VMS

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VMS Show Cluster Utility Manual

Order Number AA–LA46A–TE

VMS Show Cluster Utility Manual

Order Number: AA–LA46A–TE

April 1988

This manual describes how to use the Show Cluster Utility to monitor and display VAXcluster activity and performance.

Revision/Update Information: This manual supersedes the *VAX/VMS Show Cluster Utility Reference Manual,* Version 4.4.

Software Version: VMS Version 5.0

digital equipment corporation
maynard, massachusetts

April 1988

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Preface

Intended Audience

This manual is intended for VAXcluster users, system managers, and others who routinely monitor cluster activity and performance.

Document Structure

This document consists of four sections:

- Description—Provides a full description of the Show Cluster Utility (SHOW CLUSTER).
- Usage Summary—Outlines the following SHOW CLUSTER information:
  - –Invoking the utility
  - –Exiting from the utility
  - –Directing output
  - –Restrictions or privileges required
- Qualifiers—Describes SHOW CLUSTER qualifiers, including format, parameters, and examples.
- Commands—Describes SHOW CLUSTER commands, including format, parameters, and examples.

Associated Documents

For related information about this utility, see the *VMS VAXcluster Manual.*

Conventions

Convention	Meaning
RET	In examples, a key name (usually abbreviated) shown within a box indicates that you press a key on the keyboard; in text, a key name is not enclosed in a box. In this example, the key is the RETURN key. (Note that the RETURN key is not usually shown in syntax statements or in all examples; however, assume that you must press the RETURN key after entering a command or responding to a prompt.)
CTRL/C	A key combination, shown in uppercase with a slash separating two key names, indicates that you hold down the first key while you press the second key. For example, the key combination CTRL/C indicates that you hold down the key labeled CTRL while you press the key labeled C. In examples, a key combination is enclosed in a box.
$ SHOW TIME 05-JUN-1988 11:55:22	In examples, system output (what the system displays) is shown in black. User input (what you enter) is shown in red.
$ TYPE MYFILE.DAT . . .	In examples, a vertical series of periods, or ellipsis, means either that not all the data that the system would display in response to a command is shown or that not all the data a user would enter is shown.
input-file, . . .	In examples, a horizontal ellipsis indicates that additional parameters, values, or other information can be entered, that preceding items can be repeated one or more times, or that optional arguments in a statement have been omitted.
[logical-name]	Brackets indicate that the enclosed item is optional. (Brackets are not, however, optional in the syntax of a directory name in a file specification or in the syntax of a substring specification in an assignment statement.)
quotation marks apostrophes	The term quotation marks is used to refer to double quotation marks (″). The term apostrophe (') is used to refer to a single quotation mark.

New and Changed Features

The Show Cluster Utility for Version 5.0 contains the following new features:

- Several commands have additional qualifiers:

Command	New Qualifiers
ADD CONNECTIONS	/NAME=ALL
	/NAME=local-process-name
ADD SYSTEMS	/ID=ALL
	/NODE=ALL
	/TYPE=ALL
REMOVE CONNECTIONS	/NAME=ALL
	/NAME=local-process-name
REMOVE SYSTEMS	/ID=ALL
	/NODE=ALL
	/TYPE=ALL

- Two classes have additional fields:

Class	New Fields
CLUSTER	CL_EXPECTED_VOTES
	CL_MEMBERS
MEMBERS	EXPECTED_VOTES
	RECNXINTERVAL
	SW_VERS

- You can now scroll or move a single window without explicitly selecting it. When you issue a MOVE command, AUTO_POSITIONING is disabled.
- Data in the HW_TYPE field has the format VAX-11/780 or VAX 8800, rather than V780 or 8800.
- The SHOW CLUSTER HELP Facility now asks you if you would like the help display to remain on the screen while you enter SHOW CLUSTER commands.

SHOW CLUSTER Description

The VMS Show Cluster Utility (SHOW CLUSTER) monitors nodes in a VAXcluster and displays information about cluster activity and performance. SHOW CLUSTER collects information from the systems communications services (SCS) database, the connection management database, and the port database. SHOW CLUSTER outputs the information to your terminal or to a specified device or file. You can use SHOW CLUSTER interactively or with command procedures and user-defined default settings.

1 SHOW CLUSTER Report

SHOW CLUSTER information covers approximately 100 fields of data. The data is organized in terms of fields, classes, and windows. You can customize the appearance of the SHOW CLUSTER display or use default displays for access to often-needed data.

1.1 A Sample Display

Figure SHCL–1 presents a sample SHOW CLUSTER report. It consists of one window (the SCS window) with two major groups of information, labeled SYSTEMS and MEMBERS. Several columns of information appear below each major heading.

Figure SHCL–1 A SHOW CLUSTER Report

View of Cluster from system ID 19577 node: METAL

SYSTEMS			MEMBERS		
NODE	HW_TYPE	SOFTWARE	VOTES	STATUS	TRANSITION_TIME
METAL	VAX 8650	VMS V5.0	1	MEMBER	30-DEC-88 09:41
LOYAL	HS50	HSC V350			
OCALAS	VAX 8800	VMS V5.0	0	MEMBER	31-DEC-88 13:58
HELM	VAX-11/785	VMS V5.0	1	MEMBER	31-DEC-88 08:55
HONOR	HS50	HSC V350			
LEVER	VAX 8300	VMS V5.0	1	MEMBER	30-DEC-88 21:10
MORTE	HS70	HSC V300			
ROLLER	HS70	HSC V350			
ROCKY	HS70	HSC V300			
MUTTER	HS50	HSC V350			
CARAT	VAXstation II	VMS V5.0	0	MEMBER	31-DEC-88 13:02
CRETE	MicroVAX II	VMS V5.0	0	MEMBER	31-DEC-88 07:31
SYLVAN	MicroVAX II	VMS V5.0	0	MEMBER	30-DEC-88 20:16
ATHENA	VAX 8800	VMS V5.0	0	MEMBER	31-DEC-88 00:09
BILLS	MicroVAX II	VMS V5.0	0	BRK_NEW	16-DEC-88 09:54
CANDYS	MicroVAX II	VMS V5.0	0	BRK_NON	30-DEC-88 17:00
CACTUS	MicroVAX II	VMS V5.0	0	MEMBER	31-DEC-88 13:11

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1.2 Organizing Data in a Report

Each column of data in a SHOW CLUSTER report is called a *field*. You can reference each field of data by a unique name. Using the field name, you can selectively remove or add a field from the SHOW CLUSTER report. For example, the sample report, shown in Figure SHCL–1, consists of six fields of information. The NODE field shows the names of nodes in the cluster. The HW_TYPE field shows the model of CPU in each node. The SOFTWARE field shows the current software version that each node is running.

SHOW CLUSTER gathers related fields of information into *classes*. Using a class name, you can selectively add or remove an entire class from the SHOW CLUSTER report. Each class displays certain fields by default. Some classes have additional fields that you can add or remove using the field name.

For example, Figure SHCL–1 consists of two classes of information: SYSTEMS and MEMBERS. The MEMBERS class contains the VOTES, STATUS, and TRANSITION_TIME fields. Each of these fields provides information about members of the cluster, such as the number of votes the remote node contributes toward quorum or the last time a system changed membership status.

SHOW CLUSTER gathers related data from three different databases and organizes the data into three separate blocks called *windows*. The windows include the following:

- The SCS window, shown in Figure SHCL–1, primarily contains data collected from the systems communications services (SCS) database.
- The CLUSTER window contains data collected from the connection management database.
- The LOCAL_PORTS window contains data collected from the port database.

Each window is a separate entity that you can manipulate independently. You can add, remove, move, or scroll each window. To each window, you can add and remove information by class or by field. You typically use the SCS window most often because the SCS database is the largest of the three databases. If you do not customize the report, SHOW CLUSTER displays the SCS window by default.

1.3 Grouping Data into Classes

The following tables show which classes are contained in the SCS window, the CLUSTER window, and the LOCAL_PORTS window.

Table SHCL–1 The Systems Communications Services (SCS) Window

Classes	Information Displayed
MEMBERS	Describes systems actively participating in the cluster.
SYSTEMS	Describes all systems in the cluster. It shows node name, identification number, hardware type, and software version.
CIRCUITS	Describes virtual circuits on systems in the cluster.
CONNECTIONS	Describes the connections established over a virtual circuit in the cluster.
COUNTERS	Shows counts of the total accumulated traffic over a connection for the life of the connection.
CREDITS	Shows send and receive credit counts for connections in the cluster.

Table SHCL–2 The CLUSTER Window

Class	Information Displayed
CLUSTER	Provides general information about the cluster, such as the time it was formed and the time of the last transition.

Table SHCL–3 The LOCAL_PORTS Window

Classes	Information Displayed
ERRORS	Displays a count of the errors on each port, along with information on the feasibility of reinitializing a port.
LOCAL_PORTS	Describes the local system's port interface to the cluster.

For a description of the fields in each class, see the description of the ADD (Field) command.

2 Controlling the Display

With over 100 fields of data, the SHOW CLUSTER display can quickly extend beyond screen limits, so the utility provides mechanisms to control the display of data. These mechanisms include the following:

- SHOW CLUSTER commands
- A default keypad, which can be redefined
- An initialization file to format the display
- Command procedures to control the display

When you first use the SHOW CLUSTER display, the most useful commands are the ADD and REMOVE commands and the PAN command. Both the ADD and the REMOVE commands take an argument of either a class name or a field name. For example, to remove a field from the display shown in Figure SHCL–1 and add other fields, you could enter the following commands:

```
Command> REMOVE TRANSITION_TIME
Command> ADD EXPECTED_VOTES,RP_REVISION,SYS_ID
Command> PAN RIGHT 5
```

The REMOVE TRANSITION_TIME command deletes a field from the display that provides information about the length of time a system has been a member. The ADD EXPECTED_VOTES command adds a field of data showing the recommended number of votes that all members of the cluster will contribute. The ADD RP_REVISION command adds a field that shows the hardware or microcode version number of ports on the remote system. The SYS_ID command adds a field to the display that shows each system's identification. The last command, PAN RIGHT 5, rotates the display so you can view data to the right of the current screen.

Over time, you can determine the most valuable classes and fields of data for the SHOW CLUSTER report, and create a startup initialization file that establishes your default report format. You can also build command procedures to use while running SHOW CLUSTER interactively. In this way, you can quickly reformat the display to show the data that is relevant for your installation.

SHOW CLUSTER has other commands and a definable keypad that allow you to further customize the display. You can rearrange the position of windows, scroll their contents, or change the interval at which the display is updated.

The following sections describe how to perform these operations.

2.1 Entering Commands

SHOW CLUSTER allows you to customize the display of data during a continuous session by entering various commands. The Command Section describes the available SHOW CLUSTER commands in detail.

When you first enter the continuous SHOW CLUSTER environment, no command prompt is visible on the display screen. As soon as you enter a command from the terminal keyboard, the two bottom lines of the display are erased and the following SHOW CLUSTER prompt appears:

```
Command>
```

SHOW CLUSTER uses the two bottom lines for displaying commands, error messages, and broadcast messages.

Updating of the continuous display stops as soon as you enter input from the terminal keyboard. When you press the RETURN key after entering a command, updating of the display resumes until another command is entered. By default, updating takes place at 15-second intervals. If no new command is entered within 15 seconds, the command prompt is erased and two more lines of data take its place.

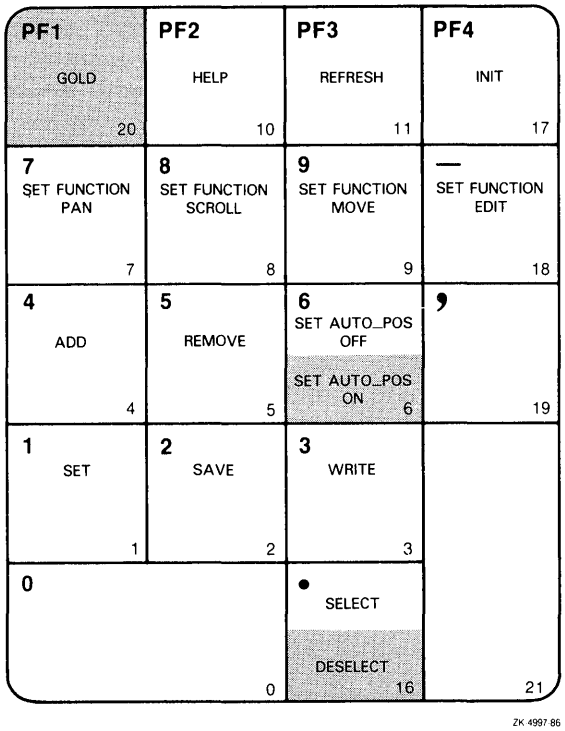
By default, the SHOW CLUSTER arrow keys are set to the EDIT function. This means that you can perform command line editing at the command prompt that is similar to DCL line-mode editing. For example, the left arrow key moves the cursor to the left, or the up arrow key recalls the previous command. See the *VMS DCL Concepts Manual* for information on DCL line-mode editing.

