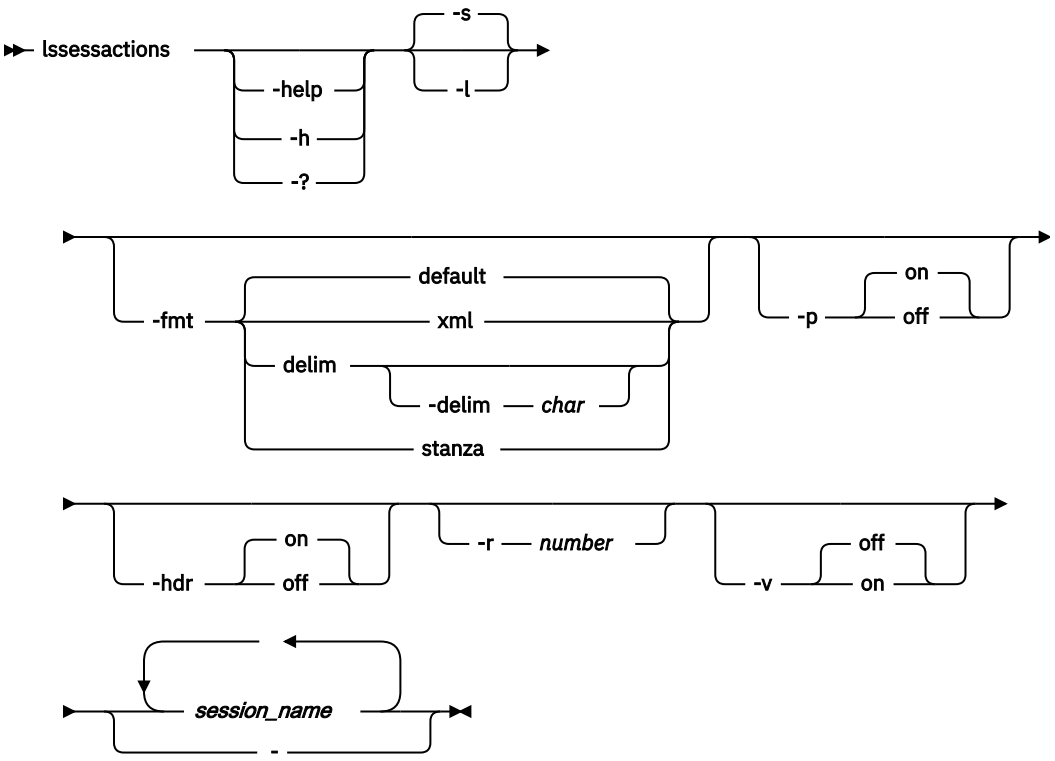
```
Name      Status  State      Copy Type                         Group
==============================================================
session1  Severe  Preparing  Metro Global Mirror w/ Practice  -
```

lssessactions

Use the **lssessactions** command to list all the session actions (commands) that can be run for a session.

Tip: To run an action for a session, use the **cmdsess** command.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s | -l
Specifies that the following information is displayed for each session:

Column Label	Details
Action	Name of the session action (command) that can be run on the session.
Description	The description of the command.

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim char`, where *char* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r ***number***
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of 1 - 100. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

***session_name...* | -**

Specifies that only valid actions for the specified session name or names are displayed. Separate multiple session names with a space between each name. If you provide more than one session name, all commands that are valid for the combined sessions are listed.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Listing available actions for a session

The following command lists all actions that can be run for the session named `session1`:

```
csmcli> lssessactions session1
```

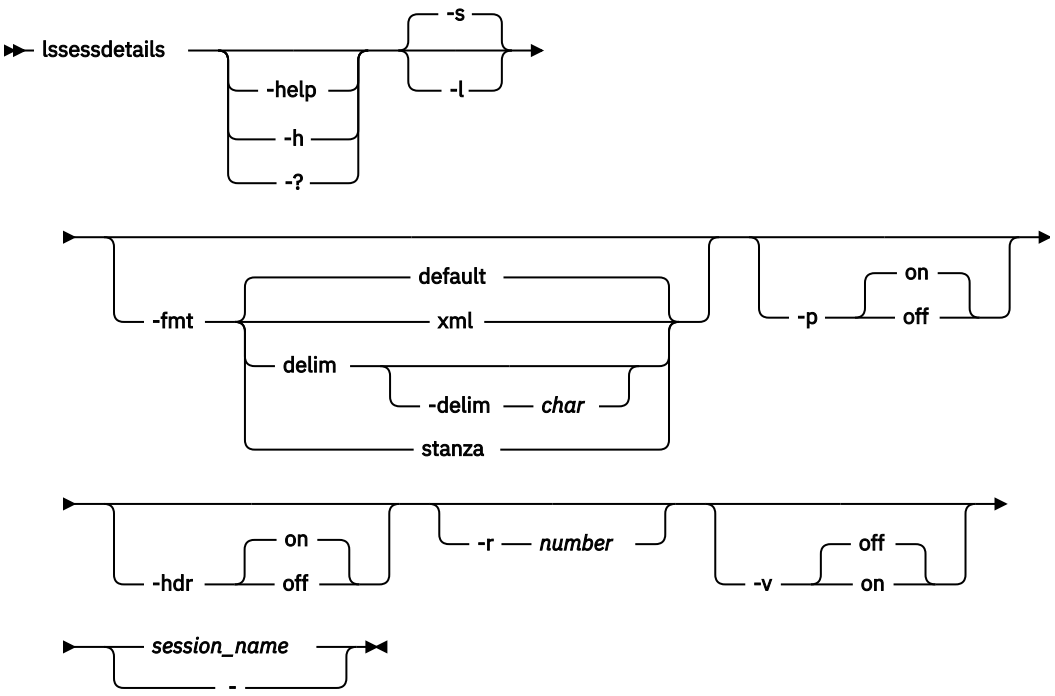
The following output is returned:

```
Action         Description
================================================
start_h1:h3    Start host1 to host3 copying
suspend        Suspend session
start_h1:h2:h3 Start host1 to host2 to host3 copying
terminate      Terminate session
```

lssessdetails

Use the **lssessdetails** command to display the details of a session.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s
Displays default information for each session, including option names and values.

-l
Displays detailed information for each session, including:

Column label	Details
Option Name	Name of the option that is set for this session.
Value	Value of the detail that is set for this session.
Description	Description of the session option.

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim char`, where *char* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r ***number***
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of `1` - `100`. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

***session_name* | -**
Lists the details that are relevant to the specified session.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Listing detailed information about a Metro Global Mirror with Practice session

The following command lists detailed information about a Metro Global Mirror with Practice session named `session1`.

```
csmcli> lssessdetails -l session1
```

The following output is returned:

```
Option Name           Value       Description
================================================================================
aftersuspend          Release     Policy for I/O after suspend
maxdrain_h1j3         30          Maximum consistency group drain time for the H1-J3
                                  role pair
dsRPOwarning_h1j3     1           Warning level threshold in seconds for the H1-J3
                                  role pair
maxdrain_h2j3         30          Maximum consistency group drain time for the H2-J3
                                  role pair
dsRPOwarning_h2j3     1           Warning level threshold in seconds for the H2-J3
```

```
                                role pair
rpo_h2j3              0         Recovery point objective in seconds for the H2-J3
                                role pair
rpo_h1j3              0         Recovery point objective in seconds for the H1-J3
                                role pair
dsnocpy               No        No copying of the volume
enableHardenedFreeze  No        Policy for whether to use z/OS hardened freeze
dsRPOsevere_h1j3      2         Severe level threshold in seconds for the H1-J3
                                role pair
dsRPOsevere_h2j3      2         Severe level threshold in seconds for the H2-J3
                                role pair
rmreserves            No        Remove secondary reserves
preventreflash        No        Prevent Reflash of Practice volume after Flash or
Recover
coordint_h1j3         50        Extended distance copy coordination interval for
                                the H1-J3 role pair
coordint_h2j3         50        Extended distance copy coordination interval for
                                the H2-J3 role pair
failIfTgtOnline       No        Fail MM/GC if the target is online (CKD only)
```

Example: Listing detailed information about a Global Mirror Failover/Failback with Change Volumes session

The following command lists detailed information about a Global Mirror Failover/Failback with Change Volumes session named `session2`.

```
csmcli> lssessdetails -l session2
```

The following output is returned:

```
Option Name           Value    Description
================================================================================
autoRestartDelay        0      Delay time before automatic restart
svcRPOsevere_h1h2     900      Severe level threshold in seconds for the H1-H2
                               role pair
svcRPOwarning_h2h2    600      Warning level threshold in seconds for the H1-H2
                               role pair
enableAutoRestart     Yes      Enable automatic restarts for unexpected suspends
enableChangeVolumes   Yes      Enable SVC change volumes
cycleperiod           200      SVC change volume cycle period
```

Example: Listing detailed information about a Basic HyperSwap session

The following command lists detailed information about a Basic HyperSwap session named `session3`.

```
csmcli> lssessdetails -l session3
```

The following output is returned:

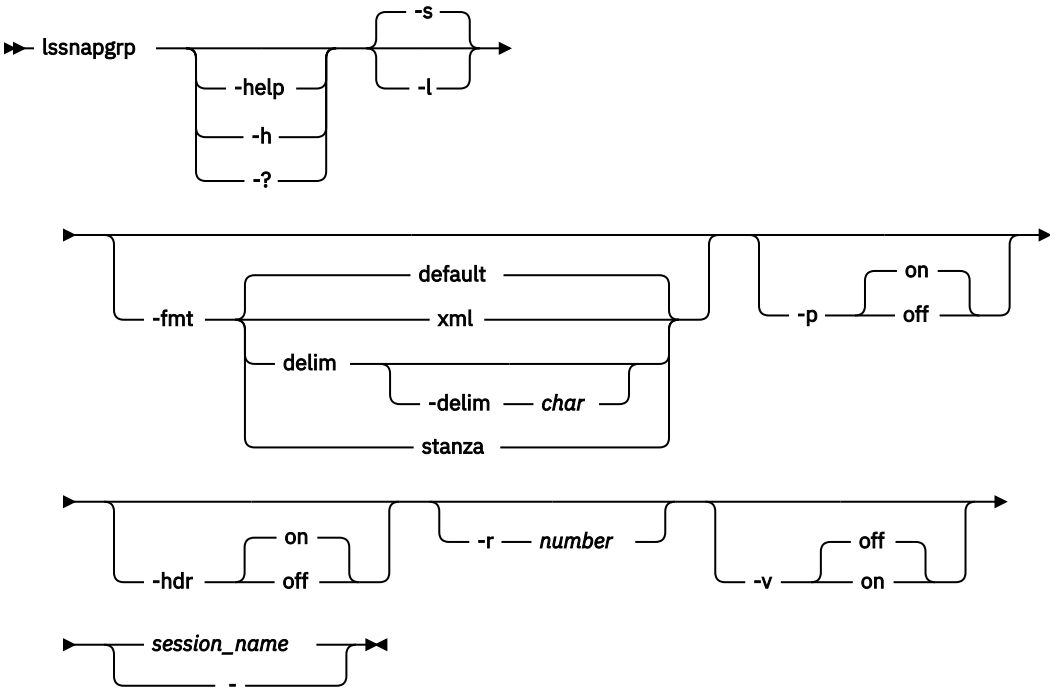
```
Option Name          Value           Description
================================================================================
disableHS            No              Prevent an automatic z/OS HyperSwap from occurring
onPlannedErrorHS     disable         Policy for an error during a planned HyperSwap for
                                     sysplex members
onUnplannedErrorHS   partition       Policy for an error during an unplanned HyperSwap
                                     for sysplex members
failIfTgtOnline      Yes             Fail MM/GC if the target is online (CKD only)
zosAssociation       PLEX1 (sysplex) The z/OS system or sysplex that is associated with
                                     this session
```

lssnapgrp

Use the **lssnapgrp** command to view snapshot groups that are in an FlashSystem/IBM Spectrum Accelerate snapshot session.

A snapshot group is a grouping of snapshots of individual volumes in a consistency group at a specific point in time.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s
Specifies that default information for each snapshot group is displayed. The default information is the name of the snapshot group and the date and time that the group was created.

-l
Specifies that detailed information for each snapshot group is displayed, including:

Column Label	Details
Name	The name of the snapshot group.
Timestamp	The date and time that the snapshot group was created.
Deletion Priority	The priority in which the snapshot group is deleted from the session. The value is the number 1 - 4. A value of 1 specifies that the snapshot group is deleted last. A value of 4 specifies that the snapshot group is deleted first. Multiple snapshot groups might exist until FlashSystem/IBM Spectrum Accelerate identifies that there is not enough space in the storage pool to keep all of the snapshots.
Restore Master	Specifies whether the snapshot group listed can be used to restore the master volumes of the session. Values for this are Yes and No.

Column Label	Details
Locked	Specifies whether the snapshot group is currently locked. If the snapshot group is locked, write operations to the snapshots within the snapshot group are prevented.
Modified	Specifies whether the snapshot group has been modified. A snapshot group is marked as modified when it is unlocked for the first time.

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim` *`char`*, where *`char`* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r ***number***
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of `1` - `100`. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

***session_name* | -**
Specifies the name of the Snapshot session.

Alternatively, use a dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Listing all snapshot groups that are in a session

The following command lists all snapshot groups that are in the session snap6:

```
csmcli> lssnapgrp snap6
```

The following output is returned:

```
Name                   Timestamp
================================================
snap6.snap_group_00001 2011-04-01 00:04:49.000-0500
```

Example: Listing detailed information about the snapshot groups that are in a session

The following command lists detailed information about the snapshot groups that are in the session snap6:

```
csmcli> lssnapgrp -l snap6
```

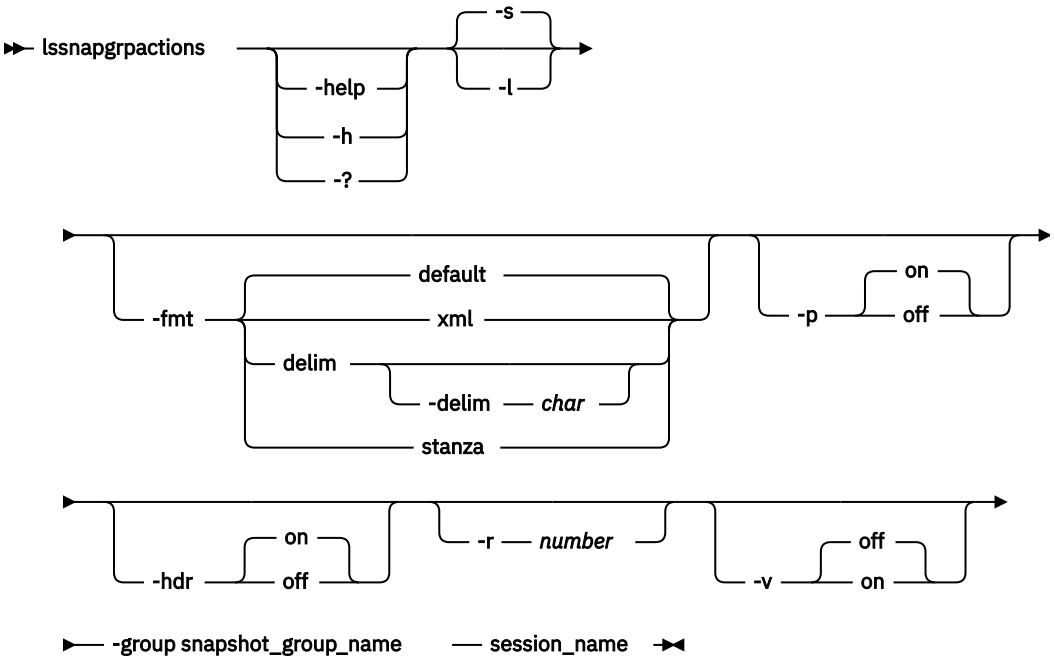
The following output is returned:

```
Name                    Timestamp                      Deletion  Restore  Locked
Modified
                                                       Priority  Master
=============================================================================================
=
snap6.snap_group_00001 2011-07-18 15:22:14.000-0700  1         No       Yes     No
snap6.snap_group_00002 2011-07-18 15:22:41.000-0700  1         Yes      Yes     No
```

lssnapgrpactions

Use the **lssnapgrpactions** command to specify the session and snapshot group name that you want to view available actions for.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s | -l

-s
Specifies the default output which is action name and description.

-l
Specifies the detailed output. In this case, specifies the same output as the **-s** parameter.

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim char`, where *char* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r ***number***
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of 1 - 100. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

-group snapshot_group_name
Specifies the name of the snapshot group to list snapshot group actions for.

session_name | -
Specifies the session for which the properties are to be displayed.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Specifying the session and snapshot group name

The following command specifies the session and snapshot group name that you want to view available actions for.

```
csmcli> lssnapgrpactions -group MySnapSession.snap_group_0001  MySnapSession
```

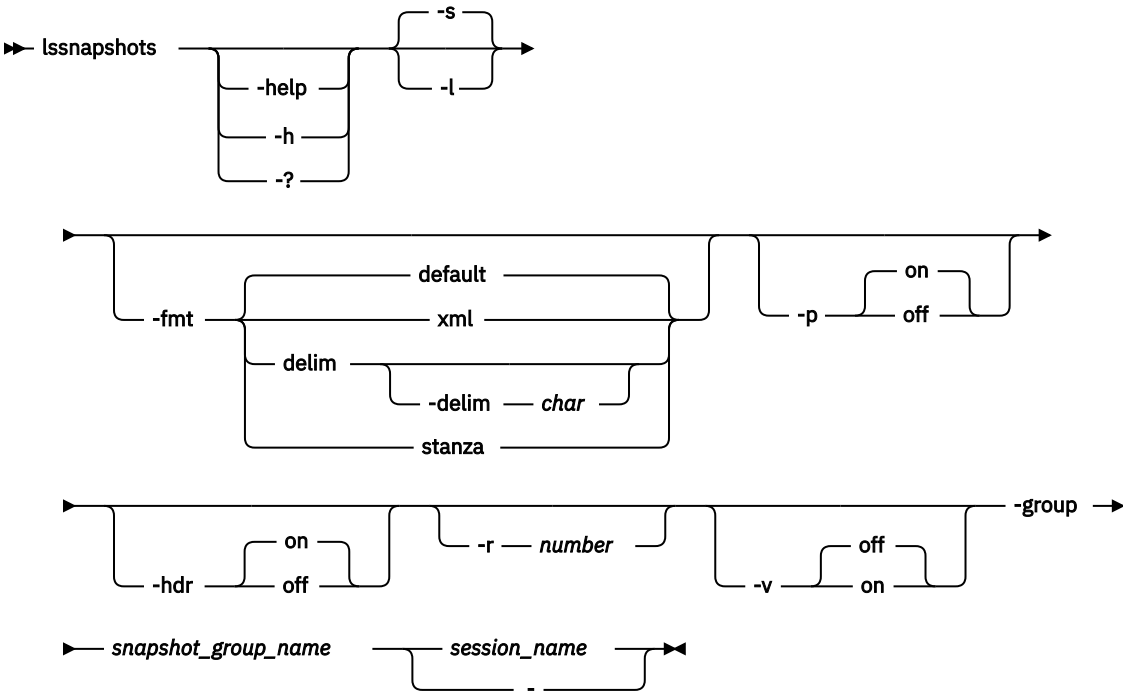
The following output is returned:

```
Action               Description
============================================================
delete               Deletes a snapshot group
disband              Disbands a snapshot group
duplicate            Duplicates a snapshot group
lock                 Locks a snapshot group
restore              Restores a snapshot group from another snapshot group
set_priority         Sets the deletion priority for a snapshot group
```

lssnapshots

Use the **lssnapshots** command to view snapshots that are in a snapshot group in a FlashSystem/IBM Spectrum Accelerate snapshot session.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s
Specifies that default information for each snapshot in the snapshot group is displayed. The default information is the name of the snapshot.

-l
Specifies that detailed information for each snapshot in the snapshot group is displayed, including:

Column Label	Details
Name	The name of the snapshot.
H1 Volume ID	The ID of the H1 volume that is associated with the snapshot.
Size	The size of the H1 volume at the time that the snapshot was created.
Size Unit	The unit of measure for the size of the H1 volume at the time that the snapshot was created.

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim` *`char`*, where *`char`* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r ***number***
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of `1` - `100`. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

-group ***snapshot_group_name***
Specifies the name of the snapshot group that contains the snapshots.

session_name **| -**
Specifies the name of the Snapshot session that contains the snapshot group.

Alternatively, use a dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Listing all snapshots that are in a snapshot group in a session

The following command lists all snapshots that are in the snapshot group `snap6.snap_group_00001` for session `snap6`:

```
csmcli> lssnapshots -group snap6.snap_group_00001 snap6
```

The following output is returned:

```
Name
================================================
snap6.snap_group_00001_vol1
snap6.snap_group_00001_vol2
```

Example: Listing detailed information about the snapshots that are in a snapshot group for a session

The following command lists detailed information about the snapshots that are in snapshot group for the session `snap6`:

```
csmcli> lssnapshots -group snap6.snap_group_00001 -l snap6
```

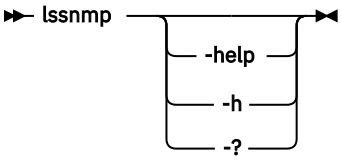
The following output is returned:

```
Name                          H1 Volume ID              Size     Size Unit
=============================================================================
snap6.snap_group_00001_vol1 XIV:VOL:7803307:115017   16.0     GiB
snap6.snap_group_00001_vol2 XIV:VOL:7803307:115018   16.0     GiB
```

lssnmp

Use the **lssnmp** command to list the SNMP managers to which the copy services management server is configured to send SNMP alerts.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

Description

The information displayed is either the domain name or the IP address of the server, depending on how you specified it.

