System Healthcheck for OpenVMS (CD-ROM Distribution)

User Information

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This manual describes how to install and use the System Healthcheck tool for OpenVMS systems.

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Preface

Content of This Manual

This manual contains information about how to install and use the System Healthcheck tool and it also describes the process for sending the collected data back to Digital™ for analysis.

Audience

This manual is intended for users installing or running the System Healthcheck tool for OpenVMS™.

Structure of This Manual

This manual contains five chapters, five appendixes, a glossary, and an index as follows:

- Chapter 1 contains an overview of the System Healthcheck service and tool.
- Chapter 2 describes how to install the System Healthcheck tool.
- Chapter 3 describes how to run the System Healthcheck tool.
- Chapter 4 describes how to perform a data collection job and how to return the collected data to Digital.
- Chapter 5 describes the System Healthcheck error handling procedures.
- Appendix A contains a sample installation procedure.
- Appendix B contains some useful OpenVMS commands that you may need to use before running the tool.
- Appendix C contains information about running the System Healthcheck tool on heterogeneous VMSclusters.
- Appendix D describes the function keys that you can use when entering details in the user input screens.

- Appendix E contains sample extracts from the main sections in the **System Healthcheck report**.
- The glossary defines the important terms used in the manual.
- The index is a reference to the main topics in the manual.

Conventions

The following conventions are used in this manual:

Convention	Meaning
`monospace type`	System displays used as examples are shown in monospace type.
`monospace bold type`	User input is shown in monospace bold type.
italic type	Italic type emphasizes important information, indicates variables, and indicates complete titles of manuals.
boldface type	Boldface type in text indicates the first instance of a term defined in the glossary.
UPPERCASE	Words in uppercase indicate a command, the name of a file, or an abbreviation for a system privilege.

1
Overview of System Healthcheck

Introduction

This chapter provides an overview of the System Healthcheck service and outlines the steps involved in completing the service.

Service Overview

The System Healthcheck service that you have received from Digital provides you with a broad assessment of your standalone or clustered OpenVMS computer system. The software used to provide the service is called the System Healthcheck tool which is a data collector for OpenVMS systems. This tool collects static and dynamic information on the performance, security, configuration, and accounting aspects of your system. Once the data is collected, you return it to Digital for analysis. As a result of this analysis, Digital produces and sends you a System Healthcheck report outlining potential problems, issues, and concerns. Shortly after receiving the report, a Digital Multivendor Customer Services (MCS) consultant will contact you to discuss the report and to outline a follow-on action plan, if appropriate.

Step 1: Installing the Software

For prerequisite information and complete installation instructions, refer to Chapter 2 of this manual.

Step 2: Collecting the Data

After you install the System Healthcheck tool on your system, run it to perform a data collection job on the system. For complete information, refer to Chapters 3 and 4 of this manual. Chapter 3 provides information on running the System Healthcheck tool. Chapter 4 provides information on performing a data collection job.

A data collection job consists of the following phases:

1. Static data collection

During this phase, the tool collects static data from the system such as account setup, file security, and layered product information.

2. Dynamic data collection for a variable length of time

   During this phase, the tool collects dynamic data from the system such as I/O rates, disk usage, and paging information.

   An optional time delay allows you to specify a start time for the dynamic data collection when the load on the system is typical of a normal working day.

Step 3: Copying the Collected Data to Media

When the data collection job is complete, copy the collected data to a TK50 or TK70 tape, or to alternative media agreed with your local customer support center (CSC). Chapter 4 describes the process for copying the collected data onto the media.

Step 4: Returning the Collected Data

After you have copied the collected data to the media, please contact your local CSC for information on how to return the data to Digital. Chapter 4 contains information on how to contact your local CSC.

Step 5: Analyzing the Data

On receipt of the media, Digital analyzes the collected data and compares it against benchmarked system management practices. Digital produces and sends you a System Healthcheck report. Included in this report is a simple, easy-to-read scorecard detailing the results of the areas tested along with reference texts and evidence information in relation to the issues detected. Appendix E contains sample extracts from the main sections in the System Healthcheck report.