You reset the function keys from EDIT to PAN, SCROLL, or MOVE with the SET FUNCTION command. After that, the arrow keys are redefined, and DCL line-mode editing is disabled. PAN, SCROLL, and MOVE are described in Section 2.5 and in the Command Section. To enable editing again once it has been disabled, enter the command SET FUNCTION EDIT.

2.2 Using the Keypad

SHOW CLUSTER provides a predefined keypad that you can use to enter selected commands. By default, the numeric keypad is defined as follows:

SHOW CLUSTER Description



Shading over a keypad command indicates that you must press the GOLD key and then the keypad key.

The SET FUNCTION keys, shown in the second row of the keypad, redefine the arrow keys to perform a specified function. For example, if you press the SET FUNCTION SCROLL key, the ↑, ↓, →, and ← arrow keys are redefined as SCROLL UP 1, SCROLL DOWN 1, SCROLL RIGHT 1, and SCROLL LEFT 1, respectively. (See the Command Section for information on specific commands.)

Note: If you set the function to PAN, SCROLL, or MOVE, the arrow keys are no longer defined to perform DCL line-mode editing. Only one function can be enabled at a time. To restore line-mode editing, once it has been changed to another function, enter the command SET FUNCTION EDIT.

You can also use the DEFINE/KEY command to change the definition of a key. See DEFINE/KEY command in the Command Section for more information.

2.3 Changing the Updating Interval

You can change the interval at which SHOW CLUSTER updates the data in the display. By default, the display is updated every 15 seconds, with the changed data displayed in reverse video. To change the rate at which data is updated, use the SET INTERVAL command. See SET INTERVAL in the Command Section for more information.

You can also change the updating interval by entering the following command at the DCL level:

```
SHOW  CLUSTER/INTERVAL=seconds
```

2.4 Adding Information

When you invoke SHOW CLUSTER, the resulting display contains a subset of the total information available. By default, the SHOW CLUSTER display consists of the SCS window with three fields of data, as shown in the following figure:

Figure SHCL–2 The SCS Window

View of Cluster from system ID 1209 node: DARBY 31-DEC-1988 15:11:23

SYSTEMS		MEMBERS
NODE	SOFTWARE	STATUS
DARBY	VMS V5.0	MEMBER
DOOLEY	HSC V300	
ALICAT	VMS V5.0	MEMBER
MISHA	VMS V5.0	MEMBER
WAYNE	VMS V5.0	MEMBER
PHENIX	HSC V350	
UPARK	HSC V350	
TOONA	VMS V5.0	MEMBER

SCS WINDOW

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You can add additional fields or classes to the SCS window. The ADD (Field) command in the Command Section lists appropriate field names. To specify a particular class, use the appropriate ADD command as specified in the Command Section.

If you add a field or class that belongs to the CLUSTER window or the LOCAL_PORTS window, SHOW CLUSTER displays the new window with the specified data. Figure SHCL–3 and Figure SHCL–4 display the default classes and fields of the LOCAL_PORTS window and the CLUSTER window.

Note: The AUTO_POSITIONING function may place one window below another in such a way that it does not appear within the limits of your current display. See the description of the PAN command in the next section for information on viewing data that extends beyond the limits of the display.

The LOCAL_PORTS window contains the LOCAL_PORTS class by default. It can also display the ERRORS class.

Figure SHCL–3 The LOCAL_PORTS Window

Local ports on system ID 169 node: DARBY 31-DEC-1988 09:05:12

LOCAL_PORTS						
NAME	LP_STA	PORT	DGS	MSGS	OPEN_C	FORM_C
PAA0	ONLINE	2	> 2	> 2	4	0

LOCAL PORTS WINDOW

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Figure SHCL–4 shows the CLUSTER window. It has only one class of information, the CLUSTER class.

Figure SHCL–4 The CLUSTER Window

CLUSTER					
CL_Q	CL_V	QD_NAME	QF_V	FORMED	LAST_TRANSITION
2	3		NO	15-AUG-88 9:38	30-SEP-88 14:39

CLUSTER WINDOW

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2.5 Formatting the Display

Because SHOW CLUSTER allows you to include additional fields and classes, you may produce displays that overflow the physical limits of the terminal screen. However, you can manipulate the fields, classes, and windows to customize a display to meet your needs. This can be achieved by any of the following methods:

- Removing data by class, field, or type
- Modifying field widths and formats
- Modifying the screen size

- Moving a window
- Scrolling a window
- Panning the display

2.5.1 Removing Data

You may want to remove certain fields or classes to reduce the width of the display to fit the limits of your screen. Also, certain fields or classes may not be important for your particular needs. You can also remove particular types of data to reduce the length of the display.

You use the REMOVE command to remove entire fields and classes, or subsets of fields and classes. To remove a particular field, use the appropriate field name in the command, REMOVE field-name. See the ADD (Field) command description for a list of valid field names. To remove a particular class, use the appropriate class name in the command, REMOVE class-name. To remove subsets of data, use the appropriate qualifier with the REMOVE class-name command. See the REMOVE commands in the Command Section for appropriate class names and qualifiers.

2.5.2 Modifying Field and Screen Size

Another way to make the display fit the physical limits of the screen is to change the width of certain fields in the display. For example, if SHOW CLUSTER provides a field width that can contain any possible value and the values your cluster generates do not require that much area, you can adjust the field width with the SET (Field) command. See the SET (Field) command in the Command Section for a description of how to adjust field widths.

SHOW CLUSTER also allows you to adjust the size of the terminal screen. If the terminal is DIGITAL compatible and supports a wide display, you can set the screen to a width of up to 511 columns by specifying an appropriate value to the SET SCREEN command. See the SET SCREEN command in the Command Section for more details.

2.5.3 Moving a Window

By default, SHOW CLUSTER operates with AUTO_POSITIONING ON. This means that it automatically arranges the windows to take best advantage of the available display space. However, you can position windows manually with the MOVE command, which implicitly sets AUTO_POSITIONING to OFF.

If there are multiple windows in the display, you must first select the window to be repositioned. You use the command SELECT *window-name* to specify the window name: SCS, CLUSTER, or LOCAL_PORTS. As an alternative, you can repeatedly press the SELECT key on the keypad to cycle from one window to the next. The selected window appears highlighted.

To move a window, you either enter MOVE commands at the command prompt, or use the arrow keys defined as MOVE commands. Entering the command SET FUNCTION MOVE redefines the ↑, ↓, →, and ← arrow keys as MOVE UP 1, MOVE DOWN 1, MOVE RIGHT 1, MOVE LEFT 1, respectively.

When you enter a MOVE command, the window changes position by column (horizontally) or by line (vertically). For example, entering the command MOVE LEFT 5 moves the window 5 columns to the left. An empty frame appears around the new window position. When you are satisfied with the position of the window, enter the DESELECT command, which moves the

window to the new position. Entering another SELECT command before the previous MOVE operation has been deselected also moves the window to its new position.

In summary, follow these steps to move a window:

1. Select the window—if there is more than one—using the SELECT command.
2. Position the window frame by using MOVE commands.
3. Terminate the MOVE operation by entering the DESELECT command or another SELECT command.

For more information, see the SELECT, SET FUNCTION, and DESELECT commands in the Command Section.

2.5.4 Scrolling a Window

The SCROLL command provides a means of quickly scanning through a window without changing the selection of information displayed in the window. Scrolling scans a window by field (horizontally) and by line (vertically). The window headings remain stationary when you scroll vertically.

When there are multiple windows in the display, you must first select a window by entering the SELECT command. The selected window becomes highlighted.

You scroll a selected window either by entering SCROLL commands at the command prompt, or by using the arrow keys defined as SCROLL commands. Entering the command SET FUNCTION SCROLL redefines the ↑, ↓, →, and ← arrow keys as SCROLL UP 1, SCROLL DOWN 1, SCROLL RIGHT 1, and SCROLL LEFT 1, respectively.

To enter the SCROLL command at the command prompt, use the following format:

```
SCROLL direction value
```

See the SET FUNCTION and SCROLL commands in the Command Section for more information.

2.5.5 Panning the Display

The PAN command allows you to view the entire display by shifting your view of the display by column (horizontally) or by line (vertically). Window headings also move out of view as the windows contained within the display are panned beyond the limits of the screen.

The display seems to move in the opposite direction to which you are panning. For example, the command PAN UP 5 moves the display five lines down; the command PAN RIGHT 5 moves the display five columns to the left.

To pan the display, either enter PAN commands at the command prompt, or use the arrow keys defined as PAN commands. Entering the command SET FUNCTION PAN redefines the ↑, ↓, →, and ← arrow keys as PAN UP 1, PAN DOWN 1, PAN RIGHT 1, and PAN LEFT 1, respectively.

To enter the PAN command at the command prompt, use the following format:

```
PAN direction value
```

See the SET FUNCTION and PAN commands in the Command Section for more information.

Note: The arrow keys can have only one function enabled at a time. To restore line-mode editing once the function has been changed to PAN, SCROLL, or MOVE, enter the command SET FUNCTION EDIT.

2.6 Refreshing the Screen

Normally a continuous display is updated or *refreshed* according to the specified interval time. SHOW CLUSTER scans the software databases, extracts and stores data for each field, displays any new or changed data, and updates the time. On DIGITAL and DIGITAL compatible terminals, reverse video highlights any changed data.

You can refresh the screen at any time by one of the following methods:

- Modifying the format of the display with the ADD, REMOVE, INITIALIZE, or SET command
- Using the REFRESH command
- Pressing CTRL/W

2.7 Receiving Broadcast and Error Messages

When you receive a system broadcast message during a continuous SHOW CLUSTER session, the message appears at the bottom of the display screen. A multiline message fills as many lines of the display as it needs.

The last broadcast message remains on the screen until you acknowledge its receipt by entering input from the terminal in one of the following ways:

- Pressing the RETURN key
- Refreshing the screen by pressing CTRL/W
- Entering a command

If you receive more than one broadcast message, SHOW CLUSTER waits until the next update interval to display the next message.

SHOW CLUSTER also displays error messages at the bottom of the screen. For an explanation of the error messages, see the *VMS System Messages and Recovery Procedures Reference Volume.*

3 Creating a Startup Initialization File

To customize the SHOW CLUSTER display, you can create a startup initialization file, which the utility executes when it is invoked. SHOW CLUSTER takes the original default display, and adds or removes whatever windows, classes, or fields you specify. The resulting display becomes your default startup format. A startup initialization file resembles the following:

```
!
!Startup Initialization File
!
!
INITIALIZE
REMOVE MEMBERS
ADD RP_REVISION,RP_TYPE,SYS_ID
SET SCREEN=132
```

This startup procedure causes SHOW CLUSTER to delete the MEMBERS class information from the default display. The procedure also adds the RP_REVISION and RP_TYPE fields from the CIRCUITS class and the SYS_ID field from the SYSTEMS class. The last line of the procedure sets the screen size to 132 columns.

In order for a startup file to execute before the display begins, you must assign the logical name SHOW_CLUSTER$INIT to the initialization file; for example:

```
DEFINE SHOW_CLUSTER$INIT DEVA:[JONES]SHCINI
```

When invoked, SHOW CLUSTER searches for the file defined by SHOW_CLUSTER$INIT. In this example, SHOW CLUSTER looks for DEVA:[JONES]SHCINI.INI when it starts up. If the initialization file is found, SHOW CLUSTER executes the procedure before beginning the display.

However, if SHOW_CLUSTER$INIT is not defined or does not include a directory specification, SHOW CLUSTER searches the current default directory for a file named SHOW_CLUSTER.INI.

To create an initialization file, follow these steps:

1. Define SHOW_CLUSTER$INIT as device:[directory]SHCINI before invoking SHOW CLUSTER
2. Customize the display using SHOW CLUSTER commands during a continuous SHOW CLUSTER session
3. Preserve the command sequence by entering the following command:

```
Command> SAVE SHOW_CLUSTER$INIT:.INI
```

You must specify SHOW_CLUSTER$INIT:.INI, because the SAVE command creates a file with a file type of COM by default. SHOW CLUSTER looks for an INI file when it searches for a startup initialization file.

You can edit the file that the SAVE command creates to include comments or to improve its efficiency. For more information, see the SAVE command in the Command Section.

Instead of having SHOW CLUSTER build an initialization file, you can build one yourself in the same way you build a command procedure. See Section 3.1 for a description of the rules for creating a command procedure.