SNMP traps are not specific to any particular session. All traps for any session are sent to each server.

For each SNMP manager, the following information is displayed:

Column label	Details
SNMP Manager	Domain name or IP address of the management server to which SNMP traps are sent
Port	The specific UDP port to which SNMP traps are sent

Example: Listing SNMP managers

The following command list the SNMP managers.

```
csmcli> lssnmp
```

The following output is returned:

```
SNMP Manager Port
================
9.11.10.1     162
127.0.0.1     163
```

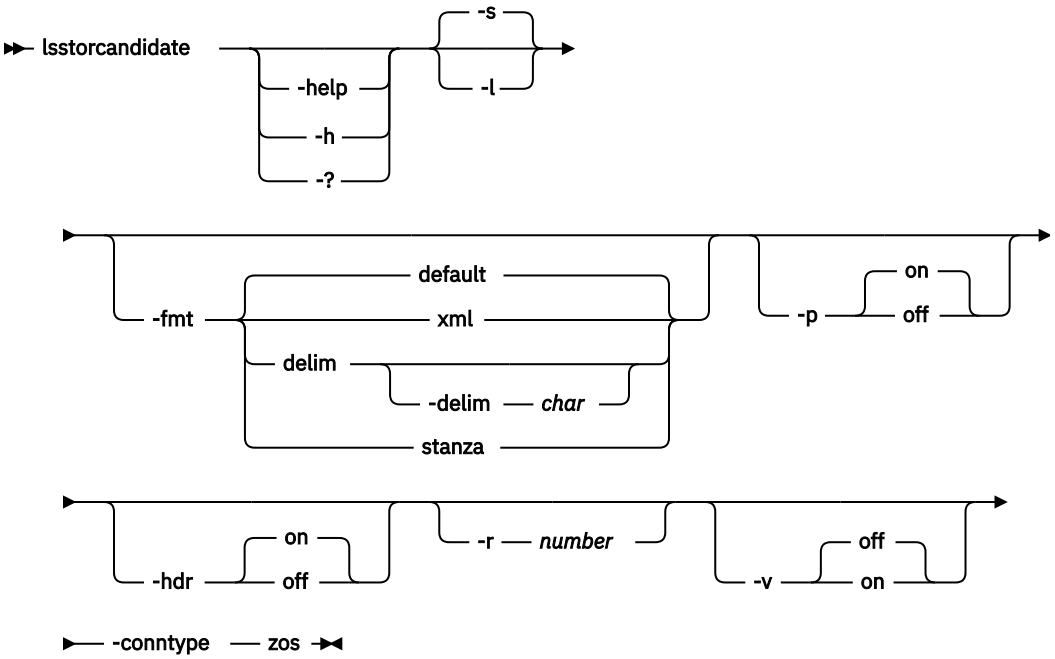
lsstorcandidate

Use the **lsstorcandidate** command to list the storage systems that can be discovered through an IBM z/OS connection. This command does not list storage systems that are already added to the copy services management server configuration.

To list storage systems that are already in the configuration, use the **lsdevice** command.

You can run the **lsstorcandidate** command only from a copy services management server that is installed on a system that is running the z/OS operating system.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s | -l
Specifies that the following information is displayed for each storage system:

Column Label	Details
Device ID	The storage system ID.
Manufacturer	The manufacturer of the storage system.

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim` *`char`*, where *`char`* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r ***number***
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of `1` - `100`. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

-conntype zos
Specifies the type of connection that the storage systems use. Currently, you can specify only `zos` for a z/OS connection.

Example: Listing candidate storage systems

The following command lists candidate storage systems:

```
csmcli> lsstorcandidate -conntype zos
```

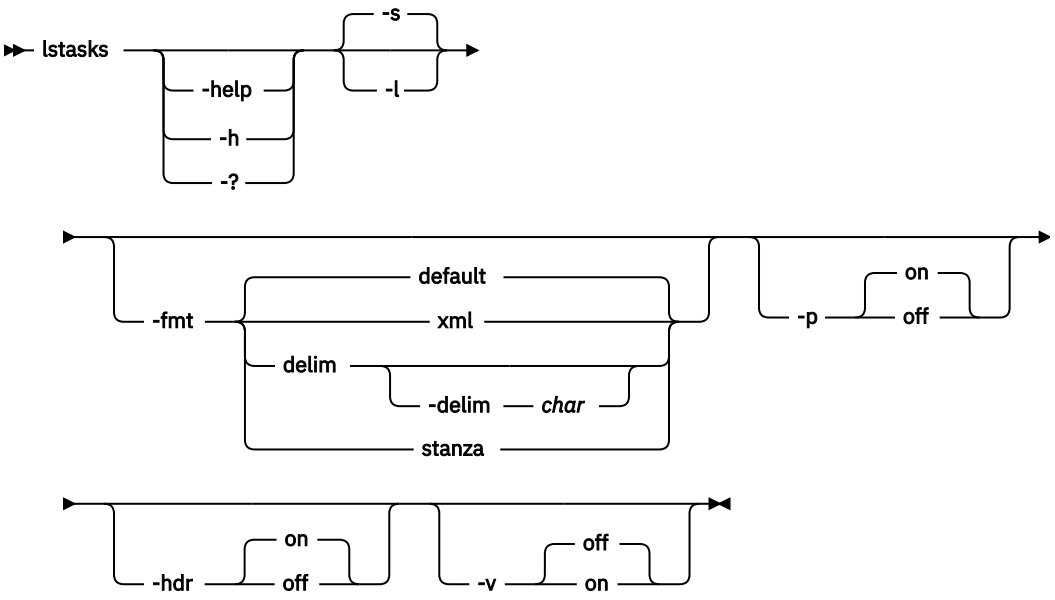
The following output is returned:

```
Device ID              Manufacturer
==================================
ESS:BOX:2105.12345     IBM
```

lstasks

Use the **lstasks** command to display a list of scheduled tasks.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s
Displays default information, including: ID, Name, and Status.

-l
Displays detailed information, including:

Column label	Details
ID	Identification for the scheduled task
Name	User defined name for the scheduled
Status	Status for the scheduled task
Schedule	How often the task is scheduled to run
Next Run Time	Time the task is scheduled to run next
Last Run Time	Last time the task ran
Last Message	Last message for the task

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim` *char*, where *char* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

Example: Listing tasks for a given session

```
csmcli> lstasks
```

The following output is returned:

```
ID   Name                    Status
=======================================
1    Backup SGC              disabled
2    Flash GM sessions       running
3    Suspend MM sessions     enabled
4    Suspend GM sessions     enabled
```

```
csmcli> lstasks -l
```

The following output is returned:

```
ID  Name                Status    Schedule                Next Run
Time
================================================================================
=
1   Backup SGC          disabled  No Schedule
-
2   Flash GM sessions   running   Every 2 hours           2018-07-23
12:20:00.008-0500
3   Suspend MM sessions enabled   09:40AM [CST] [SUN,TUE] 2018-07-23
10:00:00.008-0500
4   Suspend GM sessions enabled   No Schedule
-

Last Run Time                Last Result
=====================================
-                            IWNR2205I
2018-07-23 10:20:00.008-0500 IWNR2205I
-                            IWNR2205I
-                            IWNR2205I
```

lsvol

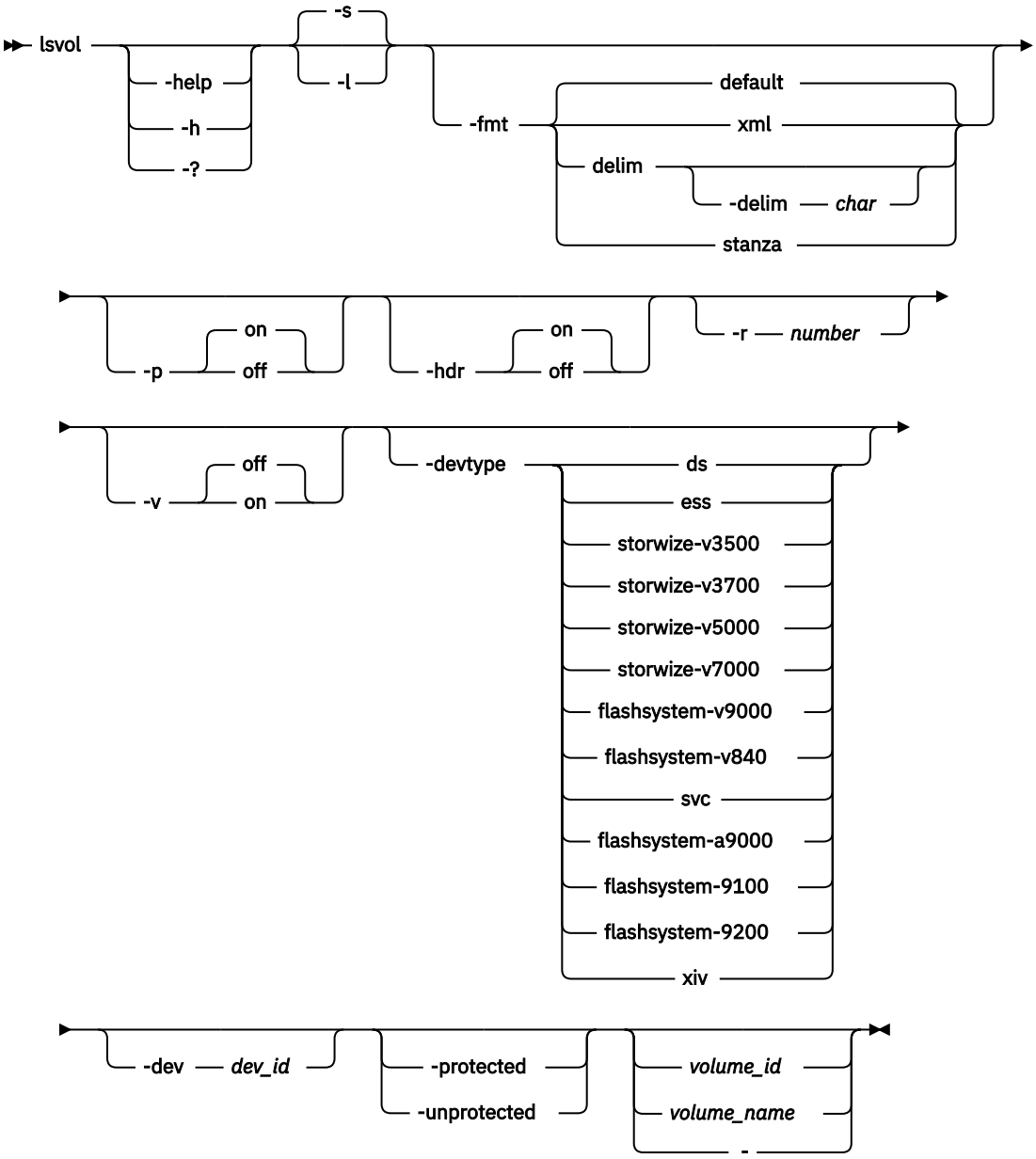
Use the **lsvol** command to display detailed information about volumes.

You can use the **lsvol** command to:

- Choose available volumes for copy sets.
- View properties of volumes such as capacity, type, and whether a volume is space efficient or protected.

Important: If you issue the **lsvol** command without parameters, a list of all the volumes for all storage systems is displayed. The processing of the command can take minutes or hours depending on the size of your environment. Press Enter to continue listing the output or press Ctrl+C to discontinue.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s
Displays default information for each volume, including the name, ID, device, manufacturer, volume type, and whether the volume is protected and space efficient.

-l
Displays the following detailed information for each volume.

Column Label	Details
Name	The volume name.

Column Label	Details
ID	The volume ID. The volume ID is displayed regardless of whether you provide the volume ID or name for the volume parameter.
Device	The ID of the storage system
Manufacturer	The manufacturer of the storage system. Currently, only IBM storage systems are supported.
Type	The values CKD for count key data or FB for fixed block. The value that is displayed depends on the storage system type.
Protected	Yes if the volume is protected. No if the volume is not protected.
Space Efficient	Yes if the volume is a space-efficient volume.No if the volume is not a space-efficient volume.
Format	Volume format
LSS/IO Group/Pool	The logical subsystem (LSS), IO group, or pool. The value that is displayed depends on the storage system type.
Size	The volume size.
Size Unit	The unit of measure that the capacity is given in, either gigabytes or cylinders.
Is Z Attached	Identifies whether the volumes are connected through an IBM z/OS connection.
Locked	Indicates whether the volume is locked. Applies only to FlashSystem/IBM Spectrum Accelerate.
Device number	Indicates the device number.

-fmt { default | xml | delim | stanza }
Specifies the format of the output. You can specify one of these values:

default
Specifies that the output is displayed in tabular format using spaces as delimiters between columns. This is the default value.

xml
Specifies that the output is displayed in XML format.

delim
Specifies that output is displayed in a tabular format using commas as delimiters between columns.

To use a character other than a comma as the delimiter, specify `-fmt delim -delim` *char*, where *char* represents the character that you want to use as the delimiter. For example, if you want to use a colon (:) as the delimiter, use the following `-fmt` parameter:

```
-fmt delim -delim :
```

If you use a shell metacharacter as the delimiting character, enclose the character in quotation marks or single quotation marks. A blank space is not a valid character.

stanza
Specifies that the output is displayed as one keyword-value pair per line.

-p { on | off }
Specifies whether to display one page of text at a time or all text at once.

on
Displays one page of text at a time. Pressing any key displays the next page. This is the default value when the command is run in interactive mode.

off
Displays all text at once. This is the default value when the command is run in single-shot mode.

-hdr { on | off }
Specifies whether to display the table header. You can specify one of these values:

on
Displays the table header. This is the default value.

off
Hides the table header.

-r ***number***
Specifies the number of rows per page to display when the `-p` parameter is specified. You can specify a value of 1 - 100. The default value is 22.

-v { on | off }
Specifies whether to enable verbose mode. You can specify one of these values:

on
Enables verbose mode.

off
Disables verbose mode. This is the default value.

-devtype { ds | ess | storwize-v3500 | storwize-v3700 | storwize-v5000 | storwize-v7000 | flashsystem-v9000 | flashsystem-v840 | svc | flashsystem-a9000 | flashsystem-9100| flashsystem-9200| xiv }
Specifies volumes by storage system type. The parameter values are:

- **ds**: IBM DS8000
- **ess**: IBM TotalStorage Enterprise Storage Server Model 800
- **storwize-v3500**: IBM Storwize V3500
- **storwize-v3700**: IBM Storwize V3700
- **storwize-v5000**: IBM Storwize V5000
- **storwize-v7000**: IBM Storwize V7000 and IBM Storwize V7000 Unified
- **flashsystem-v9000**: IBM FlashSystem V9000
- **flashsystem-v840**: IBM FlashSystem V840
- **svc**: IBM System Storage SAN Volume Controller
- **flashsystem-a9000:** IBM FlashSystem A9000
- **flashsystem-9100:** IBM FlashSystem 9100
- **flashsystem-9200:** IBM FlashSystem 9200
- **xiv**: The FlashSystem/IBM Spectrum Accelerate

-dev ***dev_ id***
Specifies volumes by storage system ID.

-protected
Specifies that only protected volumes, or volumes that cannot be used in an add copy set action, are shown.

-unprotected
Specifies that only unprotected volumes, or volumes that can be used in an add copy set action, are shown.

***volume_id* | *volume_name* | -**
Specifies the volume for which data is listed. The same volume can be in multiple groups but not multiple pools.

For IBM DS8000 and TotalStorage Enterprise Storage Server Model 800 storage systems, use the volume ID for this parameter.

For other storage systems, you can use the volume ID or name for this parameter.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Listing volumes for a specific storage system

The following command lists information about all volumes in the storage system with ID `DS8000:BOX:2107.02191`.

```
csmcli> lsvol -devtype ds -dev DS8000:BOX:2107.02191
```

The following output is returned:

```
Name    ID                          Device     Manufacturer Type     Protected Space Efficient
=============================================================================================
8K410F  DS8000:2107.02191:VOL:010F 2107-02191 IBM          CKD      No        No
8K410E  DS8000:2107.02191:VOL:010E 2107-02191 IBM          CKD      No        No
8K410D  DS8000:2107.02191:VOL:010D 2107-02191 IBM          CKD      No        No
```

Example: Listing protected volumes for all storage systems

The following command lists information about all protected volumes.

```
csmcli> lsvol -protected
```

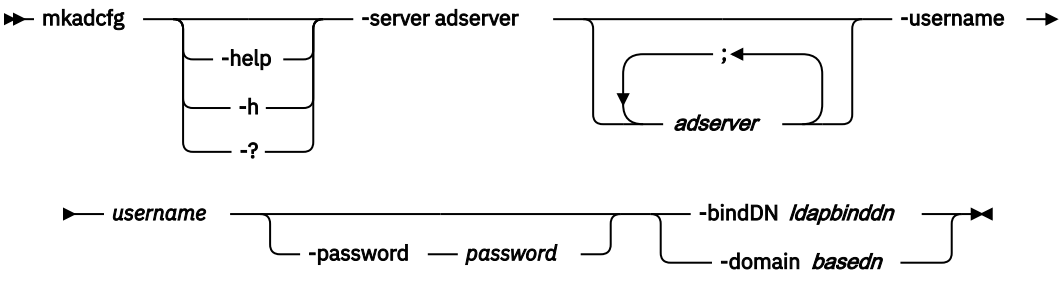
The following output is returned:

```
Name    ID                          Device     Manufacturer Type     Protected Space Efficient
=============================================================================================
8K9005  DS8000:2107.LT742:VOL:0005 2107-LT742 IBM          CKD      Yes       No
8K9004  DS8000:2107.LT742:VOL:0004 2107-LT742 IBM          CKD      Yes       No
8K9003  DS8000:2107.LT742:VOL:0003 2107-LT742 IBM          CKD      Yes       No
```

mkadcfg

Use the **mkadcfg** command to configure the Active Directory server-based authentication.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-server *adserver*
Specifies the Active Directory servers. The input format is *adservername*:*port*, for example, adServer1:636 or for entering an IPv6 address with port, [0:0:0:0:0:0:0:1]:636. Multiple backup Active Directory servers can be specified by using a semicolon to separate each server. If a port is not specified, the default port that is used is 389.

-username *username*
Specifies the user name that is required for accessing the Active Directory domain. Any domain user from the Active Directory server that is identified by the server parameter can be specified for this operation.

-password *password*
Specifies the password of the user who is specified with the **username** parameter. To hide the password, call the command without this option. The command prompts for the password, which will not be echoed.

-baseDN
Specifies the search base for users and groups.

-domain *domain*
Specifies the search base for users and groups. This option is kept for legacy reasons and functions the same as **-baseDN.**

Note: The parameters **-domain** and **-baseDN** in the CLI are equivalent.

Example: Establishing an Active Directory server configuration

```
csmcli> mkadcfg -server ADserver1.ibm.com:1234 -username admin -password
passw0rd -baseDN cn=users,dc=ibm,dc=com

OR

csmcli> mkadcfg -server ADserver1.ibm.com:1234 -username admin -password
passw0rd -domain cn=users,dc=ibm,dc=com
```

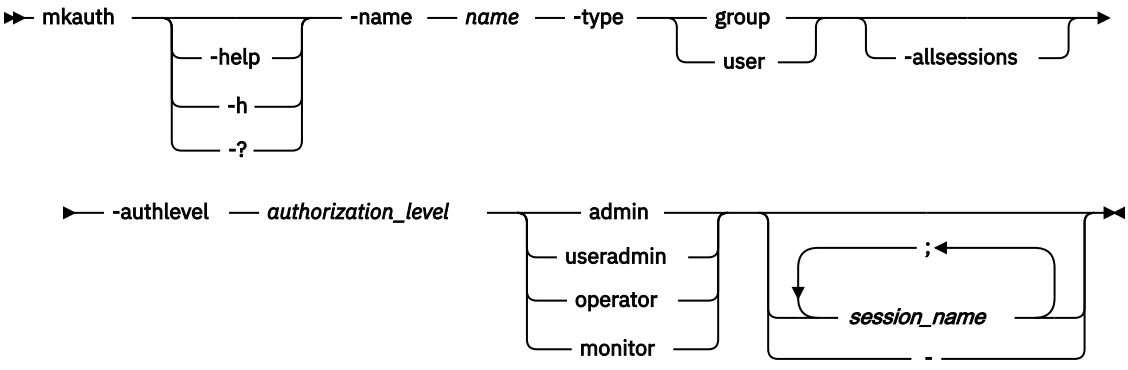
The following output is returned:

```
IWNR4950I [Aug 11, 2015 9:28:06 AM] Successfully updated the LDAP
configuration.
```

mkauth

Use the **mkauth** command to grant monitor, administrator, user administrator, or operator authorization to a user. (This command will not remove authorization for an existing user.)