Step 6: Follow-up Consultation

Shortly after you receive the report, a Digital Multivendor Customer Services (MCS) consultant will contact you to answer any of your questions and to outline a follow-on action plan, if appropriate.

2
Installing the System Healthcheck Tool

Introduction

This chapter describes how to install the System Healthcheck tool on OpenVMS systems.

In This Chapter

This chapter contains the following sections:

- Before You Install the System Healthcheck Tool
- How to Install the System Healthcheck Tool

Before You Install the System Healthcheck Tool

Location of the Software

The System Healthcheck installation kit is located in the directory [SYSTEM_HEALTHCHECK.KIT] on the OpenVMS CD-ROM.

Prerequisites

Before you install the System Healthcheck tool on your system, you must ensure that you have the following prerequisites:

Category	Prerequisite
Operating System	OpenVMS VAX™ Version 5.0 to 6.2 or OpenVMS AXP™ Version 1.5 to 6.2
Hardware	Any VAX or AXP system with a character-cell terminal or a graphics display.
Disk Space	To install the tool: At least 6000 blocks free on the system disk 4000 blocks free on the application disk To run the tool: 2000 blocks per node in a VMScluster™ and 3 blocks per user account on each SYSUAF.DAT file
Privileges	To install the tool: Full system privileges To run the tool: BYPASS CMKRNL CMEXEC DIAGNOSE NETMBX OPER SECURITY SYSLCK SYSPRV TMPMBX WORLD

Category	Prerequisite
Process Quotas	PGFLQUOTA = 32 768 MAXJOBS = 0 MAXACCTJOBS = 0 WSQUOTA = 4096 WSEXTENT = 8192
UIC Group	The user identification code (UIC) for the process must be in Group 1.

For information and instructions on the OpenVMS commands to use to set up the prerequisites, see Appendix B.

How to Install the System Healthcheck Tool

Where to Install the Tool

You should install the System Healthcheck software on an application disk. During the installation procedure, you are asked to select the disk on which you want to install the software.

Note

If your system is a VMScluster, install the software on a disk that is *mounted clusterwide* in order to be able to collect data from every node in the cluster. Also, when you have a choice, do not locate the System Healthcheck software on the system disk.

When you install the software, the installation procedure creates a directory called [SHC] to contain the software.

Heterogeneous VMSclusters

If you are installing the System Healthcheck software on a heterogeneous VMScluster, you should read Appendix C of this manual before beginning the installation.

Procedure

To install the System Healthcheck software on your system, carry out the following procedure:

Step	Action
1.	Insert the OpenVMS CD-ROM in a CD drive.
2.	Log into an account with system privileges.
3.	Enter a command similar to the following, replacing *cd_dev* with the device name of the CD-ROM drive where you inserted the CD-ROM, and press Return: `$ @sys$update:vmsinstal shc011 cd_dev:[system_healthcheck.kit] options n` When you enter this command, an OpenVMS installation script is displayed on the screen and you are prompted to answer some questions related to the installation.

Step	Action

4. If you are not logged into the SYSTEM account, the VMSINSTAL procedure reminds you of this and displays the following question:

   ```
   * Do you want to continue anyway [NO]? Y
   ```

   If you are logged into an account with system privileges, enter Y and press Return to continue with the installation. If you are not logged into an account with system privileges, press Return to exit from the VMSINSTAL procedure.

5. The VMSINSTAL procedure asks you if you are satisfied with the backup of your system disk:

   ```
   * Are you satisfied with the backup of your system disk [YES]?
   ```

   The default answer is Y. To accept the default, press Return. If you are not satisfied with the backup of the system disk, enter N and press Return to return to the system prompt.

6. The VMSINSTAL procedure displays a list of options for viewing the release notes and asks you to select an option:

   ```
   * Select option [2]:
   ```

To ...	Then ...
Accept the default value and print the release notes	Press Return
Display the release notes on the screen	Enter 1 and press Return
Display and print the release notes	Enter 3 and press Return
Continue with the installation without displaying or printing the release notes	Enter 4 and press Return

7. The VMSINSTAL procedure then asks if you wish to continue with the installation:

   ```
   * Do you want to continue the installation [NO]?
   ```

   Press Return to stop the installation, or enter Y and press Return to continue with the installation.