3.1 Using Command Procedures

You can also create command procedures that contain SHOW CLUSTER commands. Such files let you modify display characteristics without having to enter commands interactively. Command procedures can be used during a continuous SHOW CLUSTER display session to perform a series of commands, for example, customizing the output of the display. Any valid SHOW CLUSTER commands can be used. Command procedures can be nested 16 levels deep. Note that command procedures cannot be run from a batch job.

Include the SHOW CLUSTER command INITIALIZE as the first command in the file. The INITIALIZE command ensures that the report is in a known state before any commands are executed to modify it.

Note: Do not include an EXIT command at the end of the command procedure. The EXIT command terminates SHOW CLUSTER and erases the SHOW CLUSTER display before you can see it.

The following command procedure customizes a report display:

```
!
! Include only the node field from the default display; show votes
! and quorum for each node and for the cluster as a whole.
!
INITIALIZE
REMOVE SOFTWARE,STATUS
ADD VOTES,QUORUM,CL_VOTES,CL_QUORUM
```

This command procedure removes the SOFTWARE and STATUS fields from the report display and adds fields that provide information about the cluster quorum and votes.

To execute a command procedure during a continuous SHOW CLUSTER session specify the execute procedure (@) command along with the file name of the command procedure. The default file type for command procedure files is COM. The following command executes the command procedure saved in the default directory under the file name SYSMOD.COM:

```
Command> @SYSMOD
```

In this example, the default file type COM is assumed because the file type is omitted.

For more information on creating command procedures, see the SAVE command in the Command Section.

SHOW CLUSTER Usage Summary

The Show Cluster Utility (SHOW CLUSTER) allows you to monitor the activity and performance of a VAXcluster. SHOW CLUSTER collects information from the systems communications services (SCS) database, the connection management database, and the port database, and outputs it to your terminal or to a specified device or file.

FORMAT SHOW CLUSTER

PARAMETERS *None.*

usage summary

To invoke SHOW CLUSTER, enter the following command:

```
$ SHOW CLUSTER
```

If you specify the command without any qualifiers, SHOW CLUSTER displays a single cluster report and then returns control to the DCL level. To invoke a continuous SHOW CLUSTER display, enter the following command:

```
$ SHOW CLUSTER/CONTINUOUS
```

In a continuous display, you can control report output with SHOW CLUSTER commands.

You can direct SHOW CLUSTER output to a file or device other than to SYS$OUTPUT by specifying the /OUTPUT qualifier with the SHOW CLUSTER command.

To exit from a continuous display and return to the DCL level, either specify the EXIT command or press CTRL/Z. To exit from SHOW CLUSTER without erasing the screen, press CTRL/C. To interrupt SHOW CLUSTER, press CTRL/Y.

SHOW CLUSTER requires no special privileges because it is installed with the CMKRNL privilege.

SHOW CLUSTER QUALIFIERS

This section describes the qualifiers that can be used with the DCL command SHOW CLUSTER to invoke the Show Cluster Utility.

The qualifiers include the following:

- /BEGINNING=time
- /CONTINUOUS
- /ENDING=time
- /INTERVAL=seconds
- /OUTPUT=file-spec

/BEGINNING=time

Specifies the time that the SHOW CLUSTER session is to begin. You can specify an absolute time, a delta time, or a combination of the two. Observe the syntax rules for time values described in the *VMS DCL Concepts Manual.*

If you specify a future time, your process is placed in a state of hibernation until the specified time. Use this qualifier with the /OUTPUT and /ENDING qualifiers to run SHOW CLUSTER without direct user intervention.

FORMAT

/BEGINNING=*time*

PARAMETERS

time

You can specify time as an absolute time expressed as [dd-mmm-yyyy[:]] [hh:mm:ss.cc], or a delta time expressed as [dddd-][hh:mm:ss.cc], or a combination of the two. Observe the syntax rules for time values described in the *VMS DCL Concepts Manual.*

EXAMPLES

1
```
$ SHOW CLUSTER/BEGINNING=31-DEC-1988:20:30
```

In this example, specifying an absolute time, SHOW CLUSTER produces a single display at 8:30 P.M. on December 31, 1988.

2
```
$ SHOW CLUSTER/CONTINUOUS/BEGINNING=31-DEC-1988:21:30
```

In this example, specifying an absolute time, SHOW CLUSTER begins a continuous display at 9:30 P.M. on December 31, 1988.

3
```
$ SHOW CLUSTER/BEGINNING=7-:30
```

In this example, specifying a delta time, SHOW CLUSTER produces a single display seven days and 30 minutes from now.

/CONTINUOUS

Controls whether SHOW CLUSTER runs as a continuously updating display. If you omit the qualifier, SHOW CLUSTER produces a single display and returns control to the DCL command level.

Running SHOW CLUSTER in the continuous mode allows you to use SHOW CLUSTER commands to control the display.

FORMAT /CONTINUOUS

EXAMPLE

```
$ SHOW CLUSTER/CONTINUOUS
```

In this example, SHOW CLUSTER begins to display a continuous report that is updated every 15 seconds.

/ENDING=time

Specifies the time that the SHOW CLUSTER session is to end. You can specify an absolute time, a delta time, or a combination of the two. Observe the syntax rules for time values described in the *VMS DCL Concepts Manual*.

Use this qualifier with the /BEGINNING and /OUTPUT qualifiers to run SHOW CLUSTER without direct user intervention.

FORMAT

/ENDING=*time*

time

You can specify time as an absolute time expressed as [dd-mmm-yyyy[:]][hh:mm:ss.cc], or a delta time expressed as [dddd-][hh:mm:s.cc], or a combination of the two. Observe the syntax rules for time values described in the *VMS DCL Concepts Manual*.

EXAMPLE

```
$ SHOW CLUSTER/CONTINUOUS/ENDING=31-DEC-1988:15:30
```

In this example, SHOW CLUSTER begins a continuous display now and ends the display at 3:30 P.M. on December 31, 1988.

/INTERVAL=seconds

Specifies the number of seconds that display information remains on the screen before it is updated. By default, the interval time is 15 seconds.

If you use an initialization file in noncontinuous mode and the initialization file contains a SET SCREEN command that changes the screen size, SHOW CLUSTER sets the screen to the specified size for one update interval and then sets the screen to the original size.

FORMAT

/INTERVAL=*seconds*

seconds
The number of seconds between display updates.

EXAMPLE

```
$ SHOW CLUSTER/INTERVAL=5
```

In this example, SHOW CLUSTER displays a continuous report that is updated every five seconds.

/OUTPUT=file-spec

Directs the output from SHOW CLUSTER to the specified file instead of the current SYS$OUTPUT device.

SHOW CLUSTER output is always in printable file format, regardless of the file or device type specified. Output can be up to 132 columns wide and can be sent to any file, terminal, or print device.

You can also direct output to a file with the WRITE command. See the Command Section for more detail.

FORMAT

/OUTPUT=*file-spec*

file-spec

The name of the file or device to which SHOW CLUSTER output is directed. The default file name is SHOW_CLUSTER.LIS.

You can direct output to a device other than SYS$OUTPUT, by specifying a valid device name.

EXAMPLES

1
```
$ SHOW CLUSTER/OUTPUT=[OMALLEY]CLUSTER
```

In this example, SHOW CLUSTER produces one report and directs it to the file CLUSTER.LIS;1 in the directory OMALLEY.

2
```
$ SHOW CLUSTER/OUTPUT=[WARREN]CLUSTER.RPT;1
```

In this example, SHOW CLUSTER produces one report and directs it to the file CLUSTER.RPT;1 in the directory WARREN.

SHOW CLUSTER COMMANDS

Once you start a continuous SHOW CLUSTER display session, you can use SHOW CLUSTER commands to control the session. This section describes each of the SHOW CLUSTER commands.

command summary

command [/qualifier[, . . .]]
[parameter] [/qualifier[, . . .]]

@ (Execute Procedure)
ADD CIRCUITS
ADD CLUSTER
ADD CONNECTIONS
ADD COUNTERS
ADD CREDITS
ADD ERRORS
ADD (Field)
ADD LOCAL_PORTS
ADD MEMBERS
ADD SYSTEMS
DEFINE/KEY
DESELECT
EXIT
HELP
INITIALIZE
MOVE direction value
PAN direction value
REFRESH
REMOVE CIRCUITS
REMOVE CLUSTER
REMOVE CONNECTIONS
REMOVE COUNTERS
REMOVE CREDITS
REMOVE ERRORS
REMOVE (Field)
REMOVE LOCAL_PORTS
REMOVE MEMBERS
REMOVE SYSTEMS
SAVE [file-spec]
SCROLL direction value
SELECT [window-name]
SET AUTO_POSITIONING (ON,OFF)
SET (Field)
SET FUNCTION function-name
SET INTERVAL
SET SCREEN
WRITE [file-spec]

@ (Execute Procedure)

Executes a command procedure file that contains SHOW CLUSTER commands.

FORMAT

@ *file-spec*

PARAMETERS

file-spec
Specifies the name of the file that contains the commands to be executed. If you omit the file type, the default file type COM is used. No wildcard characters are allowed in the file specification.

QUALIFIERS

None.

DESCRIPTION

The execute procedure (@) command allows you to execute a set of SHOW CLUSTER commands that is contained in a file. For example, a command procedure file might contain a set of commands to customize a SHOW CLUSTER display. You can use any valid SHOW CLUSTER commands in the command procedure.

You can nest command procedures up to 16 levels deep.

SHOW CLUSTER looks for the command procedure in the directory specified by the logical name SHOW_CLUSTER$INIT. If SHOW_CLUSTER$INIT is not defined or does not include a directory specification, the utility looks for the command procedure in the current default directory.

For more information on building command procedures, see Section 3.1 and the SAVE command.

EXAMPLE

```
COMMAND> @MYFILE
```

The command in this example executes the command procedure MYFILE.COM. Because no file type is specified, the file type defaults to COM.

ADD CIRCUITS

Adds all currently enabled CIRCUITS class fields to the SHOW CLUSTER display. The CIRCUITS class contains information about the virtual circuits on systems in the cluster.

FORMAT

ADD CIRCUITS *[/qualifier[, . . .]]*

PARAMETERS

None.

QUALIFIERS

/ALL

Specifies that all fields in this class be added to the display.

/TYPE=ALL

Specifies that all types of circuits be included in the display, including formative, open, and closing circuits.

/TYPE=OPEN
/TYPE=NOOPEN

Controls whether either open circuits or nonopen circuits are added to the display.

DESCRIPTION

The ADD CIRCUITS command adds CIRCUITS class information to the SHOW CLUSTER display. This information includes data for all currently enabled fields in the CIRCUITS class. By default, the RPORT_NUM (remote port number), RP_TYPE (remote port type), and CIR_STATE (circuit state) fields are enabled. For a list of valid CIRCUITS class fields, see the ADD (Field) command.

You use the ADD CIRCUITS command together with the REMOVE CIRCUITS command to turn the display of CIRCUITS class information on and off. If you remove the CIRCUITS class from the display and add it again without changing any fields, all of the same fields are displayed again. If, however, you remove the CIRCUITS class and add new CIRCUITS class fields, all previously enabled fields are disabled, and only the newly added fields are displayed.

EXAMPLES

1
```
COMMAND> ADD CIRCUITS
```

The ADD CIRCUITS command in this example adds CIRCUITS class information to the display. This information includes all types of circuits for all enabled CIRCUITS class fields.

2
```
COMMAND> ADD CIRCUITS/TYPE=OPEN
```

The ADD CIRCUITS command in this example adds all open circuits to the SHOW CLUSTER display.

3
```
COMMAND> REMOVE CIRCUITS
COMMAND> ADD RP_OWNER
COMMAND> REMOVE CIRCUITS
    .
    .
    .
COMMAND> ADD CIRCUITS
```

The ADD CIRCUITS command in this example sequence adds CIRCUITS class information to the SHOW CLUSTER display. The REMOVE CIRCUITS command removes the CIRCUITS class from the display. The ADD RP_OWNER command adds the CIRCUITS class field RP_OWNER to the display. As a result, all other CIRCUITS class fields are disabled. When the CIRCUITS class is removed and added again, only the RP_OWNER field is displayed.

ADD CLUSTER

Adds all currently enabled CLUSTER class fields to the SHOW CLUSTER display.

FORMAT

ADD CLUSTER

PARAMETERS

None.

QUALIFIERS

/ALL
Specifies that all fields in this class be added to the display.

DESCRIPTION

The ADD CLUSTER command adds CLUSTER class information to the SHOW CLUSTER display. This information includes data for all currently enabled fields in the CLUSTER class. By default, the CLUSTER class includes CL_EXPECTED_VOTES (number of cluster votes expected), CL_QUORUM (cluster quorum), CL_VOTES (cluster votes), QF_VOTE (quorum disk contributes a vote), CL_MEMBERS (current cluster members), FORMED (when quorum was formed), LAST_TRANSITION (last change in cluster membership). For a list of valid CLUSTER class fields, see the ADD (Field) command.