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-name *name*
Specifies a user ID or group name to which you grant authorization.

-type group | user
Specifies whether the name is of a group or user.

-allsessions
When `authlevel` is set to operator, this option indicates that the user will be authorized to manage all existing and future sessions. When set all session names specified will be ignored. The option will be ignored for all other `authlevel` values.

-authlevel ***authorization_level*** **admin | useradmin | operator | monitor**
Specifies the authorization level: `admin`, `useradmin`, `operator`, or `monitor`.

session_name **|** **-**
Use this optional parameter when you are assigning operator authorization to a user and want to specify one or more sessions to which the operator has access. This parameter does not apply to monitors, user administrators, or administrators.

To specify multiple sessions, use a semicolon (;) to separate the session names.

If you specify `-authlevel operator` but do not specify a session name, the user is not granted operator status to any of the existing sessions but is granted permission to create new sessions.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). You can specify multiple session names from `stdin` when the dash (-) is specified. The dash is supported only in single-shot mode.

Example: Adding a group with monitor privileges

The following command grants monitor authorization to the user named `csmgroup`.

```
csmcli> mkauth -name csmgroup -type group -authlevel monitor
```

The following output is returned:

```
IWNR4018I  Successfully granted the monitor role to csmgroup.
```

Example: Adding a user with operator privileges

The following command grants operator authorization to the user named `csmuser`.

```
csmcli> mkauth -name csmuser -type user -authlevel operator session1
```

The following output is returned:

```
IWNR4016I  Successfully granted the session operator role to csmuser.
```

Example: Adding the Superuser group

The following command adds the Superuser group to the Administrator role.

```
csmcli> mkauth -name Superuser -type group -authlevel admin
```

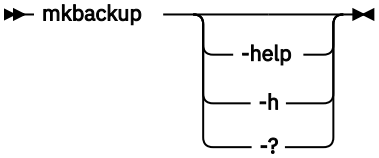
The following output is returned:

```
IWNR4017I  Successfully granted the administrator role to Superuser.
```

mkbackup

Use the mkbackup command to create a backup of the configuration data (including storage systems, sessions, and copy sets) in the zero-administration embedded repository.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

Description

Prerequisites:

- You must have Administrator privileges to run this command.
- The user ID that was used to create the backup file must exist on the management server that is being restored.

By default, the backup file is stored in the following location:

Copy Services Manager for Distributed Systems
path_prefix\liberty\wlp\usr\servers\csmServer\properties

Copy Services Manager for z/OS Systems
path_prefix/opt/IBM/CSM/wlp/usr/servers/csmServer/properties

You can change the default location by editing the **db.backup.location** property in the rmserver.properties file, which is in the following location:

Copy Services Manager for Distributed Systems
path_prefix\liberty\wlp\usr\servers\csmServer\properties

Copy Services Manager for z/OS Systems
path_prefix/opt/IBM/CSM/wlp/usr/servers/csmServer/properties

You can use the backup file to restore the zero-administration embedded repository on a management server that is running on a different operating system.

Example: Backing up configuration data on a Windows operating system

The following command backs up the configuration data.

```
csmcli> mkbackup
```

The following output is returned:

```
IWNR1905I Backup of internal data store completed successfully.
The following file was created: C:\Program Files\IBM\CSM\wlp\usr\servers\
csmServer\database\backup\csmBackup_20120825_120138984.zip
```

Example: Backing up configuration data on the IBM z/OS operating system

The following command backs up the configuration data.

```
csmcli> mkbackup
```

The following output is returned:

```
IWNR1905I Backup of internal data store completed successfully.
The following file was created: /SYSTEM/opt/CSM/wlp/usr/servers/
csmServer/database/backup/csmBackup_20120825_120138984.zip
```

mkcpset

Use the **mkcpset** command to create copy sets.

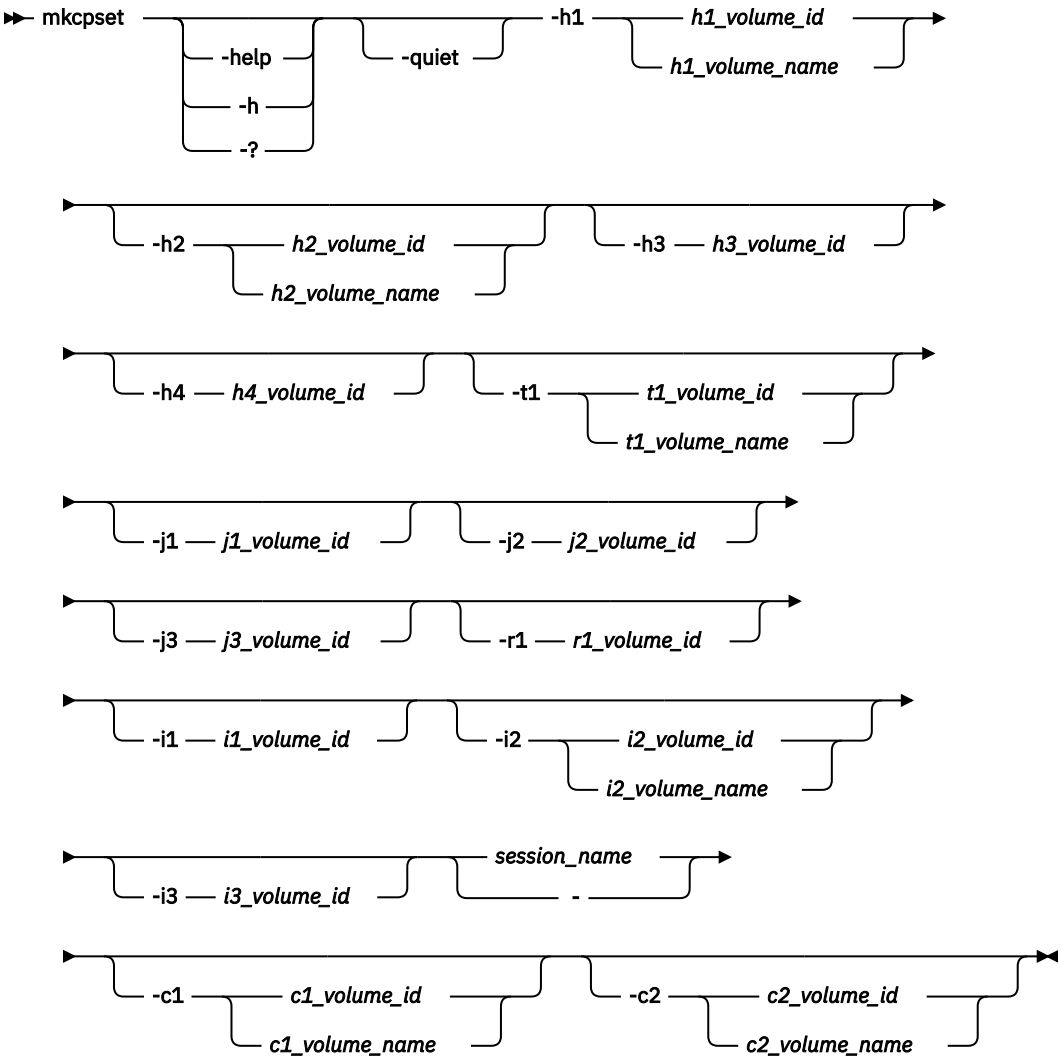
When you run the **mkcpset** command for sessions other than FlashSystem/IBM Spectrum Accelerate Snapshot, you can specify both the host volume and target volume for the copy set. For Snapshot sessions, specify only the host volume for the copy set. The target volume for a Snapshot session is automatically created when the snapshot is created.

For IBM DS8000 and IBM TotalStorage Enterprise Storage Server Model 800 storage systems, you must use the volume ID to specify a volume. For other storage systems, you can use the volume ID or a user-defined name as shown in the examples that are at the end of this topic. You specify the name for the volume by using the user interface for the storage system.

The types of volumes that you can specify for a copy set depend on the storage system and session type.

Tip: To display the status of volumes in a copy set, use the **lsvol** command.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

-h1 {*h1_volume_id* | *h1_volume_name*}
Specifies the host volume for the copy set at site 1.

-h2 {*h2_volume_id* | *h2_volume_name*}
Specifies the host volume for the copy set at site 2.

-h3 *h3_volume_id*
Specifies the host volume for the copy set at site 3.

-h4 *h4_volume_id*
Specifies the host volume for the copy set at site 4.

-t1 {*t1_volume_id* | *t1_volume_name*}
Specifies the target volume for the copy set at site 1.

-j1 ***j1_volume_id***
Specifies the journal volume for the copy set at site 1.

-j2 ***j2_volume_id***
Specifies the journal volume for the copy set at site 2.

-j3 ***j3_volume_id***
Specifies the journal volume for the copy set at site 3.

-i1 ***i1_volume_id***
Specifies the intermediate volume for the copy set at site 1.

-i2 **{*i2_volume_id* | *i2_volume_name*}**
Specifies the intermediate volume for the copy set at site 2.

-i3 ***i3_volume_id***
Specifies the intermediate volume for the copy set at site 3.

-c1 **{*c1_volume_id* | *c1_volume_name*}**
Specifies the change volume for the copy set at site 1.

-c2 **{*c2_volume_id* | *c2_volume_name*}**
Specifies the change volume for the copy set at site 2.

-r1 ***r1_volume_id***
Specifies the recovery volume for the copy set at site 1.

***session_name* | -**
Specifies the name of the session that contains the copy sets.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

When you run Metro Global Mirror on the OMVS command line, the parameters for the **mkcpset** command can exceed the character limit that is set by the OMVS prompt. To overcome this limitation, create a script file that is called `mgm_mkcpset.txt` that contains the command that you want to issue. For example:

```
csmcli> mkcpset -h1 DS8000:2107.12345:VOL:0000 -h2 DS8000:2107.67890:VOL:0000
-h3 DS8000:2107.02468:VOL:0000 -J3 DS8000:2107.01934:VOL:0000 myMGMSess
```

To run the script, you must ensure that you are in the `CLI` directory and have the appropriate paths exported. You then run the script from the command line by using the following sample code:

```
csmcli.sh -script mgm_mkcpset.txt
```

Example: Creating a copy set for an IBM DS8000 FlashCopy session by using the volume ID

The following command creates a copy set for a FlashCopy session that is named `session1`. The host volume at site 1 is `DS8000:2107.04131:VOL:0A05` and the target volume is `DS8000:2107.04131:VOL:0A06`.

```
csmcli> mkcpset -h1 DS8000:2107.04131:VOL:0A05 -t1 DS8000:2107.04131:VOL:0A06
session1
```

The following output is returned:

```
IWNR1000I  Copy sets were successfully created for the session
named session1.

IWNR2001I  The pair, the ID of the source volume and the ID of the target volume,
was created in the session named session1 for the copy set with a
volume ID of DS8000:2107.04131:VOL:0A05, a source volume ID of
DS8000:2107.04131:VOL:0A05, and a target volume ID of DS8000:2107.04131:VOL:0A06.
```

Example: Creating a copy set for an IBM Storwize V7000 FlashCopy session by using the volume ID

The following command creates a copy set for a FlashCopy session that is named session2. The host volume at site 1 is STORWIZE-V7000:VOL:FREEBIRD2:7 and the target volume is STORWIZE-V7000:VOL:FREEBIRD2:8.

```
csmcli> mkcpset -quiet -h1 STORWIZE-V7000:VOL:FREEBIRD2:7 -t1
STORWIZE-V7000:VOL:FREEBIRD2:8 session2
```

The following output is returned:

```
IWIWNR2001I The pair was created in session session2 for copy set
with a copy set ID of STORWIZE-V7000:VOL:FREEBIRD2:7,
with a source volume ID of STORWIZE-V7000:VOL:FREEBIRD2:7(myvolume1),
and a target volume ID of STORWIZE-V7000:VOL:FREEBIRD2:8(myvolume2).
```

Example: Creating a copy set for a Storwize V7000 FlashCopy session by using the volume name

The following command creates a copy set for a FlashCopy session that is named session2. The host volume at site 1 is STORWIZE-V7000:VOL:FREEBIRD2:myvolume1 and the target volume is STORWIZE-V7000:VOL:FREEBIRD2:myvolume2.

```
csmcli> mkcpset -quiet -h1 STORWIZE-V7000:VOL:FREEBIRD2:myvolume1 -t1
STORWIZE-V7000:VOL:FREEBIRD2:myvolume2 session2
```

The following output is returned:

```
IWIWNR2001I The pair was created in session session2 for copy set
with a copy set ID of STORWIZE-V7000:VOL:FREEBIRD2:7,
with a source volume ID of STORWIZE-V7000:VOL:FREEBIRD2:7(myvolume1),
and a target volume ID of STORWIZE-V7000:VOL:FREEBIRD2:8(myvolume2).
```

Example: Creating a copy set for an FlashSystem/IBM Spectrum Accelerate Snapshot session by using the volume ID

The following command creates the volume XIV:VOL:6000646:110789 for an FlashSystem/IBM Spectrum Accelerate Snapshot session that is named session3.

```
csmcli> mkcpset -h1 XIV:VOL:6000646:110789 session3
```

The following output is returned:

```
IWNR1000I Copy sets were created for the session named session3.
```

Example: Creating a copy set for an FlashSystem/IBM Spectrum Accelerate Snapshot session by using the volume name

The following command creates the volume XIV:VOL:6000646:myvolume for an FlashSystem/IBM Spectrum Accelerate Snapshot session that is named session3.

```
csmcli> mkcpset -h1 XIV:VOL:6000646:myvolume session3
```

The following output is returned:

```
IWNR1000I Copy sets were created for the session named session3.
```

Example: Creating a copy set for a SAN Volume Controller Global Mirror Failover/Failback with Change Volumes session

The following command creates a copy set for a Global Mirror Failover/Failback with Change Volumes session that is named session4. The host volume at site 1 is SVC:VOL:NYSVC08:1010 and the host change volume is SVC:VOL:NYSVC08:1011. The target volume is SVC:VOL:NYSVC08:1012 and the target change volume is SVC:VOL:NYSVC08:1013.

```
csmcli> mkcpset -h1 SVC:VOL:NYSVC08:1010 -c1 SVC:VOL:NYSVC08:1011
-h2 SVC:VOL:NYSVC08:1012 -c2 SVC:VOL:NYSVC08:1013 session4
```

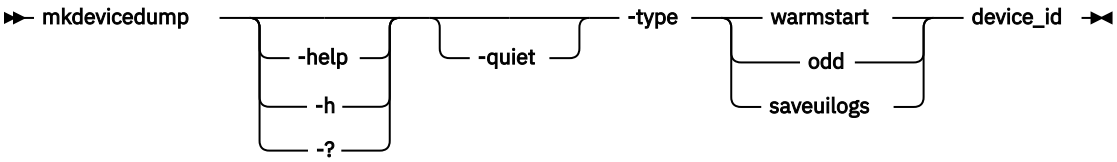
The following output is returned:

```
IWNR2001I The pair was created in session session4 for
copy set with a copy set ID of SVC:VOL:NYSVC08:1010,
with a source volume ID of SVC:VOL:NYSVC08:1010(tvdisk2010),
and a target volume ID of SVC:VOL:NYSVC08:1012(tvdisk2012).
```

mkdevicedump

Use the **mkdevicedump** command to collect diagnostic information on a storage device. The only storage devices currently supported by this command are DS8000 devices using an HMC connection. Users with administrator authority who have administrator or service authorization on the HMC can issue the **mkdevicedump** command through the HMC connection.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

-type warmstart | odd |saveuilogs
Specifies the type of diagnostic information to collect on a storage device.

warmstart
The **-type warmstart** parameter initiates a warmstart on the storage system, which causes the storage system to collect a state save that is useful in diagnosing problems. This action should only be used under the direction of your technical support representative. This action is restricted to the following usage rules enforced by the storage system and not the server:

- Five minutes must pass before you can reissue the **-type warmstart** parameter.
- If you enter the **-type warmstart** parameter more than 10 times during a 24-hour period, the warmstart does not collect the microcode diagnostic data.

odd
The **-type odd** parameter initiates an "on-demand dump" request.

saveuilogs
The **-type saveuilogs** parameter initiates a statesave for the UI log data of the storage system.

device_id | -
Specifies the ID of the storage system that you want to collect diagnostic data on.

Tip: To list the valid storage system IDs, use the **lsdevice** command.

Example: Issuing a warmstart on an IBM DS8000

The following command refreshes the storage system DS8000:BOX:2107.02341 before the command has completed.

```
csmcli> mkdevicedump -type warmstart DS8000:BOX:2107.02341
```

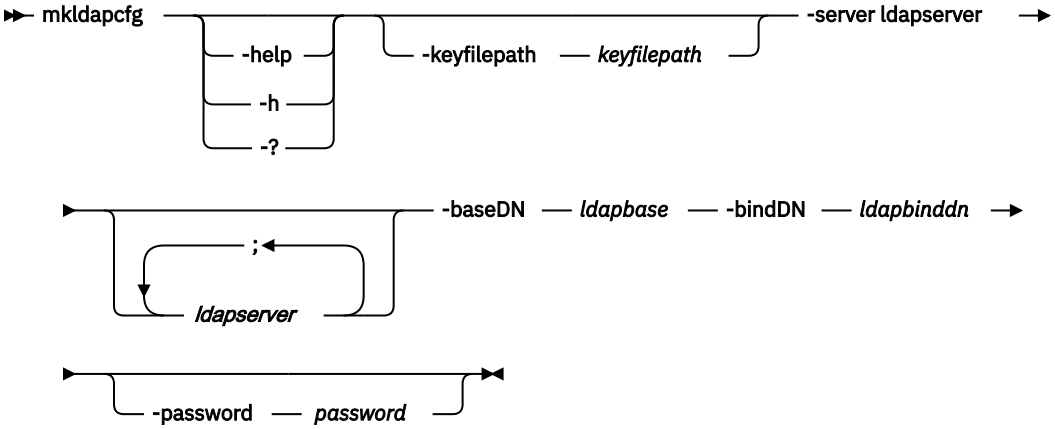
The following output is returned when command has been submitted and accepted by the server:

```
This command initiates a warmstart on the storage image, which causes the
storage image to collect microcode data that is useful in diagnosing problems.
Do you want to continue? [y/n]:y
IWNH2000I [Aug 18, 2017 2:18:20 PM] The create state save command with warmstart option succeeded
for storage system 2107.BAY81.
option succeeded for storage system 2107.BAY81.
```

mkldapcfg

Use the **mkldapcfg** command to configure an LDAP server based authentication.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-keyfilepath ***keyfilepath***
Specifies the absolute path of the key file that holds the CA certificate. If multiple certificates are required then include all of them in a single file to be provided as input. The file should be present on the system from which **mkldapcf** is initiated. This parameter is optional.

Note: For information on how to create a file with multiple certificates, see the topic "Creating a file with multiple certificates for LDAP configuration" in the online help information at IBM Copy Services Manager online product documentation (http://www.ibm.com/support/knowledgecenter/SSESK4).

-server ***ldapserver***
Specifies the LDAP servers. The input format is *ldapservername*:*port*, for example, `ldapserver1:636` or for entering an IPv6 address with port, `[0:0:0:0:0:0:0:1]:636`. Multiple backup LDAP servers can be specified by using a semicolon to separate each server. Multiple LDAP servers must be replicas of the primary LDAP server, or they can be any LDAP host with the same schema, which contain data that is mirrored from the same LDAP Data Interchange Format (LDIF) file. If a port is not specified, the default ports used are 389 and 636 for ldap:// and ldaps://, respectively.

-baseDN ***ldapbase***
Specifies the LDAP base DN.

-bindDN ***bindDN***
Specifies the binding DN of an LDAP user who has sufficient permissions to read user data.

-password ***password***
Specifies the password of the user specified with **bindDN** parameter. To hide the password, call the command without this option. The command will prompt for the password which will not be echoed.

Example: Establishing an LDAP server configuration without security

```
csmcli> mkldapcfg -server ldapserver.ibm.com:1234
 -bindDN cn=root -baseDN ou=test,o=ibm,c=us -password passw0rd
```

The following output is returned:

```
IWNR4950I [Aug 11, 2015 8:45:21 AM] Successfully updated the
 LDAP configuration.
```

Establishing an LDAP server configuration with security

```
csmcli> -server ldapserver.ibm.com:1234 -bindDN cn=root
 -baseDN ou=test,o=ibm,c=us -keyfilepath c:\security\ldap.crt
```

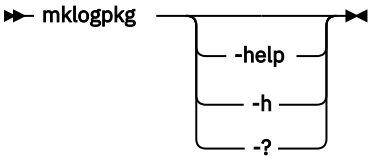
The following output is returned:

```
Please enter a password:>
An LDAP configuration already exists. Are you sure you want to replace
 it?  [y/n]:y
IWNR4950I [Aug 11, 2015 8:45:21 AM] Successfully updated the LDAP
 configuration.
```

mklogpkg

Use the **mklogpkg** command to create a log package. The log package is written to the file that is specified in the *csm_install_directory*\wlp\usr\servers\csmServer\properties\Diagnostics.properties file.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

Example: Creating a log package on a Windows operating system

The following command creates a log package.

```
csmcli> mklogpkg
```

The following output is returned:

```
IWNR1198I  Log packages were successfully created and placed at
location C:\Program Files\IBM\CSM\wlp\usr\servers\csmServer\properties\
CSM-csm-1234_2012-10-29_11-11-02.jar
```

Example: Creating a log package on the IBM z/OS operating system

The following command creates a log package.

```
csmcli> mklogpkg
```

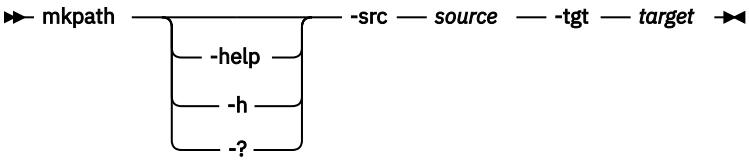
The following output is returned:

```
IWNR1198I  Log packages were successfully created and placed at
location /SYSTEM/opt/CSM/RM/wlp/usr/servers/csmServer/properties/
CSM-csm-1234_2012-10-29_11-11-02.jar
```

mkpath

Use the **mkpath** command to create a Fibre Channel path or paths between a source logical subsystem (LSS) and a target LSS.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-src ***source***
Specifies the source LSS and port (ESS and DS series storage servers). This must be specified in the format *type.serial.lss(hex).port(hex)* (for example, ESS:2105.FCA18:LSS:10.00FF).