You use the ADD CLUSTER command together with the REMOVE CLUSTER command to turn the display of CLUSTER class information on and off. If you remove the CLUSTER class from the display and add it again without changing any fields, all of the same fields are displayed again. If, however, you remove the CLUSTER class and add new CLUSTER class fields, all previously enabled fields are disabled, and only the newly added fields are displayed.

EXAMPLES

1
```
COMMAND> ADD CLUSTER
```

The ADD CLUSTER command in this example adds CLUSTER class information to the display. This information includes all enabled CLUSTER class fields.

```
2  COMMAND> REMOVE CLUSTER
   COMMAND> ADD CL_QUORUM
   COMMAND> REMOVE CLUSTER
      .
      .
      .
   COMMAND> ADD CLUSTER
```

The ADD CLUSTER command in this example adds CLUSTER class information to the SHOW CLUSTER display. The first command in the sequence removes the CLUSTER class from the display. The second command, ADD CL_QUORUM, adds the CLUSTER class field CL_QUORUM to the display. As a result, all other CLUSTER class fields are disabled. When the CLUSTER class is removed and added again, only the CL_QUORUM field is displayed.

ADD CONNECTIONS

Adds all currently enabled CONNECTIONS class fields to the SHOW CLUSTER display. Optionally, the command adds connections according to state or name.

FORMAT

ADD CONNECTIONS *[/qualifier[, . . .]]*

PARAMETERS

None.

QUALIFIERS

/ALL

Specifies that all fields in this class be added to the display.

/NAME=ALL

Restores processes removed from the display with the command REMOVE CONNECTIONS/NAME=local-process-name.

/NAME=local-process-name

Adds the connection associated with the specified local process name, as displayed in the LOC_PROC_NAME field of the CONNECTIONS class.

A local process name can contain up to 16 characters. If the name is abbreviated, SHOW CLUSTER adds all local process names matching the abbreviation.

/TYPE=ALL

Specifies that all types of connections on each circuit are displayed. For a listing of the possible states a connection can be in, see the description of the CON_STATE field in the ADD (Field) command. By default, the ADD CONNECTIONS command without any qualifiers displays all types of connections.

/TYPE=OPEN
/TYPE=NOOPEN

Controls whether connections in the open state or the nonopen state are added to the SHOW CLUSTER display.

DESCRIPTION

The ADD CONNECTIONS command adds CONNECTIONS class information to the SHOW CLUSTER display. This information includes data for all currently enabled fields in the CONNECTIONS class. By default, the LOC_PROC_NAME (local process name) and CON_STATE (connection state) fields are enabled. For a list of valid CONNECTIONS class fields, see the ADD (Field) command.

Use the ADD CONNECTIONS command together with the REMOVE CONNECTIONS command to turn the display of CONNECTIONS class information on and off. If you remove the CONNECTIONS class from the display and add it again without changing any fields, all of the same fields are displayed again. If, however, you remove the CONNECTIONS class and add

new CONNECTIONS class fields, all previously enabled fields are disabled, and only the newly added fields are displayed.

EXAMPLES

1
```
COMMAND> ADD CONNECTIONS
```

The ADD CONNECTIONS command in this example adds CONNECTIONS class information to the display. This information includes all enabled CONNECTIONS class fields.

2
```
COMMAND> ADD CONNECTIONS/NAME=(MSCP$DISK,VMS$VAXcluster)
```

The ADD CONNECTIONS command in this example adds all connections associated with the process MSCP$DISK and the process VMS$VAXcluster to the SHOW CLUSTER display.

3
```
COMMAND> ADD CONNECTIONS/TYPE=OPEN
```

The command in this example adds all Open connections to the SHOW CLUSTER display.

4
```
COMMAND> REMOVE CONNECTIONS
COMMAND> ADD SCS_STATE
COMMAND> REMOVE CONNECTIONS
    .
    .
    .
COMMAND> ADD CONNECTIONS
```

The ADD CONNECTIONS command in this example adds CONNECTIONS class information to the SHOW CLUSTER display. The first command in the sequence removes the CONNECTIONS class from the display. The second command, ADD SCS_STATE, adds the CONNECTIONS class field SCS_STATE to the display. As a result, all other CONNECTIONS class fields are disabled. When the CONNECTIONS class is removed and added again, only the SCS_STATE field is displayed.

ADD COUNTERS

Adds all currently enabled COUNTERS class fields to the SHOW CLUSTER display.

FORMAT

ADD COUNTERS

PARAMETERS

None.

QUALIFIERS

/ALL
Specifies that all fields in this class be added to the display.

DESCRIPTION

The ADD COUNTERS command adds COUNTERS class information to the SHOW CLUSTER display. This information includes data for all currently enabled fields in the COUNTERS class. By default, the DGS_SENT (datagrams sent), DGS_RCVD (datagrams received), MSGS_SENT (messages sent), and MSGS_RCVD (messages received) fields are enabled. For a list of valid COUNTERS class fields, see the ADD (Field) command.

Use the ADD COUNTERS command together with the REMOVE COUNTERS command to turn the display of COUNTERS class information on and off. If you remove the COUNTERS class from the display and add it again without changing any fields, all of the same fields are displayed again. If, however, you remove the COUNTERS class and add new COUNTERS class fields, all previously enabled fields are disabled, and only the newly added fields are displayed.

EXAMPLES

1

```
COMMAND> ADD COUNTERS
```

The ADD COUNTERS command in this example adds COUNTERS class information to the display. This information includes all enabled COUNTERS class fields.

2

```
COMMAND> REMOVE COUNTERS
COMMAND> ADD MSGS_SENT
COMMAND> REMOVE COUNTERS
    .
    .
    .
COMMAND> ADD COUNTERS
```

SHOW CLUSTER
ADD COUNTERS

The ADD COUNTERS command in this example sequence adds COUNTERS class information to the SHOW CLUSTER display. The first command removes the COUNTERS class from the display. The second command, ADD MSGS_SENT, adds the COUNTERS class field MSGS_SENT to the display. As a result, all other COUNTERS class fields are disabled. When the COUNTERS class is removed and added again, only the MSGS_SENT field is displayed.

ADD CREDITS

Adds all currently enabled CREDITS class fields to the SHOW CLUSTER display.

FORMAT

ADD CREDITS

PARAMETERS

None.

QUALIFIERS

/ALL

Specifies that all fields in this class be added to the display. By default, the ADD CREDITS command, used without any qualifiers, displays all the CREDITS class fields.

DESCRIPTION

The ADD CREDITS command adds CREDITS class information to the SHOW CLUSTER display. This information includes data for all currently enabled fields in the CREDITS class. By default, all CREDITS class fields are enabled. For a list of valid CREDITS class fields, see the ADD (Field) command.

Use the ADD CREDITS command together with the REMOVE CREDITS command to turn the display of CREDITS class information on and off. If you remove the CREDITS class from the display and then add it again without changing any fields, all of the same fields are displayed again. If, however, you remove the CREDITS class and add new CREDITS class fields, all previously enabled fields are disabled, and only the newly added fields are displayed.

EXAMPLES

1

```
COMMAND> ADD CREDITS
```

The ADD CREDITS command in this example adds CREDITS class information to the display. This information includes all enabled CREDITS class fields.

2

```
COMMAND> REMOVE CREDITS
COMMAND> ADD MIN_REC
COMMAND> REMOVE CREDITS
    .
    .
    .
COMMAND> ADD CREDITS
```

The ADD CREDITS command in this example sequence adds CREDITS class information to the SHOW CLUSTER display. The first command removes the CREDITS class from the display. The second command, ADD MIN_REC, adds the CREDITS class field MIN_REC to the display. As a result, all other CREDITS class fields are disabled. When the CREDITS class is removed and added again, only the MIN_REC field is displayed.

ADD ERRORS

Adds all currently enabled ERRORS class fields to the SHOW CLUSTER display.

FORMAT

ADD ERRORS

PARAMETERS

None.

QUALIFIERS

/ALL

Specifies that all fields in this class be added to the display. By default, ADD ERRORS, used without any field qualifiers, displays all the fields in the errors class.

DESCRIPTION

The ADD ERRORS command adds ERRORS class information to the SHOW CLUSTER display. This information includes data for all currently enabled fields in the ERRORS class. By default, all ERRORS class fields are enabled. For a list of valid ERRORS class fields, see the ADD (Field) command.

Use the ADD ERRORS command together with the REMOVE ERRORS command to turn the display of ERRORS class information on and off. If you remove the ERRORS class from the display and add it again without changing any fields, all of the same fields are displayed again. If, however, you remove the ERRORS class and add new ERRORS class fields, all previously enabled fields are disabled, and only the newly added fields are displayed.

EXAMPLES

1

```
COMMAND> ADD ERRORS
```

The ADD ERRORS command in this example adds ERRORS class information to the display. This information includes all enabled ERRORS class fields.

2

```
COMMAND> REMOVE ERRORS
COMMAND> ADD ERT_MAX
COMMAND> REMOVE ERRORS
    .
    .
    .
COMMAND> ADD ERRORS
```

The ADD ERRORS command in this example sequence adds ERRORS class information to the SHOW CLUSTER display. The first command removes the ERRORS class from the display. The second command, ADD ERT_MAX, adds the ERRORS class field ERT_MAX to the display. As a result, all other ERRORS class fields are disabled. When the ERRORS class is removed and added again, only the ERT_MAX field is displayed.

ADD (Field)

Enables the display of specific fields of SHOW CLUSTER information.

FORMAT

ADD *field-name[, . . .]*

PARAMETERS

field-name

Specifies one or more of the following fields of information to be added to the display of a particular class.

CIRCUITS Class

The CIRCUITS class contains information about the virtual circuits on a system, such as the local port name, the remote port type and number, the number of connections on the circuit, and the circuit state.

Field Name	Description	
CABLE_STATUS	Status of the circuit paths A and B. Crossed cables are also noted. The field applies only to the computer interconnect (CI). Possible displays are as follows:	
	-	Paths A and B are bad.
	A-	Path A is good.
	-B	Path B is good.
	A-B	Paths A and B are good.
	CROSSED	Cables are crossed.
CIR_STATE	State of the virtual circuit. Possible displays are as follows:	
	CLOSED	Circuit is closed.
	OPEN	Circuit is open.
	ST_REC	Circuit has a start received.
	ST_SENT	Circuit has a start sent.
	VC_FAIL	Virtual circuit failure is in progress.
LPORT_NAME	VMS device name of the local port associated with the circuit (PAA0, PAB0, PEA0).	
NUM_CONNECTIONS	Number of connections on the circuit between the local and remote system.	

Field Name	Description	
REM_STATE	State of the remote port. Possible displays are as follows:	
	DISAB	Remote port is disabled.
	ENAB	Remote port is enabled.
	M_DISAB	Remote port is in maintenance mode and is disabled.
	M_ENAB	Remote port is in maintenance mode and is enabled.
	M_UNINIT	Remote port is in maintenance mode and has not been initialized.
	UNINIT	Remote port has not been initialized.
RP_FUNCTIONS	Function mask of the remote port.	
RPORT_NUM	Port number of the remote port associated with the circuit. The field applies only to CI.	
RP_OWNER	Port number of the remote port owner.	
RP_REVISION	Hardware or microcode revision number of the remote port.	
RP_TYPE	Type of the remote port associated with the circuit. Possible types include BVPSSP (a BVP Storage Systems Port), CI780, CI750, CIBCA, CIBCI, CINT (a CI node tester), ETHERNET, HSC50, HSC70, PASSTH (port is in passthrough mode).	
SCS_WAITERS	Number of connections waiting to send SCS control messages on the virtual circuit.	

CLUSTER Class

The CLUSTER class contains general information about the cluster, such as the time it was formed, the last time a system joined or left the cluster, and the cluster quorum.

Field Name	Description
CL_EXPECTED_VOTES	The number of votes the cluster has ever seen—or could see, as determined by the connection manager. The value is based on the maximum value of CL_EXPECTED_VOTES, the value for EXPECTED_VOTES that is specified by each node, and the sum of the cluster votes (CL_VOTES). CL_QUORUM is derived from CL_EXPECTED_VOTES.
CL_MEMBERS	Number of VAX processors participating in the cluster.
CL_QDVOTES	Number of votes contributed by the quorum disk.
CL_QUORUM	The number of votes that must be present for the cluster to function and permit user activity. CL_QUROUM is equal to (CL_EXPECTED_VOTES + 2) divided by 2.
CL_VOTES	Total number of votes contributed by all members of the cluster at any point in time.
FORMED	Time at which the cluster was formed, expressed as dd-mmm-yy hh:mm.
LAST_TRANSITION	Last time at which a system left or joined the cluster, expressed as dd-mmm-yy hh:mm.
MEMSEQ	Membership state sequence number, which changes whenever a node joins or leaves the cluster.
QD_NAME	Full device name of the quorum disk.
QF_VOTE	Indicates whether or not the quorum disk is contributing any votes towards the cluster quorum.