-tgt ***target***
Specifies the target LSS and port (ESS and DS series storage servers). This must be specified in the format *type.serial.lss(hex).port(hex)* (for example, ESS:2105.FCA18:LSS:10.00FF).

Description

The `mkpath` command uses the information from the `lslss` command to create a path or paths between the source LSS and the target LSS. You can specify a number of paths to create between 1 and 8.

Notes:

- This command creates new paths in addition to paths that already exist between the two specified LSSs.
- Only Fibre Channel paths are supported for ESS and DS series storage servers.
- You must verify the ports that are to be used in the path.
- For DS series storage servers, the plant of manufacturer must be added to the beginning of the serial number, making the serial number a seven-digit number.
- If you specify a number of paths greater than the number of available paths, existing paths are overwritten.

Example: Creating Fibre Channel paths

The following command creates a Fibre Channel path between the source LSS `ESS:2105.20870:12.1` and target LSS `ESS:2105.20870:14.2`.

```
csmcli> mkpath –src ESS:2105.20870:12.1 –tgt ESS:2105.20870:14.2
```

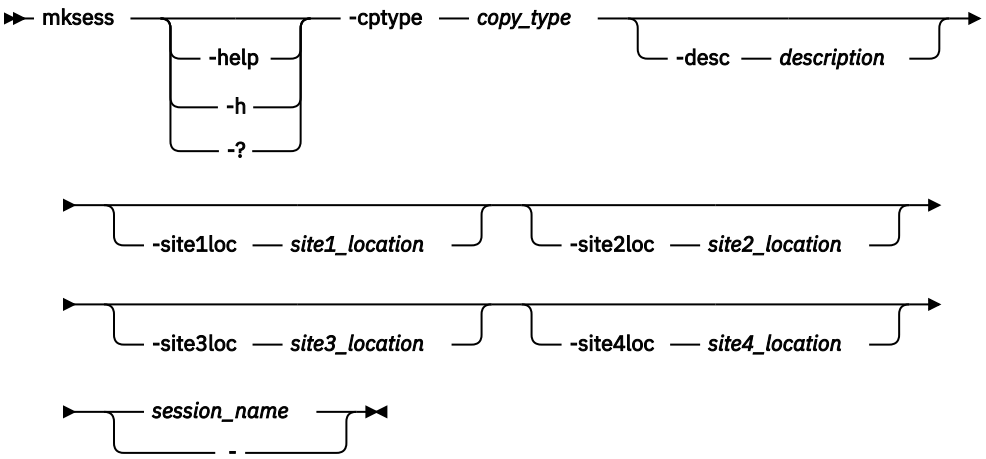
The following output is returned:

```
Path successfully created.
```

mksess

Use the **mksess** command to create a session.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-cptype ***copy_type***
Specifies the session type. The storage systems that are available for a session differ by session type. The following parameter values are listed by storage system type.

IBM TotalStorage Enterprise Storage Server Model 800, and IBM DS8000

- `fc`: FlashCopy
- `sgc`: Safeguarded Copy
- `hs`: Basic HyperSwap
- `mmsd`: Metro Mirror Single Direction
- `mmfofb`: Metro Mirror Failover/Failback
- `pmm`: Metro Mirror Failover/Failback with Practice
- `mm_mm`: Metro Mirror - Metro Mirror (This session type is available only for IBM DS8000 storage systems with a microcode level that supports single source to multi-target relationships. To determine whether you can use this session type, refer to the IBM DS8000 documentation for the microcode level that you are using.)
- `gmsd`: Global Mirror Single Direction
- `gmfofb`: Global Mirror Failover/Failback
- `gm2s`: Global Mirror Either Direction
- `pgm`: Global Mirror Failover/Failback with Practice
- `pgm2s`: Global Mirror Either Direction with Two Site Practice
- `mgm`: Metro Global Mirror
- `pmgm`: Metro Global Mirror with Practice
- `mm_gm`: Metro Mirror - Global Mirror
- `mm_gmp`: Metro Mirror - Global Mirror w/ Practice
- `mm_gm_s3gm`: Metro Mirror - Global Mirror w/ Site 3 Global Mirror

- `mm_gm_4s`: Metro Mirror - Global Mirror w/ Site 4 Replication
- `mm_mm_4s`: Metro Mirror - Metro Mirror w/ Site 4 Replication

IBM Storwize V3500

- `fc`: FlashCopy

IBM SAN Volume Controller, IBM Storwize V7000, IBM Storwize V7000 Unified, IBM Storwize V5000, IBM Storwize V3700, IBM FlashSystem V840, IBM FlashSystem V9000, IBM FlashSystem 9100, IBM FlashSystem 9200

- `fc`: FlashCopy
- `mmsd`: Metro Mirror Single Direction
- `mmfofb`: Metro Mirror Failover/Failback
- `pmmsvc`: Metro Mirror Failover/Failback with Practice
- `gmsdsvc`: Global Mirror Single Direction
- `gmfofbsvc`: Global Mirror Failover/Failback
- `pgmsvc`: Global Mirror Failover/Failback with Practice
- `gmcvsvc`: Global Mirror Failover/Failback with Change Volumes

FlashSystem/IBM Spectrum Accelerate

- `snap`: Snapshot
- `mmfofbxiv`: Metro Mirror Failover/Failback
- `gmfofbxiv`: Global Mirror Failover/Failback
- `mm_gm_xiv`: Metro Mirror - Global Mirror

-desc ***description***
Specifies a description for the session. The description can have up to 250 alphanumeric characters.

-site1loc
Specifies a location to associate with the *site 1* volume role.

-site2loc
Specifies a location to associate with the *site 2* volume role.

-site3loc
Specifies a location to associate with the *site 3* volume role.

-site4loc
Specifies a location to associate with the *site 4* volume role.

***session_name* | -**

Specifies a name for the session. For sessions that contain an FlashSystem/IBM Spectrum Accelerate, the session name can have up to 58 alphanumeric characters. For sessions that contain other storage system types, the session name can have up to 250 alphanumeric characters. Session names must be unique.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Creating a FlashCopy session

The following command creates a FlashCopy session named `session1`. The location of the site 1 volume role is `Boulder`.

```
csmcli> mksess -cptype fc -site1loc Boulder session1
```

The following output is returned:

```
IWNR1021I  Session session1 was successfully created.
IWNR1096I  The locations for sessions session1 and Site 1 were set successfully.
```

Example: Creating a Global Mirror with Practice session for IBM DS8000

The following command creates an IBM DS8000 Global Mirror with Practice session named `session1`.

```
csmcli> mksess -cptype pgm -desc "DS8000 Global Mirror with Practice" session1
```

The following output is returned:

```
IWNR1021I Session session1 was successfully created.
```

Example: Creating a Global Mirror with Practice session for SAN Volume Controller

The following command creates a SAN Volume Controller Global Mirror with Practice session named `session1`.

```
csmcli> mksess -cptype pgmsvc -desc "SVC Global Mirror with Practice" session1
```

The following output is returned:

```
IWNR1021I Session session1 was successfully created.
```

Example: Creating a Metro Global Mirror session

The following command creates a Metro Global Mirror session named `session1`.

```
csmcli> mksess -cptype mgm -desc "Metro Global Mirror" session1
```

The following output is returned:

```
IWNR1021I Session session1 was successfully created.
```

Example: Creating a Metro Mirror Failover/Failback session

The following command creates a Metro Mirror Failover/Failback session named `session1`.

```
csmcli> mksess -cptype mmfofb -desc "Metro Mirror" session1
```

The following output is returned:

```
IWNR1021I Session session1 was successfully created.
```

Example: Creating a Metro Mirror Failover/Failback session for an FlashSystem/IBM Spectrum Accelerate

The following command creates a Metro Mirror Failover/Failback session named `session1`. The location of the site 1 volume role is `Tucson` and the location of the site 2 volume role is `Chicago`.

```
 csmcli> mksess -cptype mmfofbxiv -desc "Metro Mirror F/F XIV" -site1loc Tucson
-site2loc Chicago session1
```

The following output is returned:

```
IWNR1021I  Session session1 was successfully created.
```

Example: Creating a Metro Mirror - Metro Mirror session

The following command creates a Metro Mirror - Metro Mirror session named `session1`.

```
csmcli> mksess -cptype mm_mm -desc "Metro Mirror - Metro Mirror" session1
```

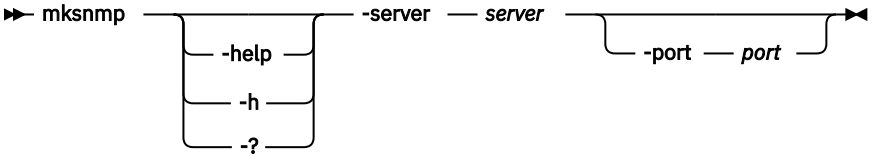
The following output is returned:

```
IWNR1021I Session session1 was successfully created.
```

mksnmp

Use the **mksnmp** command to add a specified manager to the list of servers to which SNMP traps are sent. SNMP traps are not specific to any particular session. All traps for any session are sent to each server.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-server ***server***
Specifies the IP address or domain name of the management server that is to receive SNMP traps.

-port ***port***
Specifies a port number to use for receiving SNMP traps. If not specified, the default port is 162. Valid ports are from 1 to 65535.

Example: Sending SNMP traps to a specific management server

The following command sends SNMP traps to the management server with ID `9.11.207.17` and port 2626.

```
csmcli> mksnmp -server 9.11.207.17 -port 2626
```

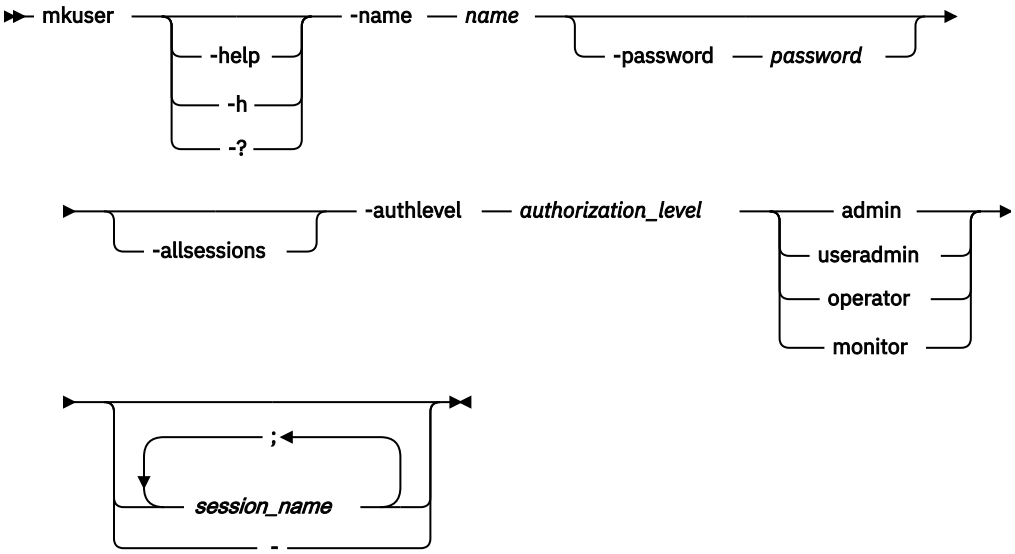
The following output is returned:

```
IWNR1701I  Host 9.11.207.17:2626 was added to the SNMP listeners list.
```

mkuser

Use the **mkuser** command to create a user in the basic user registry. This command is not available when running on a z/OS system. **Note:** This command can only be issued by a user with Administrator authority.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-name *name*
Specifies a user name you want to add to the basic user registry. The user name must not exceed 104 characters in length and cannot contain spaces, tabs, or any of the following characters: " / \ [ ] : ; | = , + * ? < > '{ } $ ^ ( ) & % #

-allsessions
When `authlevel` is set to operator, this option indicates that the user will be authorized to manage all existing and future sessions. When set all session names specified will be ignored. The option will be ignored for all other `authlevel` values.

-password *password*
Specifies the password to set for the new user. Password must be a valid set of characters. If you do not include this parameter, you will be prompted for the password. If prompted, the password will be masked and you will be prompted to confirm the password by retyping it. If the parameter is used, it will display in plain text but no additional prompting will occur. The maximum password length is 104 characters.

-authlevel *authorization_level*
Specifies the authorization level: admin, useradmin, operator, or monitor.

***session_name* | -**
Use this optional parameter when you are assigning operator authorization to a user and want to specify one or more sessions to which the operator has access. This parameter does not apply to monitors, user administrators, or administrators.

To specify multiple sessions, use a semicolon (;) to separate the session names.

If you specify -authlevel operator but do not specify a session name, the user is not granted operator status to any of the existing sessions but is granted permission to create new sessions.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). You can specify multiple session names from stdin when the dash (-) is specified. The dash is supported only in single-shot mode.

Example: Adding a new operator

The following command adds a new operator `jim` for three different sessions.

```
csmcli> mkuser -name jim -authlevel operator session1;session2;session3
```

The following output is returned:

```
Please enter the password for user jim:
Please confirm the password for user jim:
IWNR4036I Successfully added user jim to the basic user registry.
IWNR4017I Successfully granted the session operator role to jim.
```

Example: Adding a new operator

The following command adds a new operator `jim` for three different sessions.

```
csmcli> mkuser -name jim -authlevel operator session1;session2;session3
```

The following output is returned:

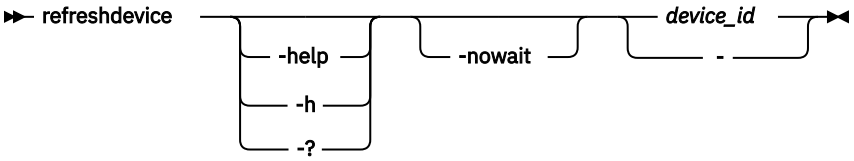
```
Please enter a password for user jim:
Please confirm the password for user jim:
IWNR4036I Successfully added user jim to the basic user registry.
IWNR4016I Successfully granted the session operator role to jim.
```

refreshdevice

Use the **refreshdevice** command refresh the volumes and configuration elements of a storage device.

You must have Administrator privileges to run this command.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-nowait

Specifies that the command response is returned when the command has been submitted and accepted by the server. The command response does not require that the command is completed.

***device_id* | -**

Specifies the ID of the storage system that you want to refresh.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Tip: To list the valid storage system IDs, use the **lsdevice** command.

Example: Refreshing an IBM DS8000 (includes the -nowait parameter)

The following command refreshes the storage system `DS8000:BOX:2107.02341` before the command has completed.

```
csmcli> refreshdevice -nowait DS8000:BOX:2107.02341
```

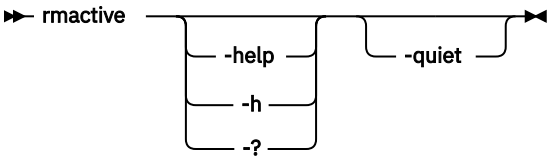
The following output is returned when command has been submitted and accepted by the server:

```
IWNH1611I A refresh of the storage configuration has completed
for the storage device DS8000:BOX:2107.02341.
```

rmactive

Use the **rmactive** command to remove an active management server.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers `yes` to all confirmation prompts.

Description

You can run the **rmactive** command only from the standby management server and only when the active and standby management servers are in a non-synchronized state (such as when they are first connecting).

When a standby and active management servers are synchronized, use the **hatakeover** command.

The **rmactive** command corresponds to the Remove Active action in the GUI. Unless the **-quiet** parameter is used, you are prompted to confirm this action.

Example: Removing the active management server

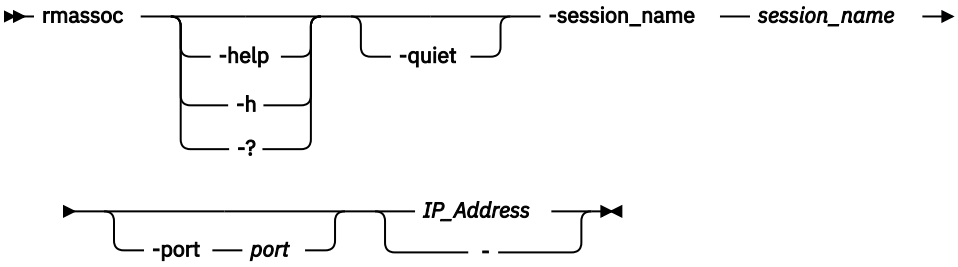
The following command removes the active management server with IP address `127.0.0.1`.

```
csmcli> rmactive -server 127.0.0.1
```

rmassoc

Use the **rmassoc** command to remove a session association from the host system; this command removes a session associated with a host system but does not remove the connection to the host system.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

-session_name ***session_name***
Specifies the name of the session to remove from the host system.

-port ***port***
Specifies the port number for the host system if the system was added with a port other than the default port 9930.

IP_Address **| -**
Specifies the IP address or host name of the host system to remove the session from.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Removing a session from a host system

The following command shows how to remove the MyMMsession session from the host system with the 9.11.223.43 IP address. In this example, you could omit the **-port** parameter because port 9930 is the default.

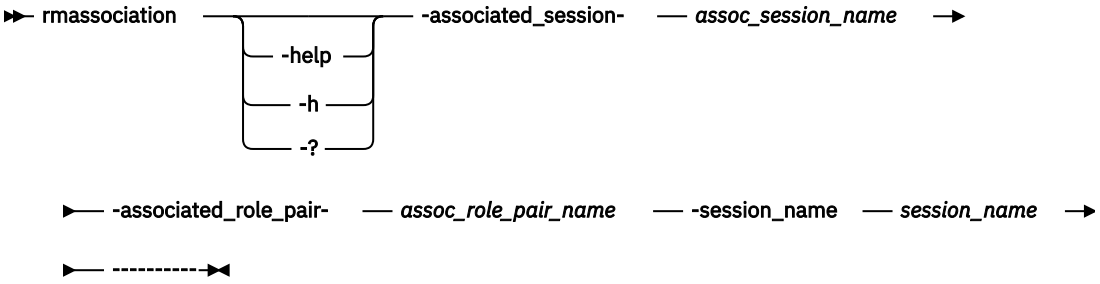
```
csmcli> rmassoc -session_name MyMMsession –port 9930 9.11.223.43
```

rmassociation

Use the **rmassociation** command to remove an association between two sessions.

The **rmassociation** command is used to remove an association.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-associated_session- ***assoc_session_name*[;*assoc_session_name*]**
Specifies the name of another session that is defined on the server to associate with the specified session.

-associated_role_pair- ***assoc_role_pair_name*[;*assoc_role_pair_name*]**
Specifies the role pair, which in the associated session has a role that matches a role in the specified session.

-session_name*session_name*[;*session_name*]
Specifies a name for the session. For sessions that contain an XIV system, the session name can have up to 58 alphanumeric characters. For sessions that contain other storage system types, the session name can have up to 250 alphanumeric characters. Session names must be unique.

Alternatively, use the dash (-) to specify that input for this parameter, which comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Removing an association from a Metro Mirror Failover/Failback session to a Safeguarded copy session

```
csmcli> rmassociation -associated_session 8kMM -associated_role_pair H1-H2 SGCsess
```

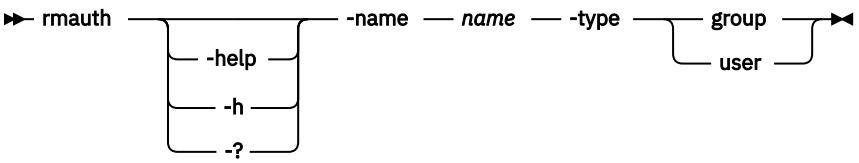
The following output is returned:

```
IWNR1296I Session 8kMM and role pair H1-H2 are no longer associated to session SGCsess.
```

rmauth

Use the **rmauth** command to remove monitor, administrator, or operator authorization from an LDAP user or user group. Note: The **rmuath** command is only for LDAP users and groups. To remove users from the basic user registry, you must use the **rmuser** command.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-name *name*
Specifies a user ID or group name from which you remove authorization.

-type group | user
Specifies whether the name is of a user group or user.

Example: Removing authorization for a group

The following command removes authorization from the `csmgroup` user group.

```
csmcli> rmauth -name csmgroup -type group
```

The following output is returned:

```
Are you sure you want to remove access for user csmgroup? [y/n]:y

IWNR4013I  Successfully revoked access from csmgroup.
```

Example: Removing authorization for a user

The following command removes authorization from the `csmuser` user.

```
csmcli> rmauth -name csmuser -type user
```

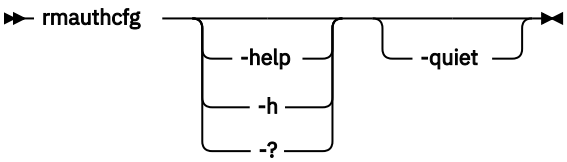
The following output is returned:

```
Are you sure you want to remove access for user csmuser? [y/n]:y

IWNR4013I  Successfully revoked access from csmuser.
```

rmauthcfg

Use the **rmauthcfg** command to remove the LDAP configuration from being used from user authentication.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

Example: Removing an LDAP configuration

The following command removes the connection information for the established LDAP configuration.

```
csmcli> rmauthcfg
```

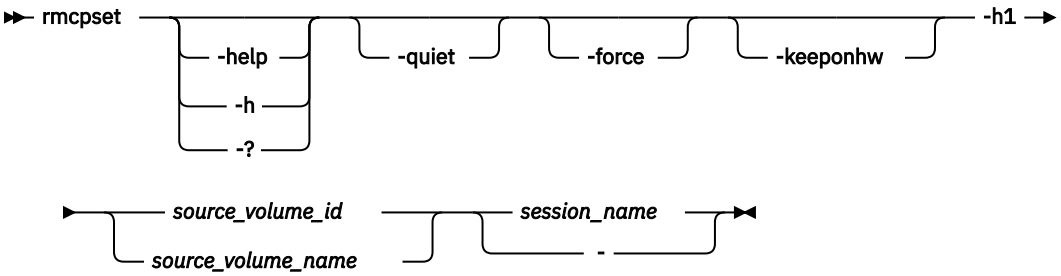
The following output is returned:

```
Are you sure you want to remove the established
 LDAP configuration?> y
 IWNR4963I [Aug 13, 2015 3:14:09 PM] Successfully removed
 the LDAP configuration.
```

rmcpset

Use the **rmcpset** command to remove a copy set.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

-force
Forces the removal of the copy set despite any errors that occur when removing the copy set relationships from the storage system. When a forced removal is complete, any relationships that remain on the storage system for that copy set must be removed manually using the storage system interface.

-keeponhw
Specifies that all of the base relationships (Metro Mirror, Global Copy, Snapshot, and FlashCopy) on the storage system are kept even though the copy set is removed from the session. The relationships are removed from any consistency groups that are defined on the storage system.

-h1 {*source_volume_id* | *source_volume_name*}
Specifies the volume to be removed.

For IBM DS8000 and IBM TotalStorage Enterprise Storage Server Model 800 storage systems, use the volume ID for this parameter.

For other storage systems, you can use the volume ID or name for this parameter.

***session_name* | -**
Specifies the name of the session from which the copy set is being removed.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Removing a copy set

The following command removes the copy set with `DS8000:2107.04131:VOL:0A05` source volume in the `session1` session without prompting for confirmation.

```
csmcli> rmcpset -quiet -h1 DS8000:2107.04131:VOL:0A05 session1
```

The following output is returned:

```
IWNR1058I  The copy sets for session session1 were deleted.

IWNR2002I  The pair was successfully deleted in session session1 for copy set
DS8000:2107.04131:VOL:0A05 with source DS8000:2107.04131:VOL:0A05 and target
DS8000:2107.04131:VOL:0A06.

IWNR1095I  Copy set DS8000:2107.04131:VOL:0A05 in session session1 was
successfully deleted.
```

Example: Removing a copy set from a session by using the volume nickname

The following command removes the copy set with `XIV:VOL:6000646:myvolume` source volume in the `snap2` session without prompting for confirmation.

```
csmcli> rmcpset -h1 XIV:VOL:6000646:myvolume snap2
```

The following output is returned:

```
IWNR1058I The copy sets for session snap2 were deleted.

IWNR2005I The volume with a volume ID of XIV:VOL:6000646:110789(myvolume) was
successfully removed from the copy set with a source volume ID
of XIV:VOL:6000646:110789 from the session named snap2.

IWNR1095I Copy set XIV:VOL:6000646:myvolume in session snap2 was
successfully deleted.
```

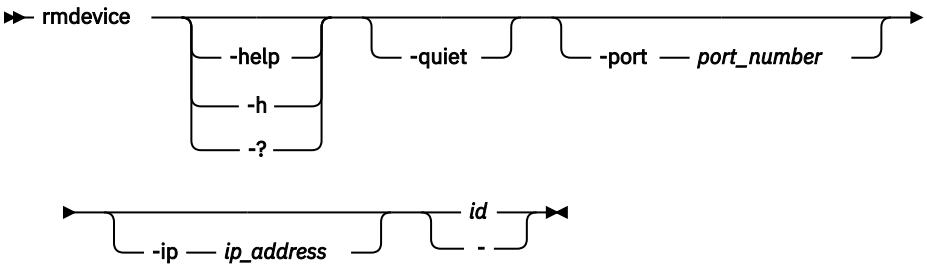
rmdevice

Use the **rmdevice** command to remove a direct connection to a storage system.

To remove a storage system that is attached through a Hardware Management Console (HMC) connection, use the **rmmc** command.

To remove a storage system that is attached through an IBM z/OS connection, use the **rmstorsys** command.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

-port ***port_number***
Specifies the port number if a nondefault port number was entered when the storage system was added.

-ip ***ip_address***
Specifies the IP address or host name of the node that is used by the following storage systems:

- IBM Storwize V3500
- IBM Storwize V3700
- IBM Storwize V5000
- IBM Storwize V7000 or IBM Storwize V7000 Unified
- IBM FlashSystem V9000
- IBM FlashSystem V840
- IBM FlashSystem 9100
- IBM FlashSystem 9200
- IBM® SAN Volume Controller

This parameter is ignored for all other storage systems.

***id* | -**
Specifies the ID of the storage system to be removed.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Removing an IBM TotalStorage Enterprise Storage Server Model 800

The following command removes the TotalStorage Enterprise Storage Server Model 800 with ID ESS:BOX:2105.18596 without prompting for confirmation.

```
csmcli> rmdevice -quiet ESS:BOX:2105.18596
```

The following output is returned:

```
IWNH1614I The connection at sts596c0:sts596c1 was successfully removed.
```

Example: Removing a SAN Volume Controller

The following command removes the SAN Volume Controller with ID SVC:CLUSTER:RMSVC02 and IP address 127.0.0.1 without prompting for confirmation.

```
csmcli> rmdevice -quiet -ip 127.0.0.1 SVC:CLUSTER:RMSVC02
```

The following output is returned:

```
IWNH1614I  The storage device at 127.0.0.1 was successfully removed.
```

Example: Removing an FlashSystem/IBM Spectrum Accelerate

The following command removes the FlashSystem/IBM Spectrum Accelerate with ID XIV:BOX:6000646 without prompting for confirmation.

```
csmcli> rmdevice -quiet XIV:BOX:6000646
```

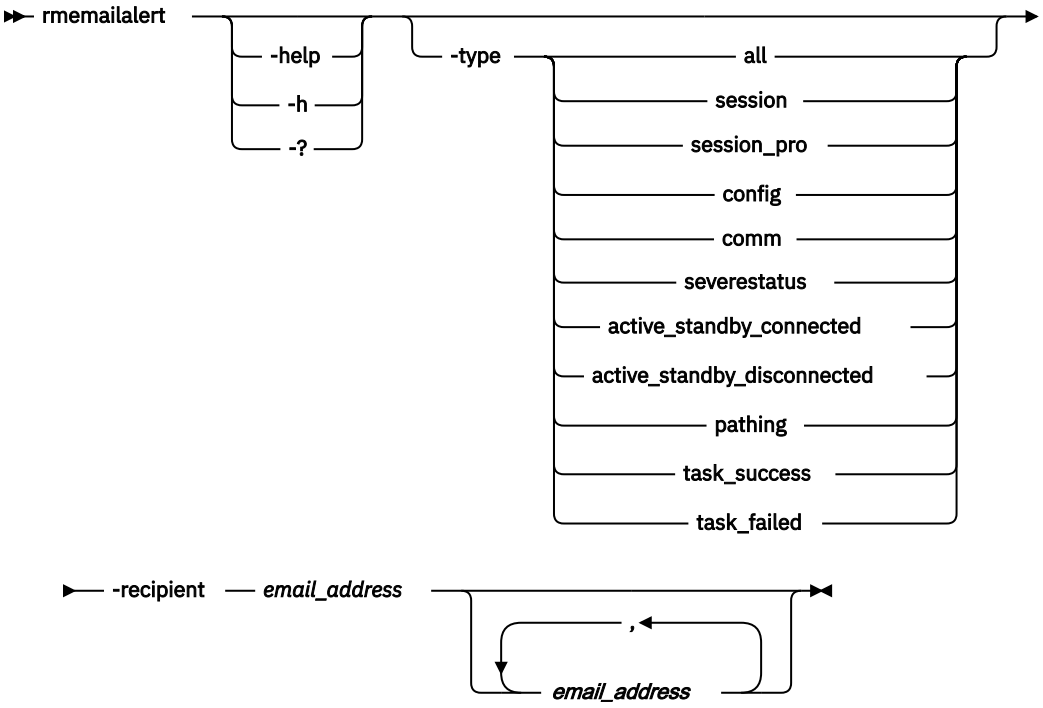
The following output is returned:

```
IWNH1624I  The storage system XIV:BOX:6000646 was successfully removed.
```

rmemailalert

Use the **rmemailalert** command to remove e-mail addresses from the list of e-mail addresses to receive e-mail alerts.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-type { all | session | session_rpo | config | comm | severestatus | active_standby_connected | active_standby_disconnected | pathing | task_success | task_failed }
Specifies which type of alert the recipient will no longer receive. If type is not specified, the recipient will be removed from all categories.

-recipient email_address[,email_address]
Specifies the e-mail addresses to be removed from the alert recipient list. Multiple e-mail addresses can be removed using a comma separated list.

Example: Removing an e-mail address from the alert recipient list

```
csmcli> rmemailalert -recipient user@us.ibm.com
```

The following output is returned:

```
IWNR1720I [Apr 15, 2016 8:38:29 AM] The e-mail recipient list has been updated.
IWNR1723I [Apr 15, 2016 8:38:29 AM] The e-mail recipient user@us.ibm.com
has been removed.
```

Removing multiple e-mail addresses from the alert recipient list

```
rmemailalert -type session -recipient user1@us.ibm.com,user2@us.ibm.com
```

The following output is returned:

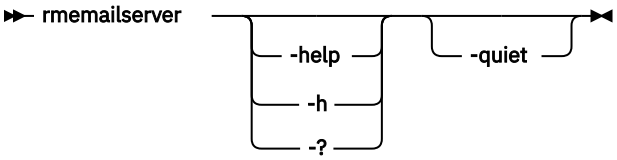
```
IWNR1720I [Apr 15, 2016 8:38:54 AM] The e-mail recipient list has been updated.
IWNR1723I [Apr 15, 2016 8:38:54 AM] The e-mail recipient user1@us.ibm.com has been removed
```

```
 from category SESSION.

IWNR1723I [Apr 15, 2016 8:38:54 AM] The e-mail recipient user2@us.ibm.com has been removed
 from category SESSION.
```

rmemailserver

Use the **rmemailserver** command to remove the SMTP server configuration used to send e-mail alerts. After submitting the command, e-mail alerts will no longer be sent.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

Example: Removing an SMTP server for e-mail alerts

```
csmcli> rmemailserver
```

The following output is returned:

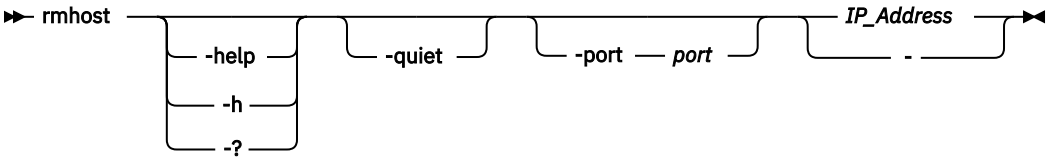
```
Are you sure you want to remove the SMTP server configuration for e-mail alerts?
[y/n] y
IWNR1712I [Apr 15, 2016 8:50:31 AM] Successfully removed SMTP server configuration.
```

rmhost

Use the **rmhost** command to remove a connection to a host system from the copy services management server.

For z/OS host systems, this command is applicable only if the copy services management server is connected to the host system by using an IP address or host name.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

-port ***port***
Specifies the port number for the host system to be removed if the system was added with a port other than the default port 9930.

IP_Address **|** **-**
Specifies the IP address or host name of the host system to be removed.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Removing host systems

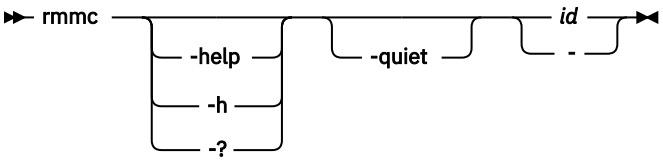
The following command shows how to remove a host system with IP address `192.0.2.0`. In this example, you could omit the **-port** parameter because port 9930 is the default.

```
csmcli> rmhost -port 9930  192.0.2.0
```

rmmc

Use the **rmmc** command to remove a management console.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

id **|** **-**
Specifies the ID of the management console to be removed.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Removing a management console

The following command removes a Hardware Management Console with ID `HMC:127.0.0.1` without prompting for confirmation.

```
csmcli> rmmc -quiet HMC:127.0.0.1
```

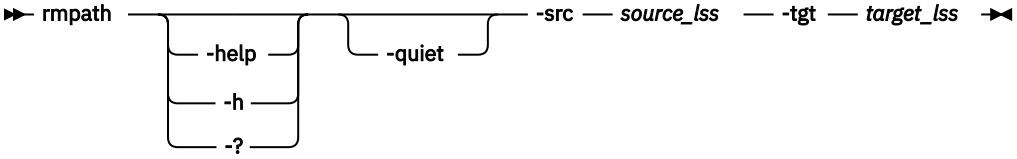
The following output is returned:

```
IWNH1614I  The storage device at HMC:127.0.0.1 was successfully removed.
```

rmpath

Use the **rmpath** command to remove a path or paths between a source logical subsystem (LSS) and a target LSS.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

-src *source_lss*
Specifies the source LSS and port DS series storage servers) for the path to be removed. Use the following format: `DS: 2105.20870:12.1`.

-tgt *target_lss*
Specifies the target LSS and port (DS series storage servers) for the path to be removed. Use the following format: `DS: 2105.20870:12.1`.

Description

Notes:

- Removing a path removes only the path and ports specified and will not remove any additional paths.
- Only Fibre Channel paths are supported for DS8000.

Example: Removing paths

The following command removes the paths between the source LSS `ds:2015.23884:11.4` and a target LSS `ds:2105.23005:11.3`.

```
csmcli> rmpath -src ds:2015.23884:11.4 -tgt ds:2105.23005:11.3
```

The following output is returned:

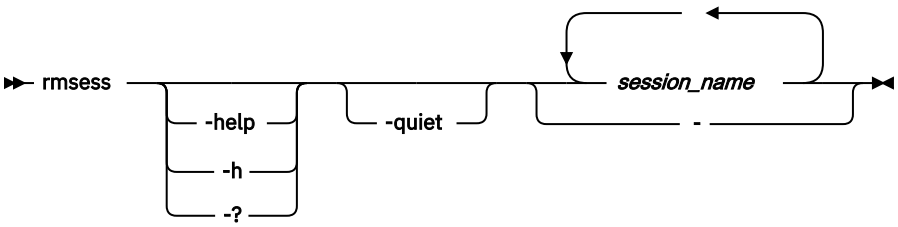
```
Path successfully removed.
```

rmsess

Use the **rmsess** command to remove a session.

Important: You can remove only those sessions that are in the Defined state.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

***session_name...* | -**
Specifies the name of the session to be removed. Separate multiple session names using a blank space.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Removing a session

The following command removes the session1 session.

```
csmcli> rmsess -quiet session1
```

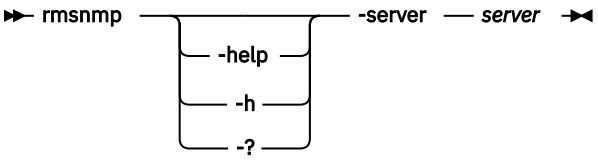
The following output is returned:

```
IWNR1022I  Session session1 was successfully deleted.
```

rmsnmp

Use the **rmsnmp** command to remove the specified manager from the list of servers to which SNMP traps are sent.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-server *server*
Specifies the IP address or domain name of the server that will no longer receive SNMP traps.

Example: Removing a server from receiving SNMP traps

The following command removes the management server with IP address `127.0.0.1` from receiving SNMP traps.

```
csmcli> rmsnmp -server 127.0.0.1
```

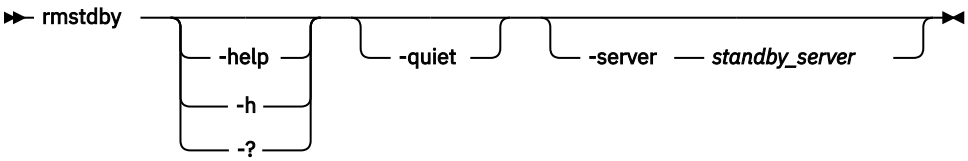
The following output is returned:

```
IWNR1702I  Host 127.0.0.1 was removed from the SNMP listeners list.
```

rmstdby

Use the **rmstdby** command to remove a standby management server.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers `yes` to all confirmation prompts.

-server ***standby_server***
The IP address of the standby management server that you are removing.

Example: Removing a standby management server

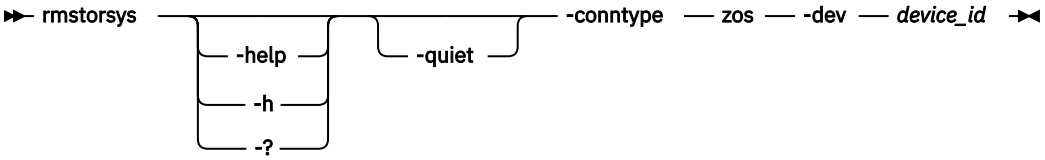
The following command removes the standby management server with IP address `127.0.0.1`.

```
csmcli> rmstdby -server 127.0.0.1
```

rmstorsys

Use the **rmstorsys** command to remove a specific storage system and its volumes connected through a z/OS connection to the copy services management server configuration.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers `yes` to all confirmation prompts.

-conntype zos
Specifies the type of connection that the storage systems uses. Currently, you can specify only `zos` for a z/OS connection.

-dev *device_id*
Specifies the ID of the DS or ESS storage system that is to be removed from the configuration.

Tip: Use the **lsdevice** command to display a list of valid storage system IDs.

Description

Important:

- You must have Administrator privileges to run this command.
- You can run this command only from the copy services management server that is installed on a system running the z/OS operating system.
- This command removes only the z/OS connection to the specified storage system. To remove other connection types to the same storage system, use the **rmdevice** or **rmmc** command.

If copy services management server has multiple connections to a storage system, the order in which you remove the connections produces different results:

- If you remove direct and HMC connections first, the fixed-block and non-attached CKD volumes that are attached through these connection types are removed from the copy services management server configuration.
- The remaining CKD volumes that are attached through the z/OS host connection remain in the copy services management server configuration until the z/OS host connection is removed.
- If you remove the z/OS host connection first and there is an HMC or direct connection to volumes, those volumes are not removed from the copy services management server configuration.

To remove a storage system that is attached through a direct connection, use the **rmdevice** command. To remove a storage system that is attached through an hardware-management-console (HMC) connection, use the **rmmc** command.

Example: Removing the z/OS connection

This example illustrates how to remove the z/OS connection to the storage system with ID `ESS:BOX:2105.12345`.

```
csmcli> rmstorsys -dev ESS:BOX:2105.12345 -conntype zos
```

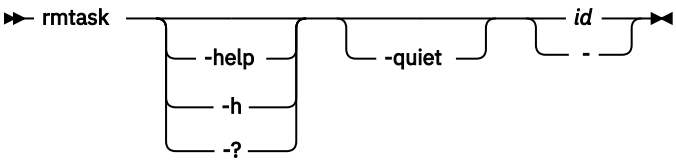
The following output is returned:

```
IWNH1614I  The storage device at ESS:BOX:2105.12345 was successfully removed.
```

rmtask

Use the **rmtask** command to remove a scheduled task.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

***id* | -**
Specifies the ID of the task to be removed.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Removing a task

The following command removes a task with ID 7.

```
csmcli> rmtask -quiet 7
```

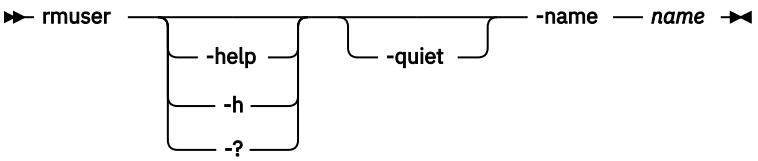
The following output is returned:

```
IWNR2214I The scheduled task flashtask has been removed.
```

rmuser

Use the **rmuser** command to remove a user from the basic user registry. When issued, the user will be removed from the basic user registry and all authentication is removed from the database. Note: This command can only be issued by a user with Administrator authority. The **rmuser** command is only for users from the basic user registry. To remove an LDAP user or group, you must use the **rmauth** command.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

-name *name*
Specifies a user name you want to remove from the basic user registry.