CONNECTIONS Class

The CONNECTIONS class contains information about connections established over a virtual circuit, such as the names of the local and remote processes, and the state of the connection.

Field Name	Description	
CON_STATE	The state of the connection. Possible displays are as follows:	
	ACCP_SENT	Accept request has been sent.
	CLOSED	Connection is closed.
	CON_ACK	Connect request has been sent and acknowledged.
	CON_REC	Connect request has been received.
	CON_SENT	Connect request has been sent.
	DISC_ACK	Disconnect request is acknowledged.
	DISC_MTCH	Disconnect request is matched.
	DISC_REC	Disconnect request has been received.
	DISC_SENT	Disconnect request has been sent.
	LISTEN	Connection is in the listen state.
	OPEN	Connection is open.
	REJ_SENT	Reject has been sent.
	VC_FAIL	Virtual circuit has failed.
LOC_CONID	Identification number of the local side of the connection.	
LOC_PROC_NAME	Name of the local process associated with the connection.	
REM_CONID	Identification number of the remote side of the connection. This information does not apply for connections in the listen state.	
REM_PROC_NAME	Name of the remote process associated with the connection. This information does not apply for connections in the listen state.	

Field Name	Description	
SCS_STATE	SCS send blocked state. If the connection is waiting to send an SCS control block message, the SCS send blocked state indicates what kind of message it is waiting to send. Possible displays are as follows:	
	ACCP_PEND	Waiting to send an accept request.
	CLEAR	Not blocked.
	CON_PEND	Waiting to send a connection request.
	CR_PEND	Waiting to send credit.
	DCR_PEND	Waiting to send credit in preparation for a disconnect.
	DISC_PEND	Waiting to send a disconnect request.
	REJ_PEND	Waiting to send a reject request.

COUNTERS Class

The COUNTERS class displays statistics on connection traffic, such as the number of application datagrams or the number of application messages that have been sent or received.

Field Name	Description
BDT_WAITS	Number of times this connection had to wait for a buffer descriptor.
BLKS_REQ	Number of block-request data commands initiated to block transfer data from the remote system to the local system.
BLKS_SENT	Number of block-send data commands initiated to block-transfer data from the local system to the remote system.
CR_WAITS	Number of times this connection had to wait for send credit.
DGS_DSCRD	Number of application datagrams discarded by the port driver.
DGS_RCVD	Number of application datagrams received by the local system over the connection from the remote system and given to SYSAP.
DGS_SENT	Number of application datagrams sent over the connection.
KB_MAPPED	Number of kilobytes of data mapped for block transfer.

Field Name	Description
KB_RCVD	Number of kilobytes of data received by the local system from the remote system through request-data commands.
KB_SENT	Number of kilobytes of data sent from the local system to the remote system through send-data commands.
MSGS_RCVD	Number of application datagram messages received over the connection.
MSGS_SENT	Number of application datagram messages sent over the connection.

CREDITS Class

The CREDITS class displays the send and receive credit counts for each connection.

Field Name	Description
INIT_REC	Initial receive credit extended to the remote system when the connection was made.
MIN_REC	Minimum receive credit (minimum send credit required by the remote system).
MIN_SEND	Minimum send credit.
PEND_REC	Receive credit not yet extended to the remote system.
RECEIVE	Receive credit (send credit held by the remote system).
SEND	Current send credit.

ERRORS Class

The ERRORS class displays a count of the errors on each port, along with information on the feasibility of reinitializing a port.

Field Name	Description
ERT_COUNT	Number of port reinitialization attempts remaining.
ERT_MAX	Total number of times a recovery from fatal port errors can be attempted by shutting down all virtual circuits and connections and reinitializing the port.
NUM_ERRORS	Number of errors that have been logged on the port since the system was booted. This number includes errors encountered in reinitialization attempts as well as recoverable errors, such as virtual circuit failure. This is the same error count as that displayed by the DCL command SHOW DEVICE.

LOCAL_PORTS Class

The LOCAL_PORTS class displays information on the local system interface to the cluster, such as the name, number, and status of each port, and the number of entries in the queues associated with each port.

Field Name	Description
BUFF_DESCR	Number of buffer descriptors in use.
CMDS_QUEUED	Total number of messages, datagrams, and port commands queued for transmission at all priorities by the port.
COUNTER_OWNER	Name of the process currently using the port traffic counters.
DGI_MAP	16-bit bit map displayed as four hexadecimal digits. Each bit in the map represents a port in the cluster from which datagram reception has been disabled.
DG_OVRHD_SIZE	Number of bytes of port header, SCS header, and DECnet header in a datagram.
DGS_FREE	Number of free datagram buffers currently queued for receive commands.
FORM_CIRCS	Number of formative circuits (circuits in the process of opening) from the port.
FREE_BUFF	Number of CI buffer descriptors free for use.
LB_STATUS	Loopback status of each cable from the port to the star coupler. The field applies only to CI. Possible displays are as follows: A-B — Loopback tests pass on paths A and B. A- — Loopback tests pass on path A. -B — Loopback tests pass on path B. - — Loopback tests failed on paths A and B. N/A — Loopback tests are not being done.
LOG_MAP	16-bit bit map displayed as four hexadecimal digits. Each bit in the map represents a port in the cluster for which an error was logged. Errors are logged when data provided by the configuration database on the local system conflicts with data provided by the remote system. When a conflict is discovered and an error is logged, virtual circuits to the remote system can no longer be established.
LP_STATUS	Status of the local port. The port is either on line or off line.
LP_TYPE	Device type of the port (CI780, CI750).
MAX_PORT	Largest port number to which a virtual circuit open is attempted.

Field Name	Description
MSGS_FREE	Number of free message buffers currently queued for receives commands.
MSG_HDR_SIZE	Number of bytes of port header and SCS header in a message.
NAME	VMS device name of the local port.
OPEN_CIRCS	Number of virtual circuits open from the port.
POOL_WAITERS	Number of processes waiting for nonpaged pool resources for message buffers.
PORT_NUM	Port number assigned to the port.
PRT_MAP	16-bit bit map displayed as three hexadecimal digits. Each bit in the map represents a port in the cluster that has been recognized by the host system.
RSPS_QUEUED	Total number of responses of all kinds received from the port but not yet processed.

MEMBERS Class

The MEMBERS class contains information about active systems in the cluster, such as their identification numbers and membership status.

Field Name	Description
ACK_LM	Maximum number of VAXcluster messages the remote system can receive before sending an acknowledgment.
ACKR_SQ	Sequence number of the last acknowledgment received over the VAXcluster connection.
CNX_STATE	State of the VAXcluster connection. Possible displays are as follows: ACCEPT — Initial connection is accepted. CLOSED — Connection is closed. CONNECT — Initial connection is being accepted. DEAD — No connection is possible. DISCONNECT — Disconnection is in progress. NEW — No attempt to make a connection has been made yet. OPEN — Connection is open. REACCEPT — Connection is accepting the reconnect request. RECONNECT — Connection is attempting to reconnect. WAIT — Timeout is in progress.

Field Name	Description
CSID	Cluster system identification number. This number is unique over the life of the cluster. Unlike SYS_ID, this identification number may change when the system reboots.
DIR_WT	Lock manager distributed directory weight.
EXPECTED_VOTES	Maximum number of votes that an individual node ever encounters. Used as an initial estimate for computing CL_EXPECTED_VOTES. The cluster manager sets this number using the SYSGEN parameter EXPECTED_VOTES.
PROTOCOL	Protocol version number and ECO level of the connection management software.
QDVOTES	Number of votes the remote system recommends be contributed by the quorum disk. Normally, the cluster manager sets this number using the SYSGEN parameter QDSKVOTES.
QF_ACTIVE	Indicates whether the remote system's quorum file is accessible.
QF_SAME	Indicates whether the local and remote systems agree about which disk is the quorum disk.
QF_WATCHER	Remote system has an active connection to the quorum disk and can verify its connection for members unable to access the disk directly.
QUORUM	Derived from EXPECTED_VOTES and calculated by the connection manager. It represents an initial value for the minimum number of votes that must be present for this node to function.
RCVD_SQ	Sequence number of the last message received over the VAXcluster connection.
RECNXINTERVAL	Displays the time (in seconds) that the connection manager will wait before timing out the corresponding connection. It is the maximum of the value contained in the SYSGEN parameter RECNXINTERVAL on the local node and the amount of time it would take for the connection manager on the remote node to discover that the connection is broken.
SEND_SQ	Sequence number of the next message to be sent over the VAXcluster connection.

SHOW CLUSTER
ADD (Field)

Field Name	Description	
STATUS	Status of the node in the cluster. Possible displays are as follows:	
	blank	System is not being considered as a cluster member.
	BRK_MEM	System is a member of the cluster, but the connection manager has lost communication with it.
	BRK_NEW	System has just booted, but has not yet joined the cluster and the connection manager has lost communication with it.
	BRK_NON	Connection manager has lost communication with the system and the system is no longer a member of the cluster.
	BRK_REM	Connection manager has lost communication with the system, and the system has been removed from the cluster.
	MEMBER	System is participating in the cluster.
	NEW	System has just booted, but has not yet joined the cluster. If this system would normally be a member of the cluster and is displaying NEW in this field, you can expect that the display will eventually change to MEMBER.
	NON	System is not a member of the cluster.
	REMOVED	System has been removed from the cluster.
SW_VERS	Indicator of the software version running on the node.	
TRANSITION_TIME	Time of the system's last change in membership status (see the STATUS field).	
UNACKED	Number of unacknowledged VAXcluster messages received by the remote system.	
VOTES	Number of votes the remote node contributes toward quorum. Normally, the cluster manager sets this number with the SYSGEN parameter VOTES.	
WARMCDRPS	Number of CDRPs on the CDRP free queue.	

SYSTEMS Class

The SYSTEMS class lists information about all systems in the cluster, such as their identification numbers, node names, hardware types, and software versions.

Field Name	Description
DG_SIZE	Maximum number of bytes of application data in datagrams sent over the circuit.
HW_TYPE	System hardware type (VAX 8800, VAX 8530, VAX–11/785, MicroVAX 2000). (Delimit the system type with double quotation marks.)
HW_VERS	Hardware configuration and revision levels of the remote system.
INCARNATION	Unique 16-digit hexadecimal number established when the system is booted.
INCN_TIME	Incarnation number expressed as a time (dd-mmm-yy hh:mm).
MSG_SIZE	Maximum number of bytes of application data in messages sent over the circuit.
NODE	Node name of the remote system. Normally, the cluster manager sets the node name using the SYSGEN parameter SCSNODE. The node name should be the same as the DECnet node name.
NUM_CIRCUITS	Number of virtual circuits between the local system and remote systems.
SOFTWARE	Name and version of the operating system currently running on the remote system.
SYS_ID	Identification number of the remote system. Normally, the cluster manager sets this number using the SYSGEN parameters SCSSYSTEMID and SCSSYSTEMIDH. This number should be the same as the DECnet node number.

QUALIFIERS

None.

DESCRIPTION

The ADD (Field) command enables and adds specific fields of information to a SHOW CLUSTER display. When you add a field for a class that is not currently being displayed, the class heading of that field is added to the display. The qualifier /ALL on any ADD (class) command adds all fields in the class to the display.

To remove a field from the SHOW CLUSTER display, enter the REMOVE (Field) command.

EXAMPLES

1 `COMMAND> ADD SEND`

The ADD command in this example enables the CREDITS class field SEND and adds it to the SHOW CLUSTER display.

2 `COMMAND> ADD REM_STATE,REM_CONID,LOC_CONID`

The ADD command in this example enables the CIRCUITS class field REM_STATE and the CONNECTIONS class fields REM_CONID and LOC_CONID, and adds them to the SHOW CLUSTER display.

ADD LOCAL_PORTS

Adds all currently enabled LOCAL_PORTS class fields to the SHOW CLUSTER display.

FORMAT

ADD LOCAL_PORTS

PARAMETERS

None.

QUALIFIERS

/ALL
Specifies that all fields in this class be added to the display.

DESCRIPTION

The ADD LOCAL_PORTS command adds LOCAL_PORTS class information to the SHOW CLUSTER display. This information includes data for all currently enabled fields in the LOCAL_PORTS class. By default, the NAME, LP_STATUS (port status), PORT_NUM (port number), DGS_FREE (free datagrams queued), and MSGS_FREE (free messages queued), OPEN_CIRCS (open circuits), FORM_CIRCS (formative circuits) fields are enabled. For a list of valid LOCAL_PORTS class fields, see the ADD (Field) command.