Example: Removing a user

The following command removes a user bob.

```
csmcli> rmuser -name bob
```

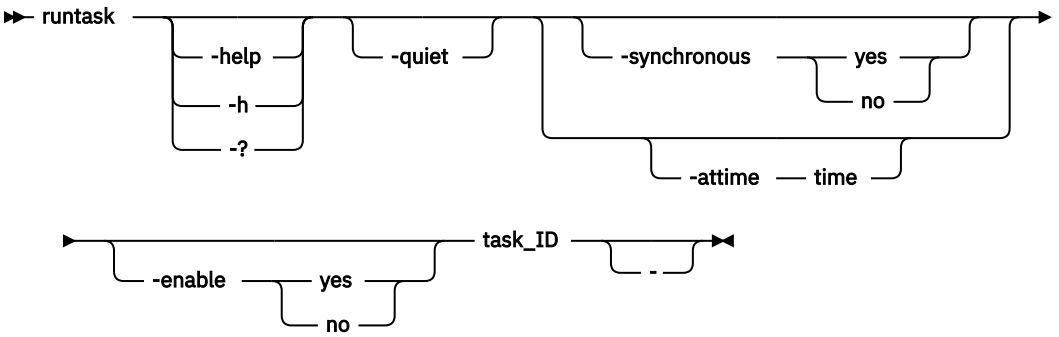
The following output is returned:

```
Are you sure you want to remove user bob? [y/n]:y
IWNR4037I Successfully removed user bob from the basic user registry.
IWNR4013I Successfully revoked access from bob.
```

runtask

Use the **runtask** command to run a specified scheduled task. **Tip:** To list all of the scheduled tasks, use the **lstasks** command.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

-attime {time}
When used without **-enable yes** and the task is not currently enabled to run on a schedule, this time specifies that the task runs once at the specified time.

When used with **-enable yes**, this time specifies the time when the task is to be enabled based on the schedule that is defined on the task.

This value is mutually exclusive with the **-synchronous** parameter.

Important: The specified time is based on a 24-hour clock and the time zone is where the CLI is running. That time is converted to the time zone for the server. The format is yyyy-MM-dd'T'HH:mm. For example, 2021-09-20T14:30

-synchronous {yes | no}
Indicates that the task runs immediately but not return control to the CLI until the task is complete. Use this option when you need to know the results of the task to perform subsequent actions through a batch job. Valid values are yes or no. The default value is no.

This value is mutually exclusive with the **-attime** parameter.

-enable {yes | no}
Indicates that the task is enabled or disabled based on the schedule that is defined on the task. If the task does not have a schedule, then setting a value of yes fails to enable the task. Valid values are yes or no. The default value is no.

task_id | -
Specifies the ID for the scheduled task that is going to run.

Example: Starting a scheduled task 12

The following command runs the scheduled task with a **task_id** of 12.

```
csmcli> runtask -quiet 12
```

The following output is returned:

```
IWNR2208I [Aug 14, 2018 5:56:47 PM] Forcing the scheduled task Backup SGC1 to run now.
```

Example: Issue a command to run task 4 once at 4:15 PST when the server is running CST

```
csmcli> runtask -attime "2021-03-12T16:15" -quiet 4
```

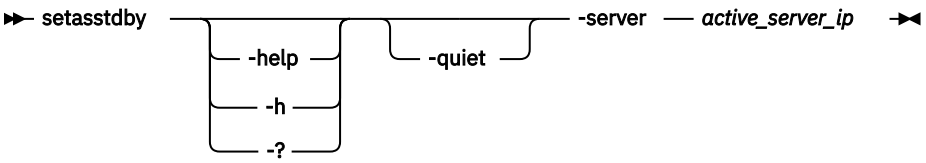
The following output is returned:

```
IWNR2207I [Mar 12, 2021 5:10:33 PM] The scheduled task Backup SGC is scheduled to run at Fri Mar 12
15:15:00 CST 2021.
```

setasstdby

Use the **setasstdby** command to set a management server to be the standby management server of another active management server.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

-server ***active_server_ip***
Specifies the IP address of the active management server for which the local management server is to be the standby server.

Example: Creating a standby management server

The following command sets the local server as a standby management server for the active management server with IP address `127.0.0.1`.

```
csmcli> setasstdby -server 127.0.0.1
```

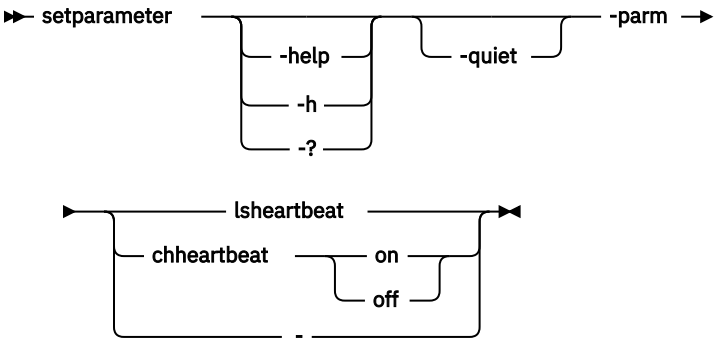
The following output is returned:

```
IWNR3020I  Connection to the active high-availability server at
system1.csm.example.com making the server
system2.csm.example.com a standby was successful.
```

setparameter

Use the **setparameter** command to set the system parameters.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

-parm {lsheartbeat | - chheartbeat { on | off } | -}
Specifies one of these system parameters:

lsheartbeat
Displays whether the Metro Mirror heartbeat is enabled.

chheartbeat { on | off }
Specifies whether the Metro Mirror heartbeat is enabled (on) or not enabled (off).

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Listing the Metro Mirror heartbeat status

The following command displays whether the Metro Mirror heartbeat is enabled or disabled.

```
csmcli> setparameter -parm lsheartbeat
```

The following output is returned:

```
The heartbeat function is set on.

IWNR1208I  The heartbeat was retrieved successfully.
```

Example: Enabling the Metro Mirror heartbeat

The following command turns on the Metro Mirror heartbeat.

```
csmcli> setparameter -parm chheartbeat on
```

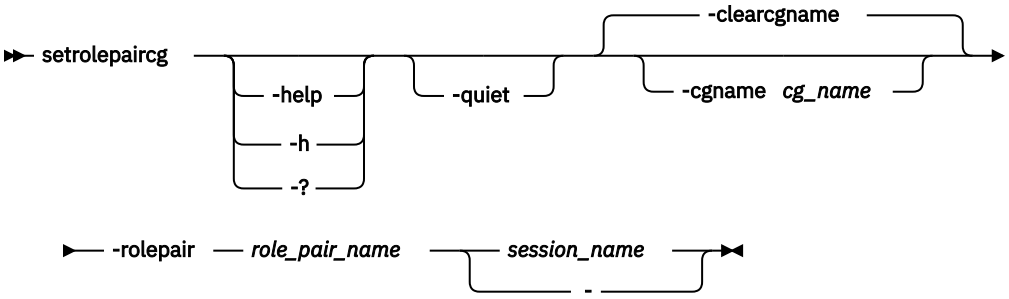
The following output is returned:

```
IWNR1204I  The heartbeat has been successfully turned on with the
hardware.
```

setrolepaircg

Use the **setrolepaircg** command to assign a specific user defined consistency group name to a role pair. The name provided will be used when the consistency group name is created on the storage system. This command is not supported for all role pairs.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

-clearcgname
Clears the user defined consistency group name for the specified role pair. This will cause the session to internally select a consistency group name for the role pair.

-cgname *cg_name*
Specifies the user defined consistency group name that will be set for the specified role pair. When a user defined consistency group name is set for a role pair, the session will use the specified value instead of internally selecting one.

-rolepair *role_pair_name*
Specifies the role pair for which the consistency group name will be set. Role pair names are defined by the **lsrolepairs** command. Note: Not all role pairs allow a user defined consistency group name. If a role pair is specified that does not allow a user defined consistency group name, no updates will be made and an error message will be returned.

***session_name* | -**
Specifies the session name for which you display the role pairs.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Example: Setting a consistency group name

The following command sets a consistency group name for the H1-J2 role pair in session GMsession.

```
csmcli> setrolepaircg -cgname 1F -rolepair H1-J2 GMsession
Are you sure you want to set a user defined consistency group name for session
GMsession, role pair H1-J2? [y/n]:y
```

```
IWNR1276I  The consistency group name was successfully updated for session
GMsession, role pair H1-J2.
```

Example: Clearing a consistency group name

The following command clears the consistency group name from the H1-J2 role pair in session GMsession.

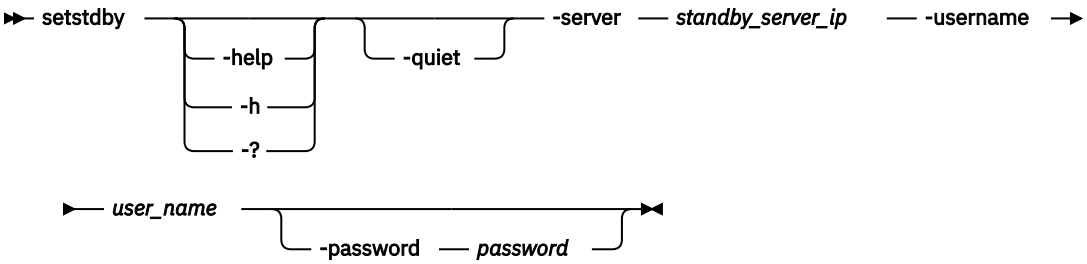
```
csmcli> setrolepaircg -clearcgname -rolepair H1-J2 GMsession
Are you sure you want to clear the user defined consistency group name for session
GMsession, role pair H1-J2? [y/n]:y
```

```
IWNR1276I  The consistency group name was successfully updated for session
GMsession, role pair H1-J2.
```

setstdby

Use the **setstdby** command to set the standby management server for an active management server.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

-username ***user_name***
Specify the user name for the device.

-password ***password***
Specifies this parameter to receive a password prompt. The password will not be visible.

-server ***standby_server_ip***
Specify the IP address of the server to be the standby management server for the local management server.

Description

Notes:

- If a standby management server is already defined for the active management server, the previously defined standby management server is replaced by the server specified by this command.
- Only the **hatakeover** command can change a backup server to the active server. High availability (HA) must be active before setting an HA role.

Example: Setting the standby management server

The following command sets the server with IP address 127.0.0.1 as the standby management server for active management server on which this command run without prompting for confirmation.

```
csmcli> setstdby -quiet -server 127.0.0.1 -username csmuser
```

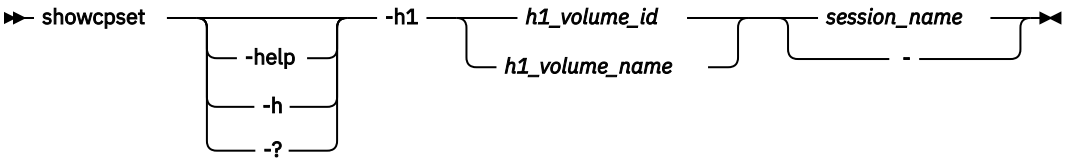
The following output is returned:

```
IWNR3020I  Connection to the active high-availability server at
csm1.storage.tucson.example.com making the server
csm2.storage.tucson.example.com a standby was successful.
```

showcpset

Use the **showcpset** command to display properties for a copy set.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-h1 {*h1_volume_id* | *h1_volume_name*}
Specifies the volume at host site 1.

For IBM® DS8000, and IBM TotalStorage Enterprise Storage Server Model 800 storage systems, use the volume ID for this parameter.

For other storage systems, you can use the volume ID or name for this parameter.

***session_name* | -**
Specifies the session name to which the copy set belongs.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

The following information is listed for the copy set.

Column Label	Details
H1 Volume ID	The ID of the volume at host site 1. This ID is used to identify a copy set in a session. The volume ID is displayed regardless of whether you provide the volume ID or name for the **-h1** parameter.
Session	The session name.

Column Label	Details
Volumes	The volumes that are associated with the copy set. Output is formatted to show the role and the volume ID for that role in the copy set.
Last Result	The last message that was issued.

Example: Listing copy set properties by using the volume ID

The following command lists the properties for the copy set with the host volume ID `DS8000:2107.NK791:VOL:1500` in the session `session1`:

```
csmcli> showcpset -h1 DS8000:2107.NK791:VOL:1500 session1
```

The following output is returned:

```
H1 Volume ID  DS8000:2107.NK791:VOL:1500
Session       session1
Volumes       H1-DS8000:2107.NK791:VOL:1500, H2-DS8000:2107.MW931:VOL:1500,
              H3-DS8000:2107.04131:VOL:1500, I3-DS8000:2107.04131:VOL:1505,
              J3-DS8000:2107.04131:VOL:150A
Last result   None

IWNR1500I  Session information about session session1 was successfully obtained.
```

Example: Listing copy set properties by using the volume name

The following command lists the properties for the copy set with the host volume `STORWIZE-V7000:VOL:TPCRTBIRD2:CSMRegr_vol08` in the session `session2`. In this example, the volume name `CSMRegr_vol08` is provided for the copy set in the command. The corresponding volume ID is shown in the output.

```
csmcli> showcpset -h1 STORWIZE-V7000:VOL:TPCRTBIRD2:CSMRegr_vol08 session2
```

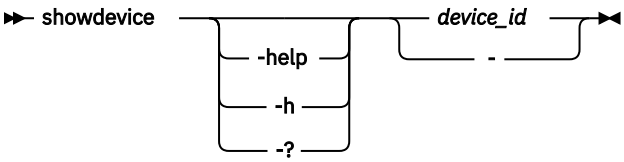
The following output is returned:

```
H1 Volume ID  STORWIZE-V7000:VOL:TPCRTBIRD2:7
Session       session2
Volumes       H1-STORWIZE-V7000:VOL:TPCRTBIRD2:7, T1-STORWIZE-V7000:VOL:TPCRTBIRD2:8
Last result   None

IWNR1500I  Session information about session session2 was successfully obtained.
```

showdevice

Use the **showdevice** command to display storage system properties.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

***device_id* | -**

Displays a unique identifier for each connected storage system. The element ID format, for example `ESS:BOX:2105.FCA57`, is used to display storage system IDs.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

For each storage system, the following information is listed. The connection information for the storage system is designated by the connection type.

General

Column Label	Details
Device ID	The storage system ID.
Device Name	The user-defined name of the storage system.
Device Type	The type of storage system. The values are: `DS8000`, `SAN Volume Controller`, `STORWIZE-V3500`, `STORWIZE-V3700`, `STORWIZE-V5000`, `STORWIZE-V7000`, `FLASHSYSTEM-V9000`, `FLASHSYSTEM-V840`, `FLASHSYSTEM-A9000`, `FLASHSYSTEM-9100`, `FLASHSYSTEM-9200`, and `XIV`
Manufacturer	The manufacturer of the storage system.
Location	The user-defined location associated with the storage system or `None`.

Direct Connect Information

Column Label	Details
Device IP Address	The IP address or host name of the clusters or nodes that are used by the storage system. IBM DS8000 uses two clusters. Each cluster address is separated by a semicolon. FlashSystem/IBM Spectrum Accelerate uses three nodes. Each node address is separated by a semicolon.
User name	The user name for the clusters or nodes that are used by the storage system. For IBM DS8000 and the FlashSystem/IBM Spectrum Accelerate, user names are separated by a semicolon.
Port	The port number of the clusters or nodes that are used by the storage system. For IBM DS8000, the port number of each cluster is separated by a semicolon. For the FlashSystem/IBM Spectrum Accelerate, the port number of each node is separated by a semicolon. For example, `node1_port;node2_port;node3_port`.

Column Label	Details
Local Server Connection	The state of direct connections to a local management server. For IBM DS8000, this value shows status of the connection to each cluster separated by a semicolon. For example, `cluster0_status:cluster1_status`. For the FlashSystem/IBM Spectrum Accelerate, this value shows the status of each node separated by a semicolon. For example, `node1_status;node2_status;node3_status`.
Remote Server Connection	The state of direct connections to a remote management server. For IBM DS8000 this value shows the connection status of each cluster separated by a semicolon. For example `cluster0_status:cluster1_status`. For the FlashSystem/IBM Spectrum Accelerate, this value shows the connection status of each node separated by a semicolon. For example `node1_status;node2_status;node3_status`.

Management Console Information

Column Label	Details
Management Console Local Server Connection	The state of the hardware management console (HMC) connections to the local management server.
Management Console Remote Server Connection	The state of the HMC connections to the remote management server.
Management Console IDs	The ID of the HMC. If there are dual HMCs, the ID for each HMC is separated by a comma.

z/OS Connection Information

Column Label	Details
z/OS Local Server Connection	The state of the z/OS connections to the local management server.
z/OS Remote Server Connection	The state of the z/OS connections to the remote management server.
z/OS Connection IDs	The ID for the IBM z/OS host system that is used to connect the storage system. If the storage system is connected through multiple host systems, the ID for each host system is separated by a comma.

Example: Listing storage system properties for a direct connection

The following command lists the properties of a FlashSystem/IBM Spectrum Accelerate storage system with the ID `XIV:BOX:1234567` and the user-defined name `XIV_B`. The storage system is connected by using a direct connection.

```
csmcli> showdevice XIV:BOX:1234567
```

The following output is returned:

```
Device ID                                   XIV:BOX:1234567
Device Name                                 XIV_B
```

```
Device Type                                  XIV
Manufacturer                                 IBM
Location                                     xiv_west
Direct Connect Information                   -------------------------
Device IP Address                            xivb1.storage.sacramento.ibm.com;
                                             xivb2.storage.sacramento.ibm.com;
                                             xivb3.storage.sacramento.ibm.com
User Name                                    admin
Port                                         7778;7778;7778
Local Server Connection                      Connected;Connected;Connected
Remote Server Connection                     -
Management Console Information               -------------------------
Management Console Local Server Connection   -
Management Console Remote Server Connection  -
Management Console IDs                       -
z/OS Connection Information                  -------------------------
z/OS Local Server Connection                 -
z/OS Remote Server Connection                -
z/OS Connection IDs                          -

IWNC4103I  The showdevice command completed successfully.
```

Example: Listing storage system properties for an HMC connection

The following command lists the properties of an IBM DS8000 storage system with the ID DS8000:BOX:1234.AB123. The storage system is connected by using an HMC connection.

```
csmcli> showdevice DS8000:BOX:1234.AB123
```

The following output is returned:

```
Device ID                                    DS8000:BOX:1234.AB123
Device Name                                  -
Device Type                                  DS8000
Manufacturer                                 IBM
Location                                     None
Direct Connect Information                   -------------------------
Device IP Address                            -
User Name                                    -
Port                                         -
Local Server Connection                      -
Remote Server Connection                     -
Management Console Information               -------------------------
Management Console Local Server Connection   Connected
Management Console Remote Server Connection  -
Management Console IDs                       HMC:Stg8k11.storage.sacramento.xyz.com
z/OS Connection Information                  -------------------------
z/OS Local Server Connection                 -
z/OS Remote Server Connection                -
z/OS Connection IDs                          -

IWNC4103I  The showdevice command completed successfully.
```

Example: Listing storage system properties for an IBM z/OS host connection

The following command lists the properties of an IBM DS8000 storage system with the ID DS8000:BOX:1234.56789. The storage system is connected by using a z/OS host connection.

```
csmcli> showdevice DS8000:BOX:1234.56789
```

The following output is returned:

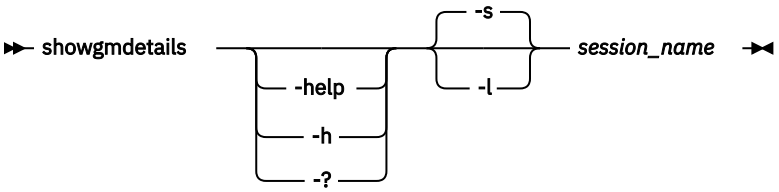
```
Device ID                                    DS8000:BOX:1234.56789
Device Name                                  -
Device Type                                  DS8000
Manufacturer                                 IBM
Location                                     None
Direct Connect Information                   -------------------------
Device IP Address                            -
User Name                                    -
```

```
Port                                        -
Local Server Connection                     -
Remote Server Connection                    -
Management Console Information              -------------------------
Management Console Local Server Connection  -
Management Console Remote Server Connection -
Management Console IDs                      -
z/OS Connection Information                 -------------------------
z/OS Local Server Connection                Disconnected
z/OS Remote Server Connection               -
z/OS Connection IDs                        ZOS:abc68.storage.sacramento.xyz.com:5858

IWNC4103I  The showdevice command completed successfully.
```

showgmdetails

Use the **showgmdetails** command to display detailed status information for a Global Mirror session. Use this command for only Model 800 and IBM DS8000 storage systems.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-s
Displays default information for the Global Mirror session.

-l
Displays detailed information for the Global Mirror session, including:

Column label	Details
Session ID	The Global Mirror session ID.
Master LSS	The name of the storage system acting as the Global Mirror master. Includes storage system ID and subsystem ID.
Copy State	Options are: • Running • Paused • Fatal • Pause in Progress
Fatal Reason	Fatal reason code of the Global Mirror session.
CG Time	The time of the last consistency group formation according to the Master Storage system. The format is MM/DD/YYYY HH:MM:SS in 24 hour time. The time is based on a 24-hour clock.

Column label	Details
Query Time	The time of the query according to the Master Storage system. The format is MM/DD/YYYY HH:MM:SS in 24 hour time. The time is based on a 24-hour clock.
Data Exposure	The average exposure to data loss, in seconds, over the query interval.
Total Failed CGs	The total number of failed consistency group formation attempts since the Global Mirror session has been in Running state.
Total Successful CGs	The total number of successful consistency group formations since the Global Mirror session has been in Running state.
Failed CG Attempts since last success	The number of failed consistency group formation attempts since the last successful consistency group was formed.
Successful CG Percentage	The total percentage since the Global Mirror session has been in Running state.
CG Interval Time	The interval time between attempts to form a consistency group.
Max Coordination Interval	Extended distance consistency maximum coordination interval.
Max CG Drain Time	The maximum time the consistent set of data is allowed to drain at the remote site before failing consistency group formation.
Last Failure LSS	Name of the storage system for the most recent failure of the consistency group formation. Includes storage system ID and subsystem ID.
Last Failure Reason	The reason code for the most recent failure of the consistency group formation.
Last Failure Master State	The master state for the most recent failure of the consistency group formation.
Previous Failure LSS	Name of the storage system for the previous failure of the consistency group formation. Includes storage system ID and subsystem ID.
Previous Failure Reason	Reason code for the previous failure of the consistency group formation.
Previous Failure Master State	Master state for the second most recent consistency group formation failure.
Subordinate Count	The number of subordinates for this Global Mirror session.
Subordinate Associations	The subordinate boxes for the master Global Mirror box.

session_name
Specifies the Global Mirror session for which the properties are to be displayed.

Example: Displaying management console properties

The following command displays detailed information for the Global Mirror session gmme.

```
csmcli> showgmdetails -l gmme
```

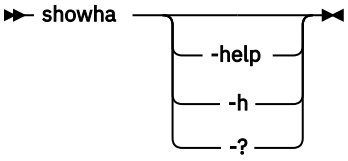
The following output is returned:

```
Session ID                              0x2

Master LSS                              DS8000:2107.FX102:LSS:71

Copy State                              Running

Fatal Reason                            0x00 Global Mirror Not Fatal

CG Time                                 2010/04/16 23:32:58 EDT

Query Time                              2010/04/16 23:32:58 EDT

Data Exposure                           1.00 s

Total Failed CGs                        1

Total Successful CGs                    725

Failed CG Attempts since last success 0

Successful CG Percentage                99

CG Interval Time                        0 s

Max Coordination Interval               50 ms

Max CG Drain Time                       30 s

Last Failure LSS                        DS8000:2107.FX102:LSS:71

Last Failure Reason                     0x0FCC XDC starting increment with wrong state
Last Failure Master State               0x4 Global Mirror Start Increment In Progress
Previous Failure LSS                    -

Previous Failure Reason                 -

Previous Failure Master State           -

Subordinate Count                       0

Subordinate Associations                -
```

showha

Use the **showha** command to display the high-availability status.

Syntax



Parameters

-help | -h | -?

Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

Description

This command displays the following information:

Column label	Details
Status	High availability status.
Error	Error message, if applicable

Example: Listing high-availability status

The following command lists the high-availability status.

```
csmcli> showha
```

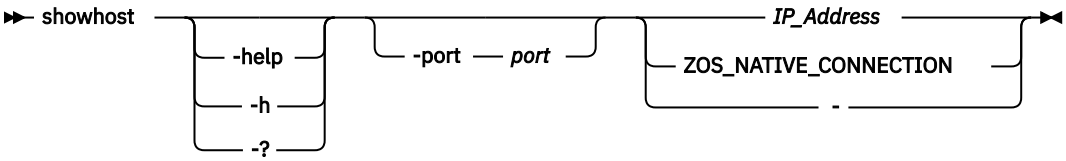
The following output is returned:

```
Status Synchronized
Error  None

IWNR3048I  The high availability status from server system1.csm.example.com
was successfully queried.
```

showhost

Use the **showhost** command to show information about host system connections server.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-port ***port***
Specifies the port to use to access the host system if other than the default port. If a port is not specified, the default port is 5858 for z/OS and 9930 for AIX.

IP_Address **| ZOS_NATIVE_CONNECTION | -**
Specifies the IP or host name for the host system or the value ZOS_NATIVE_CONNECTION.

If you want to show information for an AIX host system or a z/OS host system that is connected by using an IP address or host name, enter the IP address or host name for this parameter.

If the copy services management server is installed on the host system, enter ZOS_NATIVE_CONNECTION for this parameter.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

The information that is listed for each host system depends on the host system type, as shown in the following tables:

AIX Host Systems

Column Label	Details
IP Address	The IP address or host name for the host system.
Port	The port number for the connection to the host system.
Type	The type of host system.
Local Status	The status of the connection between the copy services management server and the host system.
Remote Status	In high availability (HA) environments that have an active and standby management server, the status of the connection between the remote copy services management server and the host system. If you are running the `lshost` command on the active server, the remote server is the standby server. If you are running the command on the standby server, the remote server is the active server. If the status of a host connection at the remote copy services management server cannot be determined, Unknown is displayed. This status might be because the HA configuration is disconnected or the status was not sent from the remote copy services management server.
Sessions	The sessions that are associated with the host system. Sessions are shown only if the Open HyperSwap feature is enabled for the session.

IBM z/OS

Column Label	Details
IP Address	The IP address or host name for the host system.
Port	The port number for the connection to the host system.
Type	The type of host system. One of the following values is shown: **ZOS_NATIVE** The host is the z/OS system on which the copy services management server is installed. **ZOS_IP** The host is a z/OS system that is connected by using an IP address or host name.
Local Status	The status of the connection between the copy services management server and the host system.

Column Label	Details
Remote Status	In HA environments that have an active and standby management server, the status of the connection between the remote copy services management server and the host system. If you are running the `lshost` command on the active server, the remote server is the standby server. If you are running the command on the standby server, the remote server is the active server. If the status of a host connection at the remote copy services management server cannot be determined, Unknown is displayed. This status might be because the HA configuration is disconnected or the status was not sent from the remote copy services management server.
System Name	The name of the host system. If there is no connection to the host system, Unknown is displayed.
Sysplex Name	Shows the name of the sysplex that the host system is in, if applicable. If there is no connection to the host system, Unknown is displayed.
User Name	The user name for the host system. The user name is shown only if the host system is connected by using an IP address or host name.

Example: Showing the connection properties for an AIX host system

The following command lists the connection properties for an AIX host system that is connected by using the IP address `192.0.2.0`.

```
csmcli> showhost 192.0.2.0
```

The following output is returned:

```
IP Address    192.0.2.0
Port          9930
Type          AIX
Local Status  Disconnected
Remote Status -
Sessions      -
```

Example: Showing the connection properties for a z/OS host system that is connected by using an IP address

The following command lists the connection properties for z/OS host system that is connected by using the IP address `192.0.2.1`.

```
csmcli> showhost 192.0.2.1
```

The following output is returned:

```
IP Address    192.0.2.1
Port          5858
Type          ZOS_IP
Local Status  Connected
Remote Status -
System Name   SYSTEM1
Sysplex Name  SYSPLEX1
User Name     ABCUSER
```

Example: Showing the connection properties for a native z/OS host system

If the copy services management server is installed on the z/OS host system, the following command lists the connection properties for the host system.

```
csmcli> showhost ZOS_NATIVE_CONNECTION
```

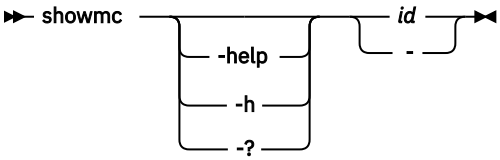
The following output is returned:

```
IP Address     ZOS_NATIVE_CONNECTION
Type           ZOS_NATIVE
Local Status   Connected
Remote Status  -
System Name    SYSTEM2
Sysplex Name   SYSPLEX2
```

showmc

Use the **showmc** command to display the properties of a management console.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

***id* | -**
Specifies the management console ID in the element ID format (for example, `HMC:127.0.0.1`).

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Description

The following information is listed for the management console:

Column label	Details
Management console ID	The management console ID in the element ID format.
MC IP address	The IP address or domain name of the management console. For dual management console configurations the IP addresses or domain names are separated by semicolon; for example `192.0.2.0;192.0.2.1`.
Device Type	Device Type (HMC)
Location	User-defined location associated with the management console, or `None`.
User name	The user name for the management console.
Local Connection Status	The state of the connection to the local management server.
Remote Connection Status	The state of the connection to the remote management server.

Column label	Details
Attached Devices	The devices that are attached to this management console.

Example: Displaying management console properties

The following command displays the properties of the management console with ID `HMC:127.0.0.1`.

```
csmcli> showmc HMC:127.0.0.1
```

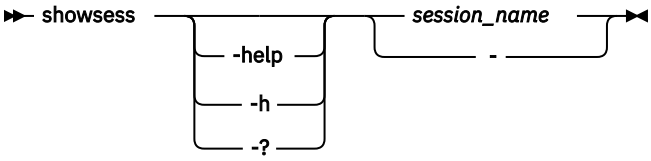
The following output is returned:

```
Management Console ID     HMC:127.0.0.1
MC ID address             127.0.0.1
Device Type               HMC
Location                  tucson
User name                 admin
Local Connection Status   Connected
Remote Connection Status  -
Attached Devices          DS8000:BOX:2107.BRXXX,DS8000:BOX:2107.BRXXX,
                          DS8000:BOX:2107.FNXXX
```

showsess

Use the **showsess** command to display properties for a selected session, including name, description, group managed, and copy type.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

***session_name* | -**
Specifies the session for which the properties are to be displayed.

Alternatively, use the dash (-) to specify that input for this parameter comes from an input stream (stdin). The dash is supported only in single-shot mode.

Description

For each session, the following information is listed:

Column Label	Details
Name	Session name.
Group	The user-defined name of the session group that the session belongs to.

Column Label	Details
Type	Session type. These following values are applicable: FlashCopy Basic HyperSwap Metro Mirror Single Direction Metro Mirror Practice Metro Mirror Failover/Failback Metro Mirror - Metro Mirror Global Mirror Single Direction Global Mirror Practice Global Mirror Failover/Failback Global Mirror Either Direction w/ Two Site Practice Global Mirror Failover/Failback w/ Change Volumes Metro Global Mirror Metro Global Mirror w/ Practice Metro Mirror - Global Mirror Metro Mirror - Global Mirror w/ Practice Metro Mirror - Global Mirror w/ Site 3 Global Mirror Metro Mirror - Global Mirror w/ Site 4 Replication Metro Mirror - Metro Mirror w/ Site 4 Replication Snapshot Safeguarded Copy etc
State	Session state. These following values are applicable: Defined Flashing Preparing Prepared Recovering Suspended SuspendedH2H3 SuspendedH1H3 Suspended (Partial) Suspending Target Available Terminating
Status	Session status. These following values are applicable: Unknown Normal Warning Severe Inactive
Locations	A list of the locations that are associated with the session.

Column Label	Details
Copy sets	The number of copy sets that the session is managing.
Copying	An indicator of whether a copying operation is occurring. Values are Yes or No.
Recoverable	An indicator of whether the session is recoverable. Values are Yes or No.
Active host	Name of the active host.
Error Count	Number of errors for all roles.
Description	Session description that you define.

Example: Listing session properties for a Metro Global Mirror with Practice session

The following command lists properties for the session named session1.

```
csmcli> showsess session1
```

The following output is returned:

```
Name            session1
Group           group1
Type            Metro Global Mirror w/ Practice
State           Defined
Status          Inactive
Locations       Site1, Site2, Site3
Copy Sets       10
Copying         No
Recoverable     No
Active Host     H1
Error Count     0
Description     -
Transitioning   No
Detailed Status -

IWNR1500I  Session information about session session1 was successfully obtained.
```

Example: Listing session properties for an FlashSystem/IBM Spectrum Accelerate Snapshot session

The following command lists properties for the session named session1.

```
csmcli> showsess session1
```

The following output is returned:

```
Name                session1
Group               -
Type                Snapshot
State               Target Available
Status              Active
Locations           Site1
Copy Sets           10
Copying             No
Recoverable         Yes
Active Host         H1
Error Count         0
Description         -
Transitioning       No
H1 Pool             XIV:POOL:12345:67890
H1 Consistency Group session1
Detailed Status     -

IWNR1500I Session information about session session2 was successfully obtained.
```

Example: Listing session properties for an FlashSystem/IBM Spectrum Accelerate Metro Mirror session

The following command lists properties for the session named session1.

```
csmcli> showsess session1
```

The following output is returned:

```
Name                 session1
Group                -
Type                 Metro Mirror Failover/Failback
State                Prepared
Status               Active
Locations            Site1, Site2
Copy Sets            10
Copying              Yes
Recoverable          Yes
Active Host          H1
Error Count          0
Description          -
Transitioning        No
H1 Pool              XIV:POOL:12345:67890
H2 Pool              XIV:POOL:12345:67890
H1 Consistency Group session1
H2 Consistency Group session1
Detailed Status      -

IWNR1500I Session information about session session1 was successfully obtained.
```

Example: Listing session properties for an FlashSystem/IBM Spectrum Accelerate Global Mirror session

The following command lists properties for the session named session1.

```
csmcli> showsess session1
```

The following output is returned:

```
Name                 session1
Group                -
Type                 Global Mirror Failover/Failback
State                Prepared
Status               Active
Locations            Site1, Site2
Copy Sets            10
Copying              Yes
Recoverable          Yes
Active Host          H1
Error Count          0
Description          -
Transitioning        No
H1 Pool              XIV:POOL:12345:67890
H2 Pool              XIV:POOL:12345:67890
H1 Consistency Group session1
H2 Consistency Group session1
Detailed Status      -
IWNR2750E Recovery Point Objective for session session1 has passed the threshold
of 30 seconds.
IWNR1500I Session information about session session1 was successfully obtained.
```

Example: Listing session properties for an IBM DS8000 Safeguarded Copy session

The following command lists properties for the session named session1.

```
csmcli> showsess session1
```

The following output is returned:

```
Name                 session1
Group                -
Type                 Safeguarded Copy
```

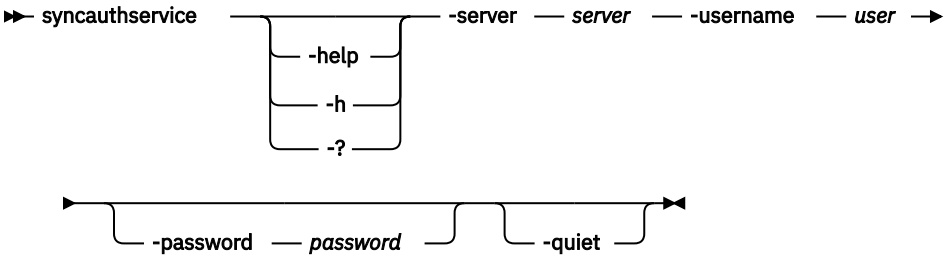
```
State                Protected
Status               Active
Locations            Site1
Copy Sets            10
Copying              Yes
Recoverable          Yes
Active Host          H1
Error Count          0
Description          -
Transitioning        No
Associated Session   8 kMM
Associated Role Pair H1-H2
Matching Role        H2
Role To Restore      H1
Detailed Status      -
IWNR2750E Recovery Point Objective for session session1 has passed the threshold
of 30 seconds.
IWNR1500I Session information about session session1 was successfully obtained.
```

syncauthservice

Use the **syncauthservice** command to synchronize certificates from the authentication service to the authentication service of another server. For change to take effect, csmAuth needs to be restarted on the destination server.

Syntax

Note: This command can only be issued by a user with Administrator authority.



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-server ***server***
Specifies the server IP address or hostname and IP port. This will be the server to synchronize the authentication service to. The input format is *servername*:*port*, for example, `csm.ibm.com:9560`. The input format for an IPv6 address with port is [*IPv6 address*]:*port*, for example, `[0:0:0:0:0:0:0:1]:9560`. The IP port is optional. If no port is provided, it will default to the same port that the CLI connection is using.

Note: If you want to synchronize from Copy Services Manager on the DS8000 HMC to another server that has a different CLI port, you might first have to unblock the firewall for that port.

-username ***user***
Specifies the user name to use to connect to the other server. This user will be used to establish the connection to synchronize the authentication service certificates. This user should have administrative authority on the destination server.

-password ***password***
Specifies the password of the user specified with username parameter. To hide the password, call the command without this option. The command will prompt for the password which will not be echoed.

-quiet
Suppresses the confirmation prompt for this command. This flag answers yes to all confirmation prompts.

Example: Synchronizing authentication service certificates to another server

```
csmcli> syncauthservice -server csm.ibm.com -username csmadmin
```

The following output is returned:

```
Please enter a password:
>
Are you sure you want to overwrite the certificates of another authentication
service? [y/n]:y

IWNR4980I [Dec 20, 2016 10:30:07 AM] Successfully synchronized authentication
service certificate to server csm.ibm.com. The csmAuth server needs
to be restarted on csm.ibm.com for changes to take effect.
```

Example: Synchronizing authentication service certificates to another server using an alternate port

```
csmcli> syncauthservice -server csm.ibm.com:1234 -username csmadmin -password
passw0rd -quiet
```

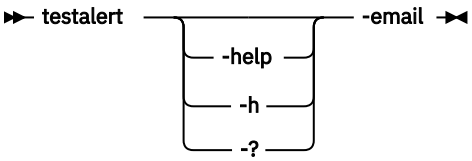
The following output is returned:

```
IWNR4980I [Dec 20, 2016 10:31:51 AM] Successfully synchronized authentication
service certificate to server csm.ibm.com. The csmAuth server needs
to be restarted on csm.ibm.com for changes to take effect.
```

testalert

Use the **testalert** to send a test alert using the current alert configuration. Currently only supports sending a test e-mail alert.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

-email
Sends an e-mail alert using the current using the SMTP server configuration and the e-mail alert recipient list.

Example: Sending a test alert

```
csmcli> testalert
```

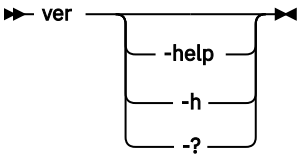
The following output is returned:

```
IWNR1718I [Apr 15, 2016 9:25:08 AM] E-mail sent.
```

ver

Use the **ver** command to display the current version of IBM Copy Services Manager.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

Example: Displaying the current version

The following command displays the current version of Copy Services Manager that is running on the local system.

```
csmcli> ver
```

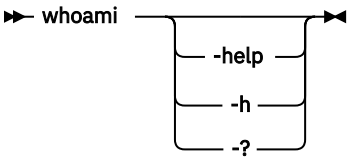
The following output is returned:

```
IBM Copy Services Manager Command Line Interface (CLI)
Copyright 2013 IBM Corporation
Version: 4.1.1
Build: g100-090804
```

whoami

Use the **whoami** command to show the name of the user that is logged on.

Syntax



Parameters

-help | -h | -?
Lists help for the command. If you specify additional parameters and arguments, those parameters and arguments are ignored.

Example: Displaying the current user name

The following command displays the name of the current user.

```
csmcli> whoami
```

The following output is returned:

```
Currently logged in as administrator
Server: server1
```

```
Port: 9560
Authentication file: null
```

Appendix A. Configuration files

This topic provides default file locations for Copy Services Manager configuration files.

The following table shows the default file location for each configuration file.

Configuration file	Default location
`bootstrap.properties`	• For management server on distributed systems: *install dir*`\liberty\wlp\usr\servers\csmServer\bootstrap.properties` • For authentication server on distributed systems: *install dir*`\liberty\wlp\usr\servers\csmAuth\bootstrap.properties` • For management server on z/OS: *path_prefix*`/opt/IBM/CSM/wlp/usr/servers/csmServer/bootstrap.properties` • For authentication server on z/OS: *path_prefix*`/opt/IBM/CSM/wlp/usr/servers/csmAuth/bootstrap.properties`
`csmConnections.properties`	• For distributed systems: *install dir*`\liberty\wlp\usr\servers\csmServer\properties` • For z/OS: *path_prefix*`/opt/IBM/CSM/wlp/usr/servers/csmServer/properties`
`diagnostics.properties`	• For distributed systems: *install dir*`\liberty\wlp\usr\servers\csmServer\properties` • For z/OS: *path_prefix*`/opt/IBM/CSM/wlp/usr/servers/csmServer/properties`
`javaoptions.properties`	If the `javaoptions.properties` file preexists in your environment, it is located in the following directory: • For distributed systems: *install dir*`\CLI` • For z/OS: *path_prefix*`/opt/IBM/CSM/CLI` **Note:** Note: If the `CLI/javaoptions.properties` file does not exist, you can create it and define the **JAVA_OPTIONS** parameter with your required options.
`repcli.properties`	• For distributed systems: *install dir*`\CLI` • For z/OS: *path_prefix*`/opt/IBM/CSM/CLI`
`rmserver.properties`	• For distributed systems: *install dir*`\liberty\wlp\usr\servers\csmServer\properties` • For z/OS: *path_prefix*`/opt/IBM/CSM/wlp/usr/servers/csmServer/properties` **Note:** You can also access and manually edit the `rmserver.properties` file from within the Copy Services Manager GUI under **Settings** > **Server Properties**.

bootstrap.properties file

Two `bootstrap.properties` files contain the configuration attributes for the Copy Services Manager servers. One bootstrap properties file sets the configuration for the management server and another for the authentication server.