Use the ADD LOCAL_PORTS command together with the REMOVE LOCAL_PORTS command to turn the display of LOCAL_PORTS class information on and off. If you remove the LOCAL_PORTS class from the display and add it again without changing any fields, all of the same fields are displayed again. If, however, you remove the LOCAL_PORTS class and add new LOCAL_PORTS class fields, all previously enabled fields are disabled, and only the newly added fields are displayed.

EXAMPLES

1
```
COMMAND> ADD LOCAL_PORTS
```

The ADD LOCAL_PORTS command in this example adds LOCAL_PORTS class information to the display. This information includes all enabled LOCAL_PORTS class fields.

```
2  COMMAND> REMOVE LOCAL_PORTS
   COMMAND> ADD LB_STATUS
   COMMAND> REMOVE LOCAL_PORTS
      .
      .
      .
   COMMAND> ADD LOCAL_PORTS
```

The ADD LOCAL_PORTS command in this example sequence adds LOCAL_PORTS class information to the SHOW CLUSTER display. The first command removes the LOCAL_PORTS class from the display. The second command, ADD LB_STATUS, adds the LOCAL_PORTS class field LB_STATUS to the display. As a result, all other LOCAL_PORTS class fields are disabled. When the LOCAL_PORTS class is removed and added again, only the LB_STATUS field is displayed.

ADD MEMBERS

Adds all currently enabled MEMBERS class fields to the SHOW CLUSTER display.

FORMAT

ADD MEMBERS

PARAMETERS

None.

QUALIFIERS

/ALL
Specifies that all fields in this class be added to the display.

DESCRIPTION

The ADD MEMBERS command adds MEMBERS class information to the SHOW CLUSTER display. This information includes data for all currently enabled fields in the MEMBERS class. By default, the STATUS field is enabled. For a list of valid MEMBERS class fields, see the ADD (Field) command.

Use the ADD MEMBERS command together with the REMOVE MEMBERS command to turn the display of MEMBERS class information on and off. If you remove the MEMBERS class from the display and add it again without changing any fields, all of the same fields are displayed again. If, however, you remove the MEMBERS class and add new MEMBERS class fields, all previously enabled fields are disabled, and only the newly added fields are displayed.

EXAMPLES

1
```
COMMAND> ADD MEMBERS
```

The ADD MEMBERS command in this example adds MEMBERS class information to the display. This information includes all enabled MEMBERS class fields.

2
```
COMMAND> REMOVE MEMBERS
COMMAND> ADD VOTES
COMMAND> REMOVE MEMBERS
    .
    .
    .
COMMAND> ADD MEMBERS
```

The ADD MEMBERS command in this example sequence adds MEMBERS class information to the SHOW CLUSTER display. The first command removes the MEMBERS class from the display. The second command, ADD VOTES, adds the MEMBERS class field VOTES to the display. As a result, all other MEMBERS class fields are disabled. When the MEMBERS class is removed and added again, only the VOTES field is displayed.

ADD SYSTEMS

Adds all currently enabled SYSTEMS class fields to the SHOW CLUSTER display for all active systems or for selected systems.

FORMAT

ADD SYSTEMS *[/qualifier[, . . .]]*

PARAMETERS

None.

QUALIFIERS

/ALL

Specifies that all fields in the SYSTEMS class are added to the display.

/ID=ALL

Restores the display after selectively removing systems by ID.

/ID=system-id

Specifies, by system identification number, systems to be added to the SHOW CLUSTER display. The system-id number can be any system-id as displayed in the SYS_ID field of the SYSTEMS class. When using a hexadecimal value for an identifier, precede the number with the characters %X.

The /ID qualifier affects all information displayed about the specified system, not just information in the SYSTEMS class display.

/NODE=ALL

Restores the display after selectively removing systems by node name.

/NODE=node-name

Specifies, by node name, systems to be added to the SHOW CLUSTER display. The node-name can be any node displayed in the NODE field of the SYSTEMS class, and it can be enclosed in quotation marks. The /NODE qualifier affects all information displayed about the specified node, not just information in the SYSTEMS class display.

/TYPE=ALL

Restores the display after selectively removing systems by type.

/TYPE=hardware-type

Specifies, by hardware type, systems to be added to the SHOW CLUSTER display. You can specify any of the types shown in the HW_TYPE field, and you must enclose the type in quotation marks, for example: "VAX 8800".

The /TYPE qualifier affects all information displayed about the specified hardware type, not just information in the SYSTEMS class display.

DESCRIPTION

The ADD SYSTEMS command adds SYSTEMS class information to the SHOW CLUSTER display. This information includes data for all currently enabled fields in the SYSTEMS class. By default, the NODE and SOFTWARE fields are enabled. For a list of valid SYSTEMS class fields, see the ADD (Field) command.

Use the ADD SYSTEMS command together with the REMOVE SYSTEMS command to turn the display of SYSTEMS class information on and off. If you remove the SYSTEMS class from the display and add it again without changing any fields, all of the same fields are displayed again. If, however, you remove the SYSTEMS class and add new SYSTEMS class fields, all previously enabled fields are disabled, and only the newly added fields are displayed.

EXAMPLES

1
```
COMMAND> ADD SYSTEMS
```

The ADD SYSTEMS command in this example adds SYSTEMS class information to the display. This information includes all enabled SYSTEMS class fields.

2
```
COMMAND> ADD SYSTEMS/NODE=(PISHTA,ELF)
```

The ADD SYSTEMS command in this example adds the nodes PISHTA and ELF to the SHOW CLUSTER display, reporting all currently enabled information about the nodes.

3
```
COMMAND> ADD SYSTEMS/TYPE=("VAX 8800","MicroVAX 2000")
```

The ADD SYSTEMS command in this example adds all VAX 8800 and MicroVAX 2000 processors to the SHOW CLUSTER display, reporting all currently enabled information about those hardware types.

4
```
COMMAND> REMOVE SYSTEMS
COMMAND> ADD SYS_ID
COMMAND> REMOVE SYSTEMS
   .
   .
   .
COMMAND> ADD SYSTEMS
```

The ADD SYSTEMS command in this example sequence adds SYSTEMS class information to the SHOW CLUSTER display. The first command removes the SYSTEMS class from the display. The second command, ADD SYS_ID, adds the SYSTEMS class field SYS_ID to the display. As a result, all other SYSTEMS class fields are disabled. When the SYSTEMS class is removed and added again, only the SYS_ID field is displayed.

DEFINE/KEY

Associates an equivalence string and set of attributes with a key on the terminal keyboard. The /KEY qualifier is required.

FORMAT

DEFINE/KEY *key-name equivalence-string*

PARAMETERS

key-name

Specifies the name of the key that you are defining. Use the following key names when defining keys:

Key Name	LK201	VT100-Type	VT52
PF1	PF1	PF1	[blue]
PF2	PF2	PF2	[red]
PF3	PF3	PF3	[gray]
PF4	PF4	PF4	- -
KP0, KP1 through KP9	0, 1 through 9	0, 1 through 9	0, 1 through 9
PERIOD	.	.	.
COMMA	,	,	n/a
MINUS	-	-	n/a
ENTER	Enter	ENTER	ENTER
Find (E1)	Find	- -	- -
Insert Here (E2)	Insert Here	- -	- -
Remove (E3)	Remove	- -	- -
Select (E4)	Select	- -	- -
Prev Screen (E5)	Prev Screen	- -	- -
Next Screen (E6)	Next Screen	- -	- -
HELP	Help	- -	- -
DO	Do	- -	- -
F17 through F20	F17 through F20	- -	- -

equivalence-string

Specifies the string to be processed when you press the key. The string can be a SHOW CLUSTER command. If the string contains any spaces, enclose the equivalence string in quotation marks.

QUALIFIERS

/ECHO (default)
/NOECHO

Determines whether the equivalence string is displayed on your screen after the key has been pressed. You cannot use /NOECHO with the /NOTERMINATE qualifier.

/ERASE
/NOERASE (default)
Determines whether the current line is erased before the key translation is inserted.

/IF_STATE=(state-name, . . .)
/NOIF_STATE
Specifies a list of one or more states, one of which must take effect for the key definition to be in effect. If you omit the /IF_STATE qualifier or use /NOIF_STATE, the current state is used.

/LOCK_STATE
/NOLOCK_STATE (default)
Specifies that the state set by the /SET_STATE qualifier remain in effect until explicitly changed. If you use the /NOLOCK_STATE qualifier, the state set by /SET_STATE is in effect only for the next definable key that you press or for the next read-terminating character that you type.

The /LOCK_STATE qualifier can only be specified with the /SET_STATE qualifier.

/LOG (default)
/NOLOG
Controls whether the system displays a message indicating that the key definition has been successfully created.

/SET_STATE=state-name
/NOSET_STATE (default)
Causes the specified state-name to be set when the key is pressed. The state name can be any alphanumeric string.

If you omit the SET_STATE qualifier or use /NOSET_STATE, the current state that was locked remains in effect. If you have not included this qualifier with a key definition, you can use the SET KEY command to change the current state.

/TERMINATE
/NOTERMINATE (default)
Specifies whether the current equivalence string is to be terminated (that is, processed) when the key is pressed. Pressing RETURN has the same effect as using /TERMINATE.

The /NOTERMINATE qualifier allows you to create key definitions that insert text into command lines, after prompts, or into other text that you are typing.

DESCRIPTION

The DEFINE/KEY command enables you to assign definitions to the keys on certain terminals. The terminals include VT52s, the VT100 series, and terminals with LK201 keyboards, such as the VT200 series.

The equivalence string definition can contain different types of information. Definitions can consist of SHOW CLUSTER commands. When you define a key to insert a text string, use the /NOTERMINATE qualifier so that you can continue typing more data after the string has been inserted.

In most instances you will want to take advantage of the echo feature. The default setting is /ECHO. With the /ECHO qualifier set, the key definition is displayed on the screen each time you press the key.

You can use the /STATE qualifier to increase the number of key definitions available on your terminal. The same key can be assigned any number of definitions as long as each definition is associated with a different state. State names can contain any alphanumeric characters, dollar signs, and underscores. Generally, you will want to create a state name that is easy to remember and type and, if possible, one that might remind you of the types of definitions you created for that state.

EXAMPLE

```
Command> DEFINE/KEY PF3 "LOCAL_PORT"/NOTERMINATE
```

The DEFINE/KEY command in this example defines the PF3 key on the keypad to output the "LOCAL_PORT" text string. This key could be used with the ADD key to form the ADD LOCAL_PORT command.

DESELECT

Terminates the selection of a previously selected window.

FORMAT DESELECT

PARAMETERS *None.*

QUALIFIERS *None.*

EXAMPLE

```
Command> SELECT SCS
Command> MOVE RIGHT 10
    .
    .
    .
Command> DESELECT
```

In this example, the SELECT command selects the SCS window and highlights it. A MOVE operation is then performed on the selected window. The DESELECT command terminates the selection and moves the window to its new position. If you enter another SELECT command, it automatically deselects and moves the previously selected window.

EXIT

Terminates the SHOW CLUSTER display and returns control to the DCL command level. You can also type CTRL/Z to exit at any time.

FORMAT EXIT

PARAMETERS *None.*

QUALIFIERS *None.*

EXAMPLE

```
COMMAND> EXIT
```

The EXIT command in this example terminates the SHOW CLUSTER display and returns control to the DCL command level.

HELP

Provides online help information for using SHOW CLUSTER commands, parameters, and qualifiers. Type CTRL/Z to exit.

FORMAT

HELP *[keyword . . .]*

PARAMETERS

keyword

Specifies the command, parameter, or qualifier for which help information is to be displayed. If you omit the keyword, HELP displays a list of available help topics, and prompts you for a particular keyword.

QUALIFIERS

None.

EXAMPLES

1 `COMMAND> HELP INITIALIZE`

The HELP command in this example displays help information about the SHOW CLUSTER command, INITIALIZE.

2 `COMMAND> HELP FIELDS`

The HELP command in this example displays help information about the valid field names that can be specified with the ADD, REMOVE, and SET commands.

INITIALIZE

Resets the display using the original default values for field names, class names, and field widths. It also restores any systems that were removed from the display by the REMOVE SYSTEMS command.

FORMAT

INITIALIZE

PARAMETERS

None.

QUALIFIERS

None.

DESCRIPTION

The INITIALIZE command resets the SHOW CLUSTER display to its default setting, consisting of the SCS window with data from the SYSTEMS class and the MEMBERS class. The report shows the node name, the software version, and the status of cluster members.

If you save a series of commands in an initialization file, using the SAVE command, SHOW CLUSTER automatically inserts an INITIALIZATION command at the beginning of the file. Any command procedure that you build should start with the INITIALIZE command. In this way, you always tailor the display from a known state.