The `bootstrap.properties` file is in the following locations on distributed systems:

- Management server:
  install_dir`\liberty\wlp\usr\servers\csmServer\bootstrap.properties`
- Authentication server:
  install_dir`\liberty\wlp\usr\servers\csmAuth\bootstrap.properties`

The `bootstrap.properties` file is in the following locations on z/OS systems:

- Management server: *path_prefix*`/opt/IBM/CSM/wlp/usr/servers/csmServer/bootstrap.properties`
- Authentication server: *path_prefix*`/opt/IBM/CSM/wlp/usr/servers/csmAuth/bootstrap.properties`

The file contains the following properties:

https_port_var
Specifies the GUI port (for csmServer) or the authentication port (for csmAuth). The port number is set during installation. However, you can modify this property value to change the port number after installation.

keystore_id
Specifies a unique configuration ID.

keystore_location_prefix
Simplifies specification of the key ring URL for z/OS. The default value is blank for file-based keystores.

keystore_location
Specifies an absolute or relative path to the keystore file. If a relative path is provided (for example, `key.jks`), the server attempts to locate the file in the `csmServer/resources/security` directory.

keystore_password
Specifies the password that is used to load the keystore file. The value can be stored in cleartext or encoded form. An encoded password string is preceded with `{xor}`.

keystore_type
Specifies a keystore type that is supported by the target SDK. The default value is JKS.

keystore_fileBased
Specifies whether the keystore is based on a file. The default value is `true`.

keystore_readOnly
Specifies whether the keystore is to be used by the server for read operations only. The default value is `false`. The value `false` indicates that the server can write to the keystore.

ssl_protocol
Specifies the SSL handshake protocol that is used on the HTTPS port for that server. The value is determined by the Java™ release and can default to the minimum value (for instance, `TLSv1.2`) automatically during upgrade.

Note: You must restart the server for your modifications of the bootstrap properties file to take effect in the server configuration.

The default contents of each `bootstrap.properties` file is displayed in the following example.

```
################################################################################
#This section is for the HTTPS settings of the IBM Copy Services Manager GUI. #
################################################################################
https_port_var=9559
ssl_protocol=TLSv1.2
```

```
################################################################################################
#This section is for the keystore certificate information.  This can be       #
#changed to match your environment.                                            #
#                                                                              #
#Note that keystore_location is relative to csmServer/resources/security      #
#The keystore_location_prefix is typically left blank for file based           #
#keystores.                                                                    #
################################################################################################
keystore_id=keystore
keystore_location_prefix=
keystore_location=key.jks
keystore_password={xor}HjktbwhvMzkMOi0pOi0=
keystore_type=JKS
keystore_fileBased=true
keystore_readOnly=false

################################################################################################
#This section is a sample JCERACFKS certificate keystore configuration that   #
#can be uncommented and modified to match your environment.                    #
#                                                                              #
#The location must be a safkeyring url syntax with the first qualifier as the #
#IWNSRV and keyring owner and the second qualifier as the keyring name.  The  #
#safkeyring url syntax is important, in order to pass it propertly into       #
#server.xml, it is split across two properties values.  The                   #
#keystore_location_prefix is set to "safkeyring:" while the keystore_location #
#is the rest of the safkeyring url.                                            #
#                                                                              #
#The keystore id and password will be used to create a local keystore with    #
#the specified ID and password holding the cached certificate for the GUI.    #
################################################################################################
#keystore_id=keystore
#keystore_location_prefix=safkeyring:
#keystore_location=//CSMUSER/GUIKEYRING
#keystore_password=password
#keystore_type=JCERACFKS
#keystore_fileBased=false
#keystore_readOnly=true
```

csmConnections.properties file

The csmConnections.properties file contains configuration information about Copy Services Manager graphical user interface (GUI) and management server connection information.

The csmConnections.properties file is located in the *install dir*\liberty\wlp\usr\servers\csmServer\properties directory on distributed systems, and the *path_prefix*/opt/IBM/CSM/wlp/usr/servers/csmServer/properties directory on z/OS.

The file contains the following properties:

csm.server.address
The domain name or IP address of the Copy Services Manager server. The default value is localhost.

Tip: This value must match the value of the **server** property in the *install dir*\CLI\repcli.properties file on distributed systems, and the *path_prefix*/opt/IBM/CSM/CLI/repcli.properties file on z/OS.

csm.server.port
The client port for the GUI to connect to the management server. The default value is 9560.

Tip: This value must match the *install dir*\liberty\wlp\usr\servers\csmServer\properties\rmserver.properties file and the **port** property in the *install dir*\CLI\repcli.properties file on distributed systems; and the *path_prefix*/opt/IBM/CSM/wlp/usr/servers/csmServer/properties/rmserver.properties file, and the **port** property in the *path_prefix*/opt/IBM/CSM/CLI/repcli.properties file on z/OS.

csm.server.authtype
The authentication type for the GUI to connect to the management server. The default value is certificate.

csm.server.keystore
The location of the `csmGuiTrust` trust file for certificate authentication of the GUI. The default value is `/etc`.

csm.server.certificate
The certificate ID. The default value is `csmserverdefault`.

csm.server.standbyPort
The HTTPS port that is used for a standby management server. Define this property if the active and standby management servers run on two different GUI ports to ensure that the URL links to the other management server are valid. For example, if you have an active Windows management server that uses port 9559 for the GUI and a standby z/OS management server that uses port 33209 for the GUI, set this property, if you want the GUIs to be able to start the remote GUI.

The default contents of each `csmConnections.properties` file is displayed in the following example.

Note: The values that are set in this file are case-sensitive and must not contain spaces.

```
#
# Define the information for connecting to the CSM Server.
#
csm.server.address=localhost
csm.server.port=9560

###############################################################################
# CERTIFICATE BASED AUTHENTICATION FROM UI TO CSM SERVER
###############################################################################
csm.server.authtype=certificate
csm.server.keystore=etc/csmTrust.jks
csm.server.certificate=csmserverdefault

#csm.server.standbyPort=
```

diagnostics.properties file

The `diagnostics.properties` file contains configuration information about Copy Services Manager log packages.

The `diagnostics.properties` file is in the *`install dir`*`\liberty\wlp\usr\servers\csmServer\properties` directory on distributed systems, and the *`path_prefix`*`/opt/IBM/CSM/wlp/usr/servers/csmServer/properties` directory on z/OS.

Restart the Copy Services Manager graphical user interface to activate property changes. Properties are not synchronized between the Copy Services Manager management servers and must be maintained on each Copy Services Manager management server.

The file contains the following properties:

sourcedir
The source directory to be used to create the Copy Services Manager log package.

targetdir
The target directory where Copy Services Manager log packages are to be created. The default directory is *`install dir`*`\liberty\wlp\usr\servers\csmServer\diagnostics` on distributed systems, and *`path_prefix`*`/opt/IBM/CSM/wlp/usr/servers/csmServer/diagnostics` on z/OS.

javaoptions.properties file

The `javaoptions.properties` file contains the information that is used by the Copy Services Manager CLI for Java runtime.

When the `javaoptions.properties` property file specifies the **JAVA_OPTIONS** parameter, Copy Services Manager uses those options when starting Java for the CLI.

If the `javaoptions.properties` file preexists in your environment, it is located in the *`install dir`*`\CLI\` directory for distributed systems, and the *`path_prefix`*`/opt/IBM/CSM/CLI` directory for z/OS.

Note: If the `CLI/javaoptions.properties` file does not exist, you can create it and define the JAVA_OPTIONS parameter with your required options.

Restart the Copy Services Manager CLI to activate Java property file changes. The Java properties are valid for all Copy Services Manager CLI users on the modified system.

Some examples of possible options in the `javaoptions.properties` file include:

Xquickstart
: Enables the CLI to start up with a subset of optimizations, which can improve the performance when invoking the CLI for short operations. Batch jobs initiate individual calls to the Copy Services Manager CLI, which means that Java has to be started up for each call. This requirement can add to the overall runtime of the batch job. However, you can use the Java Quickstart option to reduce the Java start time.

Xmx*<value>*
: Modifies the max memory setting for the CLI. If no `javaoptions.properties` file is present, the **`Xmx`** value defaults to 512m (512 MB).

Duser.language=*<ll>*
: Specifies the code of a supported language for the Copy Services Manager CLI to use. This parameter overrides the default language locale setting of the CLI host system.

  Copy Services Manager supports the following language locales:

  - Chinese - China (zh-CN)
  - Czech (cs)
  - English (en)
  - French (fr)
  - German (de)
  - Hungarian (hu)
  - Italian (it)
  - Japanese (ja)
  - Korean (ko)
  - Polish (pl)
  - Portuguese - Brazil (pt-BR)
  - Russian (ru)
  - Spanish (es)

After the `javaoptions.properties` file is set up, every time the Copy Services Manager CLI is invoked, the specified Java options are used.

Example: Code sample for a `javaoptions.properties` file that sets the maximum memory to 1024 MB, specifies Quickstart, and sets the CLI language to English:

```
# This is the properties file that can be used to add additional options
 to the CSM CLI Java runtime without having to update the sh/bat files.

# Add additional options to the parm below separated by a space.

# ex. -Xmx1024m -Xquickstart -Duser.language=en

JAVA_OPTIONS=-Xmx1024m -Xquickstart -Duser.language=en
```

repcli.properties file

The repcli.properties file contains the server and port information that is used to communicate with the Copy Services Manager server and the command-line interface.

The repcli.properties file is located in the *install dir*\CLI\ directory for distributed systems, and the *path_prefix*/opt/IBM/CSM/CLI directory for z/OS.

Restart Copy Services Manager to activate property changes. Properties are not synchronized between the Copy Services Manager management servers and must be maintained on each Copy Services Manager management server.

The file contains the following properties:

server
The domain name or IP address of the Copy Services Manager server. The default value is localhost.

Tip: This value must match the value of the **csm.server.address** property in the *install dir*\liberty\wlp\usr\servers\csmServer\csmConnections.properties file for distributed systems, and the *path_prefix*/opt/IBM/CSM/wlp/usr/servers/csmServer/csmConnections.properties file for z/OS.

port
The client port that is used by the CLI to communicate with the Copy Services Manager server. The default value is 9560.

Tip: This value must match the **communications.port** property in the rmserver.properties file that is located in the *install dir*\liberty\wlp\usr\servers\csmServer\ directory for distributed systems, and in the *path_prefix*/opt/IBM/CSM/wlp/usr/servers/csmServer/ directory for z/OS. And this value must also match the **csm.server.port property** in the csmConnections.properties file in the *install dir*\liberty\wlp\usr\servers\csmServer\ directory for distributed systems, and the *path_prefix*/opt/IBM/CSM/wlp/usr/servers/csmServer/ directory for z/OS.

rmserver.properties file

The rmserver.properties file contains various configuration settings for Copy Services Manager server.

The default location of the rmserver.properties file is the *install dir*\liberty\wlp\usr\servers\csmServer\properties directory on distributed systems, and the *path_prefix*/opt/IBM/CSM/wlp/usr/servers/csmServer/properties directory on z/OS.

Note: You can use the **chsystem** command with the **-f server** parameter to change the properties.

You can also access and manually edit the rmserver.properties file from within the Copy Services Manager GUI under **Settings** > **Server Properties**.

Restart Copy Services Manager to activate the property changes. Properties are not synchronized between the Copy Services Manager management servers and must be maintained on each Copy Services Manager management server.

The file contains the following parameters that you might need to customize for your environment:

log.file
The name of the Copy Services Manager server log file. The default value is csmTrace.log.

The newest log file is the name the same as this value. Subsequent log files have a number that is appended to the file name. For example, csmTrace1.log and csmTrace2.log.

This log file is in the *install dir*\liberty\wlp\usr\servers\csmServer\logs\CSM directory on distributed systems, and the *path_prefix*/opt/IBM/CSM/wlp/usr/servers/csmServer/logs/CSM directory on z/OS.

log.file.maxFiles
The maximum number of Copy Services Manager server log files that are created before old log files are overwritten. The default value is 50.

log.file.maxFileSize
The maximum size, in KB, of each Copy Services Manager server log file. The default value is 10240.

communications.port
The client port that is used by the GUI and CLI to communicate with the Copy Services Manager server. The default value is 9560.

Tip: This value must match the **port** property in the *install dir*\CLI\repcli.properties file and the *install dir*\libery\wlp\usr\servers\csmServer\properties\csm.Connection.properties file on distributed systems, and it must match the **port** property in the *path_prefix*/opt/IBM/CSM/CLI/repcli.properties file and the *path_prefix*/opt/IBM/CSM/wlp/usr/servers/csmServer/properties/csmConnection.properties file on z/OS.

communications.haPort
The standby management server port that is used for communication between the active and standby management server. The default value is 9561.

csm.server.snmp_community_string
The SNMP community name. The default value is public.

csm.server.sus_gc_pairs_on_gm_pause
A flag that indicates whether to suspend the Global Copy pairs when a Global Mirror session is suspended. The valid values are true and false.

db.backup.location
The directory that is used by the mkbackup command to store a backup copy of the IBM Copy Services Manager database. By default, the backup file is stored in the *install dir*\liberty\wlp\usr\servers\csmServer\database\csmdb directory for distributed systems, or in the *path_prefix*/opt/IBM/CSM/wlp/usr/servers/csmServer/database/csmdb directory for z/OS.

server.logpackages.maxpackages
The maximum number of log packages that is maintained by the server.

server.backup.maxbackups
The maximum number of backups that is maintained by the server.

csm.server.notification.sender.address: *<email address>*
Specifies the email address from which to send outgoing email alerts. By default, outgoing email alerts are set to come from the generated email address csmServer@*<server hostname>*. However, for some SMTP server software or configurations, this email address is not accepted. Therefore, you can change the outgoing server email address to something that meets the requirements of your environment.

csm.server.ldap.enabled
Enables LDAP in your environment when set to true.

Note: The default value for **csm.server.ldap.enabled** is set to false for z/OS systems and true for distributed systems.

com.ibm.csm.*<sessionName>*.*<rolepair>*.userpfc
Specifies which of the Metro Mirror relationships for the Preserve Mirror feature to use. When the Metro Mirror pairs are established or failed over, any pairs that are marked with this property are set up so that when the source is flashed the Preserve Mirror feature knows to use these pairs. For example, setting the property to com.ibm.csm.MySess.H1-H2.userpfc indicates that session "MySess" and the role pair "H1-H2" to be used for Preserve Mirror.

Notes:

- This property default is set to false. It must be set to true to enable the option on the role pair.

- Use underscores to indicate any spaces in the property setting. For example, for the session "MySess" you would specify `My_Sess` in the property.

com.server.svc.fc.cleanreate =*<cleanrate>*
com.server.svc.fc.cleanrate.*<sessionName>*=*<cleanrate>*
A cleaning rate can be specified for a FlashCopy session (or a session that contains a FlashCopy sequence) that is independent of the background copy rate. The clean rate controls the rate at which the cleaning process operates. The cleaning process copies data from the target volume of a mapping to the target volumes of other mappings that depend on this data.

Notes:

- For older storage systems that run IBM Spectrum Virtualize, the *<cleanrate>* range is 0-100. For new storage systems at release 7.8.1 and higher, the range is 0-150. If this property is not specified, the default rate is 50. For more information on the clean rate, see your storage system user guide.
- This property is only valid for storage systems that run IBM Spectrum Virtualize. If a *<sessionName>* is not specified, the cleaning rate value is applied to all FlashCopy sessions, and sessions that contain a FlashCopy sequence, for storage systems that are running IBM Spectrum Virtualize.

csm.auto.restart.after.swap=*<true>*
After a swap occurs, this option automatically restarts replication from the site that was swapped to, to the alternative site without user intervention.

When HyperSwap is enabled on multi-target sessions with Metro Mirror relationships, by default a HyperSwap command or event results in all I/O being swapped to the Metro Mirror secondary. And then the Copy Services Manager session moves to a Target Available state.

After the swap, no replication occurs, and a manual **`Start`** command must be issued for replication to run again.

If HyperSwap is enabled on the role pair that is automatically started, as soon as all pairs in the role pair reach a Prepared state, the HyperSwap configuration is automatically loaded as well. This option helps to ensure that replication is started quickly after a HyperSwap command or event to provide continual disaster recovery and high availability needs.

When this option is set, synchronization starts automatically, which causes the alternative site to be inconsistent until all pairs in the role pair reach a Prepared state.

com.ibm.csm.zconsole.logging=none (default) | `all` | `error`
Specifies the standard out logging level to the syslog, where the possible values are *none*, *all*, or *error*.

- When *none* is specified, Copy Services Manager does not log to the syslog at all (default).
- When *all* is specified, Copy Services Manager logs all I, W, and E messages to the syslog.
- When *error* is specified, Copy Services Manager logs all W and E messages to the syslog.

Example: To log all messages

```
com.ibm.csm.zconsole.logging=all
```

com.ibm.csm.zconsole.logging.includechildren=`true` | `false` (default)
Specifies whether to log child messages to the syslog or not. By default, only high-level messages are logged. Child messages are not logged. Use this property setting to override this behavior and enable child messages to be logged.

Notes:

- Be aware that setting the logging to all messages, including the child messages, can result in a large number of messages. Only set the **`includechildren`** property to `true` when it is important to see the child messages.
- When you set the **`includechildren`** property to `true`, all child messages are printed to the syslog, including any in the **`excludedmsgs`** list, as discussed next.

Example: To log all child messages

```
com.ibm.csm.zconsole.logging.includechildren=true
```

com.ibm.csm.zconsole.logging.excludedmsgs=*<messages to exclude in comma-separated list>*
Specifies which messages to exclude from writing to the syslog, where the values are a comma-separated list of message IDs. Any ID in the list does not appear in the syslog.

Note: The **excludedmsgs** property is only for parent messages.

Example: To exclude the IWNR1028I and IWNR6000I messages from being logged:

```
com.ibm.csm.zconsole.logging.excludedmsgs=IWNR1028I,IWNR6000I
```

csm.disable.mm.mode.sessionname=true | false (default)
Specifies whether to disable Metro Mirror mode, where *session_name* is the name of the session on which you want to disable it or not. This property affects Metro Mirror Failover/Failback sessions only.

- Replace any spaces in *session_name* with an underscore symbol ("_").
- This property is case-sensitive.

Note: If you do not see the option take effect right away in the GUI, you can either restart the Copy Services Manager server, or issue a command, such as **Stop**, to have the GUI refresh the available commands list.

Example: To disable Metro Mirror mode in session "My MM:"

```
csm.disable.mm.mode.My_MM=true
```

csm.percent.complete.warning.threshold=<percent from 0-100> | 0 (default)
Specifies the percent of completion of a Global Copy session before a warning is issued. This property affects Metro Mirror Failover/Failback sessions only, and after a **StartGC H1->H2** or **StartGC H2->H1** command. The percentage (<percent from 0-100>) option must be an integer in the range 0 - 100.

- If the current progress on the session is less than or equal to the value specified in the property, then a warning status message appears on the session, and the session stays in a Preparing or Warning state.
- If the progress is greater than the value specified in the property, then no status message (IWNR2768W) displays, and the session shows Preparing or Normal status.
- The status message that appears:
  IWNR2768W
  [May 21, 2020 3:43:49 PM] Session MM and role pair H1-H2 is at or below the warning threshold of x percent complete.

Example: A session is started with the **StartGC H1->H2** command. The percent complete specified is 80. While the progress for the session shows anything in the range 0 - 80, the session shows Preparing or Warning with a status message. When the progress is 80% or greater, the status message goes away, and the session goes into Preparing or Normal state.

```
csm.percent.complete.warning.threshold=80
```

Notices

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

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

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

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

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

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

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

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

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

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

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

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

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

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

The performance data discussed herein is presented as derived under specific operating conditions. Actual results may vary.

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

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

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

COPYRIGHT LICENSE:

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

Each copy or any portion of these sample programs or any derivative work must include a copyright notice as follows:
© (your company name) (year).
Portions of this code are derived from IBM Corp. Sample Programs.
© Copyright IBM Corp. _enter the year or years_.

If you are viewing this information softcopy, the photographs and color illustrations may not appear.

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 www.ibm.com/privacy/us/en and IBM’s Online Privacy Statement at www.ibm.com/privacy/details/us/en in the section entitled “Cookies, Web Beacons and Other

Technologies," and the "IBM Software Products and Software-as-a-Service Privacy Statement" at http://www.ibm.com/software/info/product-privacy.

Trademarks

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

Adobe is a registered trademark of Adobe Systems Incorporated in the United States, and/or other countries.

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

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

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

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

Index

D

E

F

H

I

J

L

M

N

O

P

R

S

T

U

V

W

Z

SC27-8998-13