EXAMPLE

```
COMMAND> INITIALIZE
```

The INITIALIZE command in this example resets the current display to the default display and restores any systems that were removed from the display.

MOVE

Moves a selected window to a specified position.

FORMAT

MOVE *direction value*

PARAMETERS

direction

Specifies the direction in which the window is to be moved. If you do not enter a direction for this parameter, SHOW CLUSTER prompts you for one. You must specify one of the following keywords:

UP
DOWN
RIGHT
LEFT

value

Number of columns or lines the window is to be moved. You must specify a numeric value from 1 to 511. If you do not enter a number for this parameter, SHOW CLUSTER prompts you for one.

QUALIFIERS

None.

DESCRIPTION

The MOVE command allows you to reposition a window manually on the display screen. With one window in the SHOW CLUSTER display, you can enter MOVE commands directly. However, with multiple windows, it is necessary to select the appropriate window (SELECT window-name) before entering MOVE commands. The MOVE command implicitly disables AUTO_POSITIONING.

To move a selected window, either enter MOVE commands at the command prompt or use the arrow keys defined as MOVE commands. Entering the command SET FUNCTION MOVE redefines the direction keys as MOVE UP 1, MOVE DOWN 1, MOVE RIGHT 1, and MOVE LEFT 1, respectively.

When you enter a MOVE command, the window changes position by column (horizontally), or by line (vertically). An empty frame appears around the new window position. When you are satisfied with the position of the window, enter the DESELECT command, which moves the window to the new position. Entering another SELECT command before the previous window has been deselected also moves the window to its new position.

EXAMPLE

```
Command> SELECT CLUSTER
Command> MOVE RIGHT 10
Command> DESELECT
```

The command sequence in this example moves the CLUSTER window ten columns to the right.

PAN

Rotates the display.

FORMAT

PAN *direction value*

PARAMETERS

direction

Specifies the direction in which the display is to be panned. If you do not enter a direction for this parameter, SHOW CLUSTER prompts you for one. You must specify one of the following keywords:

UP
DOWN
RIGHT
LEFT

value

Number of columns or lines the display is to be panned. You must specify a numeric value from 1 to 511. If you do not enter a number for this parameter, SHOW CLUSTER prompts you for one.

QUALIFIERS

None.

DESCRIPTION

PAN commands rotate the entire display by column (horizontally) and by line (vertically). A portion of the display that extends beyond the limits of the screen can be brought into view.

The display moves in the opposite direction from that specified by the PAN command. In other words, a PAN LEFT 10 command moves the display 10 columns to the right, similar to the effect of panning a camera over a landscape.

To pan the display, either enter PAN commands at the command prompt, or use the arrow keys defined as PAN commands. Entering the command SET FUNCTION PAN redefines the ↑, ↓, →, and ← arrow keys as PAN UP 1, PAN DOWN 1, PAN RIGHT 1, and PAN LEFT 1, respectively.

Note: If you set the function to PAN, the arrow keys are no longer defined to perform DCL line-mode editing. Only one function can be enabled at a time, using the SET FUNCTION command.

EXAMPLE

```
Command> PAN DOWN 10
```

The PAN command in this example pans the display ten lines.

REFRESH

Clears the screen, removes extraneous characters, and updates all fields. Entering CTRL/W has the same effect as typing REFRESH.

FORMAT

REFRESH

PARAMETERS

None.

QUALIFIERS

None.

EXAMPLE

```
Command> REFRESH
```

The REFRESH command in this example clears the screen, removes extraneous characters, and updates all fields.

REMOVE CIRCUITS

Removes CIRCUITS class information from the SHOW CLUSTER display.

FORMAT

REMOVE CIRCUITS *[/qualifier[, . . .]]*

PARAMETERS

None.

QUALIFIERS

/TYPE=ALL

Specifies that all types of circuits on each system be removed from the display, including formative, open, and closing circuits. If you specify the REMOVE CIRCUITS command without any qualifiers, all types of circuits are removed from the display by default.

/TYPE=OPEN
/TYPE=NOOPEN

Controls whether open circuits or nonopen circuits are removed from the display.

DESCRIPTION

The REMOVE CIRCUITS command removes CIRCUITS class information from the SHOW CLUSTER display. CIRCUITS class information includes data for all currently enabled fields in the CIRCUITS class. For a list of valid CIRCUITS class fields, see the ADD (Field) command.

EXAMPLES

1
```
COMMAND> REMOVE CIRCUITS
```

The REMOVE CIRCUITS command in this example removes all currently enabled CIRCUITS class fields from the display.

2
```
COMMAND> REMOVE CIRCUITS/TYPE=OPEN
```

The REMOVE CIRCUITS command in this example removes all open circuits from the display.

REMOVE CLUSTER

Removes CLUSTER class information from the SHOW CLUSTER display.

FORMAT

REMOVE CLUSTER

PARAMETERS

None.

QUALIFIERS

None.

DESCRIPTION

The REMOVE CLUSTER command removes CLUSTER class information from the SHOW CLUSTER display. CLUSTER class information includes data for all currently enabled fields in the CLUSTER class. For a list of valid CLUSTER class fields, see the ADD (Field) command.

EXAMPLE

```
COMMAND> REMOVE CLUSTER
```

The REMOVE CLUSTER command in this example removes all currently enabled CLUSTER class fields from the SHOW CLUSTER display.

REMOVE CONNECTIONS

Removes CONNECTIONS class information from the SHOW CLUSTER display.

FORMAT

REMOVE CONNECTIONS *[/qualifier[, . . .]]*

PARAMETERS

None.

QUALIFIERS

/NAME=ALL

Removes all connections currently displayed by SHOW CLUSTER. This qualifier allows you to clear the display before adding specific connection information with the command ADD CONNECTIONS/NAME=local-process-name.

/NAME=local-process-name

Specifies the local process name of connections that are to be removed from the display. A local process name appears in the LOC_PROC field; it can be up to 16 characters in length. If the local process name is abbreviated, SHOW CLUSTER removes all local process names matching the abbreviation.

/TYPE=ALL

Specifies that all types of connections on each circuit be removed from the SHOW CLUSTER display.

/TYPE=OPEN
/TYPE=NOOPEN

Controls whether connections in the open or nonopen state are removed from the SHOW CLUSTER display.

DESCRIPTION

The REMOVE CONNECTIONS command removes CONNECTIONS class information from the SHOW CLUSTER display. CONNECTIONS class information includes data for all currently enabled fields in the CONNECTIONS class. For a list of valid CONNECTIONS class fields, see the ADD (Field) command.

EXAMPLES

1
```
COMMAND> REMOVE CONNECTIONS
```

The REMOVE CONNECTIONS command in this example removes all currently enabled CONNECTIONS class fields from the SHOW CLUSTER display.

2 `COMMAND> REMOVE CONNECTIONS/NAME=(VMS$DISK_CL_DRVR,VMS$TAPE_CL_DRVR)`

The REMOVE CONNECTIONS command in this example removes the CONNECTIONS class fields associated with the local process names VMS$DISK_CL_DRVR and VMS$TAPE_CL_DRVR from the SHOW CLUSTER display.

3 `COMMAND> REMOVE CONNECTIONS/TYPE=OPEN`

The REMOVE CONNECTIONS command in this example removes all OPEN connections from the SHOW CLUSTER display.

REMOVE COUNTERS

Removes COUNTERS class information from the SHOW CLUSTER display.

FORMAT

REMOVE COUNTERS

PARAMETERS

None.

QUALIFIERS

None.

DESCRIPTION

The REMOVE COUNTERS command removes COUNTERS class information from the SHOW CLUSTER display. COUNTERS class information includes data for all currently enabled fields in the COUNTERS class. For a list of valid COUNTERS class fields, see the ADD (Field) command.

EXAMPLE

```
COMMAND> REMOVE COUNTERS
```

The REMOVE COUNTERS command in this example removes all currently enabled COUNTERS class fields from the SHOW CLUSTER display.

REMOVE CREDITS

Removes CREDITS class information from the SHOW CLUSTER display.

FORMAT

REMOVE CREDITS

PARAMETERS

None.

QUALIFIERS

None.

DESCRIPTION

The REMOVE CREDITS command removes CREDITS class information from the SHOW CLUSTER display. CREDITS class information includes data for all currently enabled fields in the CREDITS class. For a list of valid CREDITS class fields, see the ADD (Field) command.

EXAMPLE

```
COMMAND> REMOVE CREDITS
```

The REMOVE CREDITS command in this example removes all currently enabled CREDITS class fields from the SHOW CLUSTER display.

REMOVE ERRORS

Removes ERRORS class information from the SHOW CLUSTER display.

FORMAT

REMOVE ERRORS

PARAMETERS

None.

QUALIFIERS

None.

DESCRIPTION

The REMOVE ERRORS command removes ERRORS class information from the SHOW CLUSTER display. ERRORS class information includes data for all currently enabled fields in the ERRORS class. For a list of valid ERRORS class fields, see the ADD (Field) command.

EXAMPLE

```
COMMAND> REMOVE ERRORS
```

The REMOVE ERRORS command in this example removes all currently enabled ERRORS class fields.

REMOVE (Field)

Disables the display of specific fields of SHOW CLUSTER information.

FORMAT

REMOVE *field-name[, . . .]*

PARAMETERS

field-name

Specifies one or more fields of information to be removed from the display of a particular class. If you specify more than one field name, insert a comma between each one and the next. For a list of valid field names, see the ADD (Field) command description.

QUALIFIERS

None.

EXAMPLES

1
```
COMMAND> REMOVE SOFTWARE
```

The REMOVE command in this example removes the SYSTEMS class field SOFTWARE from the display.

2
```
COMMAND> REMOVE SOFTWARE,RP_TYPE,CON_STATE
```

The REMOVE command in this example removes the SOFTWARE, RP_TYPE, and CON_STATE fields from the SHOW CLUSTER display.

REMOVE LOCAL_PORTS

Removes LOCAL_PORTS class information from the SHOW CLUSTER display.

FORMAT

REMOVE LOCAL_PORTS

PARAMETERS

None.

QUALIFIERS

None.

DESCRIPTION

The REMOVE LOCAL_PORTS command removes LOCAL_PORTS class information. For a list of valid LOCAL_PORTS class fields, see the ADD (Field) command.

EXAMPLE

```
COMMAND> REMOVE LOCAL_PORTS
```

The REMOVE LOCAL_PORTS command in this example removes all currently enabled LOCAL_PORTS class fields from the LOCAL_PORTS display.

REMOVE MEMBERS

Removes MEMBERS class information from the SHOW CLUSTER display.

FORMAT

REMOVE MEMBERS

PARAMETERS

None.

QUALIFIERS

None.

DESCRIPTION

The REMOVE MEMBERS command removes MEMBERS class information from the SHOW CLUSTER display. MEMBERS class information includes data for all actively participating members of the cluster. For a list of valid MEMBERS class fields, see the ADD (Field) command.

EXAMPLE

```
COMMAND> REMOVE MEMBERS
```

The REMOVE MEMBERS command in this example removes all currently enabled MEMBERS class fields from the SHOW CLUSTER display.

REMOVE SYSTEMS

Removes SYSTEMS class information from the SHOW CLUSTER display.

FORMAT

REMOVE SYSTEMS *[/qualifier[, . . .]]*

PARAMETERS

None.

QUALIFIERS

/ID=ALL

Removes all systems information from the SHOW CLUSTER display. The qualifier clears the display so that you can selectively add systems with the command ADD SYSTEMS/ID=system-id.

/ID=system-id

Specifies, by system identification number, systems to be removed from the SHOW CLUSTER display. The system identification number can be any system identification as displayed in the SYS_ID field of the SYSTEMS class of the CLUSTER report.

The /ID qualifier affects all information displayed about the specified system, not just information in the SYSTEMS class display.

/NODE=ALL

Removes all systems information from the SHOW CLUSTER display. The qualifier clears the display so that you can selectively add systems with the command ADD SYSTEMS/NODE=node-name.

/NODE=node-name

Specifies, by node name, systems to be removed from the SHOW CLUSTER display. The /NODE qualifier affects all information displayed about the specified node, not just information in the SYSTEMS class display.

/TYPE=ALL

Removes all systems information from the SHOW CLUSTER display. The qualifier clears the display so that you can selectively add systems with the command ADD SYSTEMS/TYPE=hardware-type.

/TYPE=hardware-type

Specifies, by hardware type, systems to be removed from the SHOW CLUSTER display. You can specify any of the hardware types shown in the HW_TYPE field. Delimit hardware types with double quotation marks, for instance "VAX 8800".

The /TYPE qualifier affects all information displayed about the specified hardware type, not just information in the SYSTEMS class display.

SHOW CLUSTER
REMOVE SYSTEMS

DESCRIPTION

The REMOVE SYSTEMS command removes SYSTEMS class information from the SHOW CLUSTER display. SYSTEMS class information includes data for all currently enabled fields in the SYSTEMS class. For a list of valid SYSTEMS class fields, see the ADD (Field) command.

EXAMPLES

1 `COMMAND> REMOVE SYSTEMS`

The REMOVE SYSTEMS command in this example removes all currently enabled SYSTEMS class fields from the SHOW CLUSTER display.

2 `COMMAND> REMOVE SYSTEMS/ID=(1976,206)`

The REMOVE SYSTEMS command in this example removes systems with the identifier of 1976 or 206 from the SHOW CLUSTER display.

3 `COMMAND> REMOVE SYSTEMS/TYPE="VAX 8800"`

The REMOVE SYSTEMS command in this example removes all VAX 8800 systems from the SHOW CLUSTER display.

SAVE

Allows you to build a startup initialization file or a command procedure that creates the current display. You can then use the initialization file or the command procedure to restore the display at a later time.

FORMAT

SAVE *[file-spec]*

PARAMETERS

file-spec
Names the file specification of the command file. The file name defaults to SHOW_CLUSTER.COM. You can edit the file because it is an ASCII file.

QUALIFIERS

None.

DESCRIPTION

The SAVE command allows you to build a startup initialization file or a command procedure that you can use in subsequent SHOW CLUSTER sessions. To use the SAVE command, perform the following steps:

1. Customize the display to meet your needs by using SHOW CLUSTER commands.
2. Enter the SAVE command. By default, the command procedure created is named SHOW_CLUSTER.COM. If you want a name that is different from the default, specify the alternate name on the SAVE command line. You save a startup initialization file as an .INI file. See Section 3 for details.
3. Edit the file to improve its efficiency and document it.

The file that results from the SAVE commmand is an ASCII file. You will see that the SAVE command inserts an INITIALIZE command as the first line of the file. In this way, the initialization file or the command procedure always starts with the default display.

The SAVE command might not enter SHOW CLUSTER commands into the file in the same order in which you entered them. It might be necessary to edit the file and correct the sequence of commands. Also, the commands that the SAVE command builds are restricted to one record, so a particular command procedure might not be as efficient as possible. For example, the SAVE command processes "ADD class", "ADD class /ALL", and "ADD (Field)" commands separately. It does not combine an "ADD class" and an "ADD (Field)" command to produce the command "ADD class, field".

Additionally, the SAVE command does not use the "REMOVE (Field)" command. For example, the following command sequence adds all fields in the circuits class and then removes one field in the circuit class:

```
Command> ADD CIRCUITS/ALL
Command> REMOVE RP_TYPE
```

Instead of removing one field from a class, the SAVE command produces a file with commands that add every field in the circuits class except RP_TYPE:

```
ADD LPORT_NAME,RPORT_NUM,RP_OWNER,NUM_CONNECTIONS,CIR_STATE
ADD REM_STATE,CABLE_STATUS,RP_REVISION,RP_FUNCTIONS,SCS_WAITERS
```

EXAMPLE

```
Command> ADD CLUSTER
Command> REMOVE SOFTWARE
Command> SAVE
```

The first two commands in the command sequence customize the SHOW CLUSTER display. The third command, SAVE, creates a command file, SHOW_CLUSTER.COM, which contains the following commands:

```
INITIALIZE
ADD CLUSTER
REMOVE SYSTEMS
ADD NODE
```

SCROLL

Scrolls a window.

FORMAT

SCROLL *direction value*

PARAMETERS

direction

Direction in which a window is to be scrolled. If you do not enter a direction for this parameter, SHOW CLUSTER prompts you for one. You must specify one of the following keywords:

UP
DOWN
RIGHT
LEFT

value

Number of fields or lines a window is to be scrolled. You must specify a numeric value from 1 to 511. If you do not enter a number for this parameter, SHOW CLUSTER prompts you for one.

QUALIFIERS

None.

DESCRIPTION

The SCROLL command provides a means of quickly scanning through a window by field (horizontally) and by line (vertically). You can scroll windows independently. Note, however, that if AUTO_POSITIONING is set to ON, other windows in the display may change position as you scroll the selected window.

To scroll a window when it is the only one in the display, enter the SCROLL command. When there are multiple windows in the display, you must first select a window by entering the SELECT command. The selected window becomes highlighted. Enter SCROLL commands either by entering them at the command line or by pressing the arrow keys. Entering the command SET FUNCTION SCROLL redefines the ↑, ↓, →, and ← arrow keys as SCROLL UP 1, SCROLL DOWN 1, SCROLL RIGHT 1, and SCROLL LEFT 1, respectively.

Use the vertical and horizontal lines of the window fields as indicators of the current position of the display. Note that the window headings remain stationary as lines of data are scrolled vertically.

EXAMPLE

```
Command> SELECT SCS
Command> SCROLL UP 10
Command> DESELECT
```

The command sequence in this example scrolls the SCS window up ten lines.

SELECT

Designates which window to scroll or move.

FORMAT

SELECT *[window-name]*

PARAMETERS

window-name
The name of the selected window. You can specify one of the following window names: SCS, LOCAL_PORTS, or CLUSTER.

QUALIFIERS

None.

DESCRIPTION

When the SHOW CLUSTER display contains more than one window, you must indicate which window you want to work with—either by entering a SELECT command at the command line prompt or by pressing the SELECT key on the default keypad.

If you press the SELECT key on the keypad or enter the SELECT command without specifying the window name, SHOW CLUSTER selects a window for you. Pressing the SELECT key repeatedly cycles through the windows in the order in which they were initially added to the screen. Each subsequent SELECT command terminates the previous one. The currently selected window becomes highlighted. When the last window in the cycle has been selected, pressing the SELECT key another time begins the cycle again.

Use the SELECT command to identify a window to be moved or scrolled. Once the display is correct, terminate the window operation by entering a DESELECT command or by selecting another window. For more information, see the SET FUNCTION, SCROLL, and MOVE commands.

EXAMPLE

```
Command> SELECT LOCAL_PORTS
```

The SELECT command in this example selects the LOCAL_PORTS window. You can then perform a MOVE or SCROLL operation on the selected window.

SET AUTO_POSITIONING

Enables or disables the automatic positioning of windows within a display.

FORMAT

SET AUTO_POSITIONING *keyword*

PARAMETERS

keyword
Specifies whether or not windows are automatically positioned within a display. By default, SHOW CLUSTER operates with AUTO_POSITIONING enabled. Valid keywords are as follows:

ON
OFF

QUALIFIERS

None.

DESCRIPTION

By default, SHOW CLUSTER automatically positions windows based on their size and the order in which they were originally added to the display. With AUTO_POSITIONING set to ON, windows do not overlap, but they may extend partially or fully beyond the physical limits of the terminal screen. Setting AUTO_POSITIONING to OFF allows you to position the window manually within the display.

Entering a MOVE command implicitly disables AUTO_POSITIONING. When you use MOVE commands to position a selected window, the windows are allowed to overlap. For additional information on moving windows, see the MOVE and SET FUNCTION commands and Section 2.5.3.

Setting AUTO_POSITION to ON re-establishes the earlier position of windows.

EXAMPLE

```
Command> SET AUTO_POSITIONING OFF
Command> ADD LOCAL_PORTS
Command> SELECT SCS
Command> MOVE DOWN 8
Command> DESELECT
```

The command sequence in this example disables AUTO_POSITIONING to add the LOCAL_PORTS window at the top of the screen. The following commands move the SCS window below the LOCAL_PORTS window, where it is in full view.

SET (Field)

Modifies the characteristics of particular fields within the display.

FORMAT

SET *field-name /qualifier[, . . .]*

PARAMETERS

field-name

Specifies the name of the field to be modified in the display. For a list of field names, see the ADD (Field) command.

QUALIFIERS

/WIDTH=field-width

Specifies the number of columns used to display the specified field. This qualifier shrinks the display to allow room for more fields or expands it to make it easier to read.

Minimum, maximum, and default values for field widths are set up internally. If you specify a field width of 0, the field is set to its minimum width. If you specify a field width that is larger than the internal maximum width, the field is set to its maximum width.

Note: If the field width is too narrow to display a particular numeric field, asterisks are displayed in place of the data; if the width is too narrow to display a character string field, the character string is truncated on the right.

/FORMAT=radix

Specifies the display format used to display the specified field. You can specify either of the following radix values:

- DECIMAL for decimal format
- HEXADECIMAL for hexadecimal format

A hexadecimal display for a field uses fewer columns than a decimal display.

The hardware version field (HW_VERSION) is always displayed in 24 hexadecimal digits.

EXAMPLE

```
COMMAND> SET SYSID/FORMAT=HEXADECIMAL
```

The SET command in this example changes the format of the SYSID field to a hexadecimal display.

SET FUNCTION

Enables one of the following SHOW CLUSTER functions: EDIT, MOVE, PAN, or SCROLL.

FORMAT

SET FUNCTION *function-name*

PARAMETERS

function-name

Specifies the SHOW CLUSTER function to be enabled. By default, the EDIT function is enabled. Functions include the following:

EDIT
MOVE
PAN
SCROLL

QUALIFIERS

None.

DESCRIPTION

The SET FUNCTION command redefines the arrow keys to perform the specified function. By default, the function is set to EDIT, which allows you to use the arrow keys to recall a previously entered command or perform DCL line-mode editing at the command prompt. (See the *VMS DCL Concepts Manual* for more information on DCL line-mode editing.)

To enable one of the SHOW CLUSTER functions, either enter the specific SET FUNCTION command at the command prompt, or press the appropriate SET FUNCTION key on the keypad. Only one function can be enabled at a time.

Note: Setting the function to MOVE implicitly disables AUTO_POSITIONING.

EXAMPLE

```
Command> SET FUNCTION MOVE
Command> SELECT SCS
Command> MOVE RIGHT 10
Command> DESELECT
Command> SET FUNCTION SCROLL
```

The command sequence in this example sets the function to MOVE and moves the SCS window 10 columns to the right. The window is then deselected, and the function is set to SCROLL. The arrow keys are now redefined to function as SCROLL commands.

SET INTERVAL

Changes the interval time between display updates. The interval time is the amount of time that display information remains on the screen before it is updated. By default, the display updates every 15 seconds, unless you use the /INTERVAL qualifier on the SHOW CLUSTER command. If you use the /INTERVAL qualifier on the SHOW CLUSTER command, the time specified becomes the default.

FORMAT

SET INTERVAL=*seconds*

PARAMETERS

seconds
The number of seconds between display updates.

QUALIFIERS

None.

EXAMPLE

```
COMMAND> SET INTERVAL=5
```

The SET INTERVAL command in this example changes the display interval time to five seconds.

SET SCREEN

Sets the terminal to a display of up to 511 columns. This command can be used only on DIGITAL-compatible terminals.

FORMAT

SET SCREEN=*screen-width*

PARAMETERS

screen-width
Specifies the width of the screen display. Depending on terminal type, you can specify a value up to 511.

QUALIFIERS

None.

DESCRIPTION

The SET SCREEN command redefines the width of the display to the number of columns that you specify.

If you use an initialization file in noncontinuous mode and the initialization file contains a SET SCREEN command that changes the screen size, SHOW CLUSTER sets the screen to the specified size for one update interval and then resets the screen to the original size.

EXAMPLE

```
COMMAND> SET SCREEN=132
```

The SET SCREEN command in this example sets the screen width to 132 columns.

WRITE

Outputs the current display to a file that can be printed on a hardcopy device.

FORMAT

WRITE *[file-spec]*

PARAMETERS

file-spec

Names the file specification of the printable output file. By default, the output file name is SHOW_CLUSTER.LIS.

QUALIFIERS

/ALL

Indicates that the output file should contain a display consisting of all classes and all fields. Because SHOW CLUSTER may not currently have the information necessary to display all the possible fields when you specify the /ALL qualifier, a display update occurs prior to the output of the file. As a result, the output file may differ from the display on the screen at the time the command was entered. The screen is updated along with the file output, so subsequently they are the same.

You should use the /ALL qualifier to produce an output file or hardcopy file when reporting a cluster-related problem to DIGITAL.

EXAMPLE

```
Command> WRITE/ALL
```

The WRITE command in this example creates a file, SHOW_CLUSTER.LIS, which contains all possible SHOW CLUSTER fields. SHOW_CLUSTER.LIS can be printed on a hardcopy device.

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VMS Show Cluster Utility Manual
AA–LA46A–TE

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Thank you for your assistance.

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Accuracy (software works as manual says)	☐	☐	☐	☐
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Organization (structure of subject matter)	☐	☐	☐	☐
Figures (useful)	☐	☐	☐	☐
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