Step	Action
8.	If you answer Yes, the VMSINSTAL procedure then asks if you are ready to start the installation: `* Are you ready [YES]?` Press Return to start the installation, or enter N and press Return if you are not ready to start the installation.
9.	If you answer Yes, the VMSINSTAL procedure then asks you where you want to install the software: `* Enter the name of the disk where you wish to install SHC:` Enter the name of the disk on which you want to install the System Healthcheck software and press Return. The installation procedure then installs the software on the specified disk. See Appendix A for an example of the installation script that is displayed.

3

Running the System Healthcheck Tool

Introduction

This chapter describes how to run the System Healthcheck tool on OpenVMS systems.

In This Chapter

This chapter contains the following sections:

- How to Run the System Healthcheck Tool
- Choosing a Language
- System Healthcheck Main Menu
- System Healthcheck User Interface

How to Run the System Healthcheck Tool

Heterogeneous VMSclusters

If you are running the System Healthcheck tool on a heterogeneous VMScluster, please refer to Appendix C for information on the correct procedure to follow when performing a data collection.

Startup Command

Please ensure that you do not run the System Healthcheck tool from an account which is due to expire or become disabled during the data collection job.

To run the System Healthcheck tool, enter the following commands at the system prompt:

```
$ set def test$disk:[shc]1
$ @healthcheck
```

The System Healthcheck user interface is then displayed.

1 Replace *test$disk* with the name of the disk on which you installed the software.

Choosing a Language

Language Options

The first time you run the System Healthcheck tool on your system, you are prompted to choose the language in which you want to run the tool. You can choose any of the following languages:

- English
- French
- German

Procedure

To choose a language, enter the number opposite the language of your choice and press Return. The System Healthcheck Main Menu is then displayed in the language of your choice.

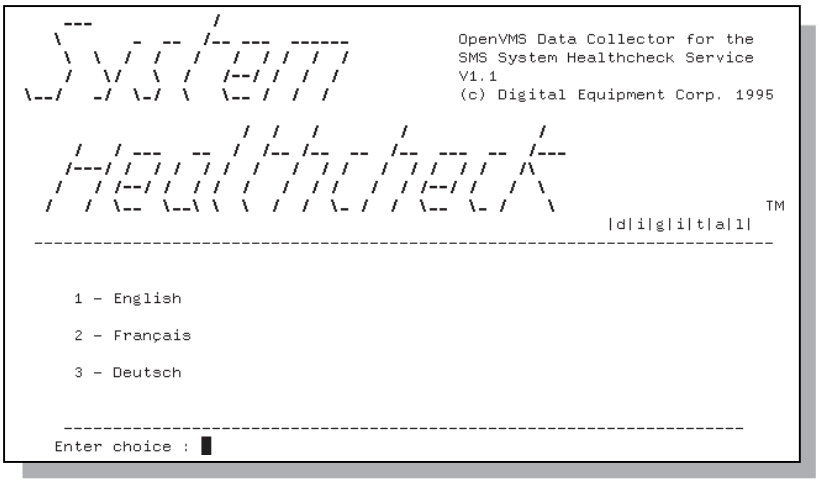
Resetting the Language

The language selection screen is displayed only once, when you run the System Healthcheck tool for the first time. To reset the language and display the language selection screen again, you must delete a file called SHC_LANGUAGE.TXT located in the [SHC] directory. To do this, enter the following command:

```
$ delete shc_language.txt;
```

Screen Example

The following figure shows an example of the language selection screen:



System Healthcheck Main Menu

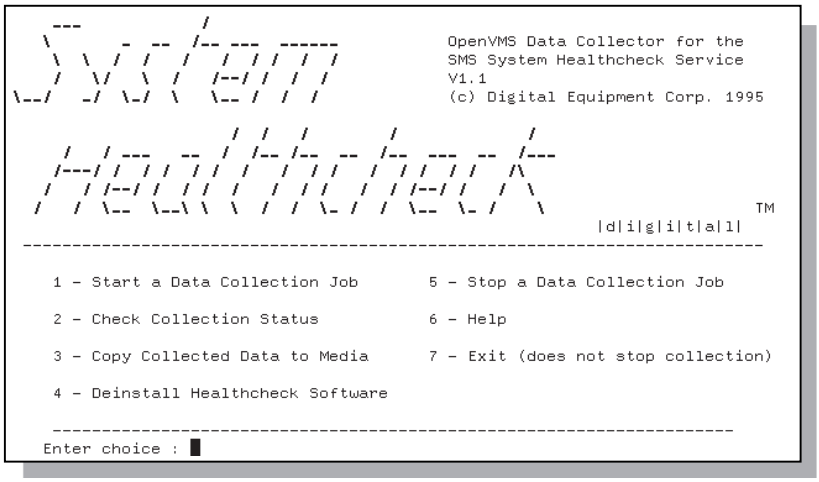
Screen Description

When you run the tool, the Main Menu is displayed. It contains seven options as follows:

1. Start a Data Collection Job
2. Check Collection Status
3. Copy Collected Data to Media
4. Deinstall Healthcheck Software
5. Stop a Data Collection Job
6. Help
7. Exit (does not stop collection)

Screen Example

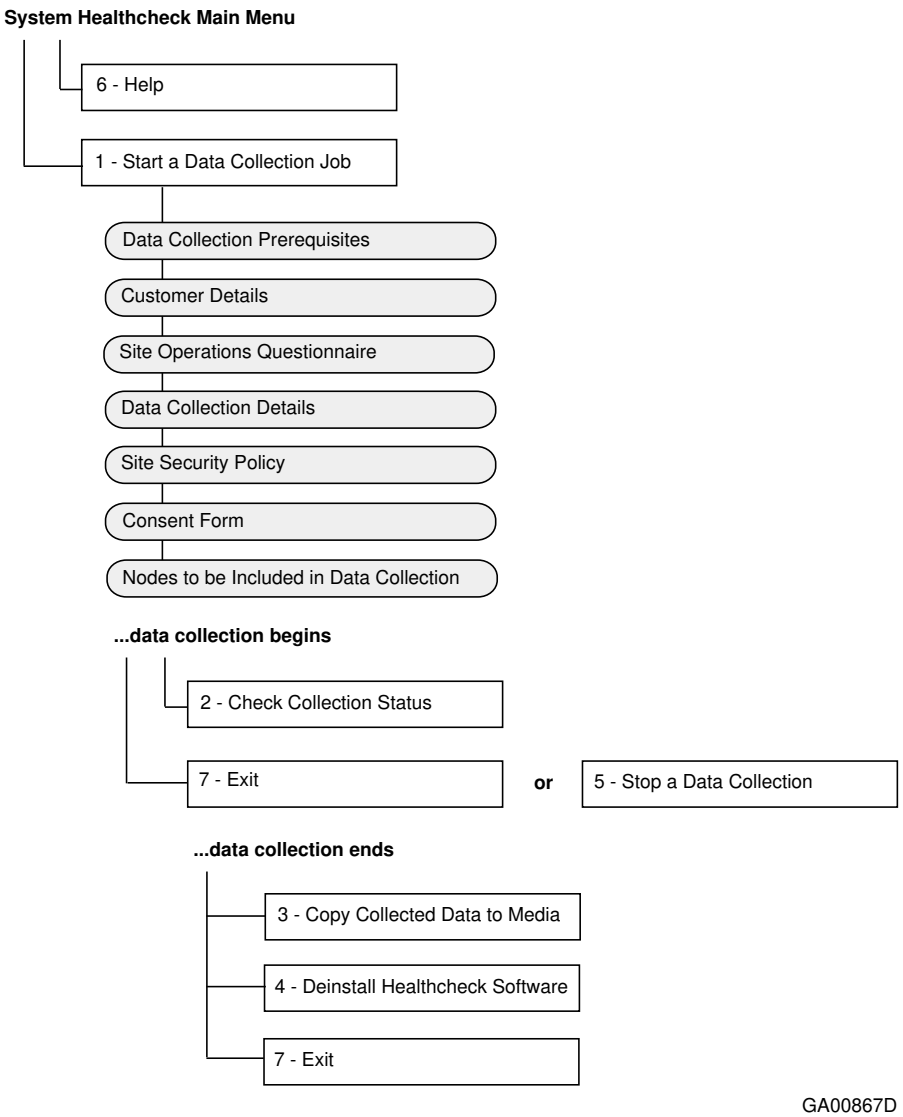
The following figure shows an example of the Main Menu:



System Healthcheck User Interface

Navigating

The following figure shows how you should navigate the System Healthcheck user interface for a typical data collection job:



Online Help

To view the online help for the System Healthcheck tool, you can either choose the Help option from the Main Menu or you can move the cursor to the [HELP] action button on each user input screen and press Return.

Context-sensitive help is also available for each data entry field. To view the context-sensitive help, move the cursor to the data entry field in question and press F15, the Help key, or Ctrl/X.

On any keyboard, in any terminal emulation mode, the key sequence Ctrl/X behaves as the Help key.

4

Performing a Data Collection Job

Introduction

This chapter describes how to use the System Healthcheck software to perform a data collection job on the system.

In This Chapter

This chapter contains the following sections:

- Starting a Data Collection Job
- Entering Customer Details
- Completing the Site Operations Questionnaire
- Entering Data Collection Details
- Entering Site Security Policy Details
- Completing the Consent Form
- Selecting Nodes
- Checking the Data Collection Status
- Completing a Data Collection Job
- Returning the Collected Data

Starting a Data Collection Job

How to Start a Data Collection Job

When you are ready to start a data collection job, select Option 1 from the Main Menu by entering 1 and pressing Return. When you select this option, you are presented with a series of screens requiring user input on the details of the data collection.

Checking Prerequisites

When you select Option 1 on the Main Menu, the first screen displayed is the Data Collection Prerequisites Check screen. The tool checks to ensure that your system has the prerequisites to run the tool and one of the following actions takes place:

If your system ...	Then ...
meets the prerequisites	you can continue to the next screen and start entering the data required to start a data collection job.
does not meet the prerequisites	you can exit from the tool and set up the prerequisites.

To view the prerequisites for running the tool, see Chapter 3 and for information on setting up the prerequisites, see Appendix B.

Entering Data

For information on the function keys that you can use when you are entering data in the data entry fields, see Appendix D or refer to the online help.

Batch Queue Created

When you have completed the user input screens and the data collection begins, the tool creates a batch queue on the system for the duration of the data collection job. This batch queue is called SMSAT_MASTER_BATCH.

Entering Customer Details

Screen Description

The second screen that is displayed when you want to start a data collection job is the Customer Details screen. This screen prompts you for information about the company and the person who is running the System Healthcheck tool. You must enter data for every data entry field before you can continue to the next screen. See Appendix D or the online help for a full list of the function keys that you can use when completing the user input screens.

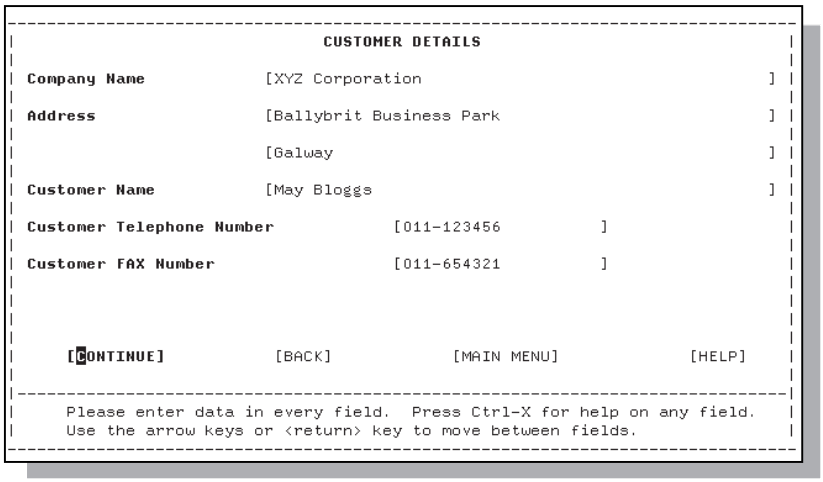
Input Required

The following table lists the data entry fields and the input that is required for each field:

Field Name	Data Required
Company Name	Enter the full name of the company.
Address	Enter the address of the site at which you are running the data collection.
Customer Name	Enter the name of the person who is running the data collection.
Customer Telephone Number	Enter a telephone number at which a Digital Customer Service representative may contact the person running the data collection.
Customer FAX Number	Enter a facsimile number at which a Digital Customer Service representative may contact the person running the data collection.

Screen Example

The following figure shows the Customer Details screen with examples of the user input required:



Completing the Site Operations Questionnaire

Screen Description

The third screen that is displayed when you want to start a data collection job is the Site Operations Questionnaire. You must answer each question on this screen by entering either Y or N. The final question on the questionnaire allows you to enter information about any other issues that you think may be causing system problems. This question is optional and you are not obliged to enter data.

When you have answered all of the questions, move the cursor to the [CONTINUE] action button and press Return.

Explanation of Questions

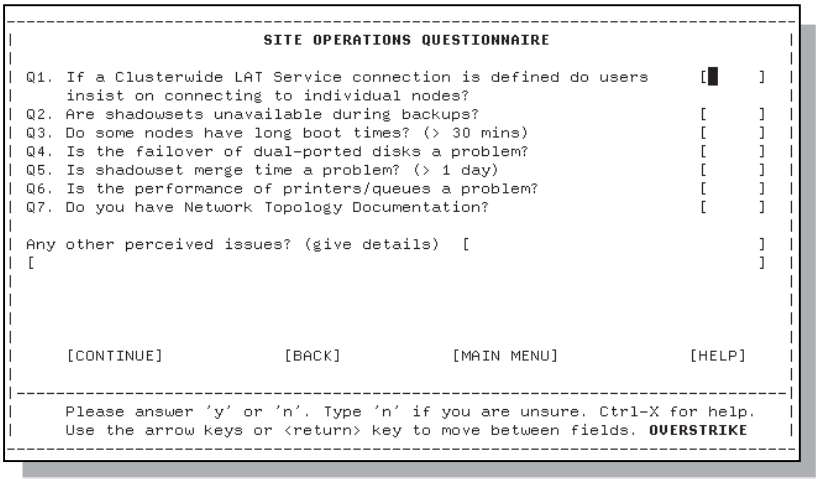
The following table briefly explains the questions in this questionnaire:

Question	Explanation
1.	After setting up a clusterwide local area transport (LAT) service, some users may still insist on connecting to individual nodes. This often occurs when users are allowed to access the local prompt on a DECserver™ and are familiar with the node names in the cluster. If this situation exists on your system, enter Y. If you are not sure whether or not this is occurring on your system, enter N.
2.	If data becomes unavailable to an application using a shadowset or during backups, enter Y.
3.	If local disks are mounted clusterwide and these nodes experience long delays at startup time, enter Y.
4.	If the failover of dual-ported disks causes problems, enter Y.
5.	If the shadowset merge time is longer than one day, enter Y.
6.	If you are aware of poor performance from printers and queues on the system, enter Y.
7.	If you do not have Network Topology Documentation, enter Y.
8.	If there are any other problems that adversely affect the system, enter the details in this field.

If you are unsure about the answers to any of these questions, enter N in the data entry field.

Screen Example

The following figure shows the Site Operations Questionnaire:



Entering Data Collection Details

Screen Description

The fourth screen that is displayed when you want to start a data collection job is the Data Collection Details screen. This screen allows you to specify how you want to run the data collection job. You must enter data for every data entry field before you can continue to the next screen.

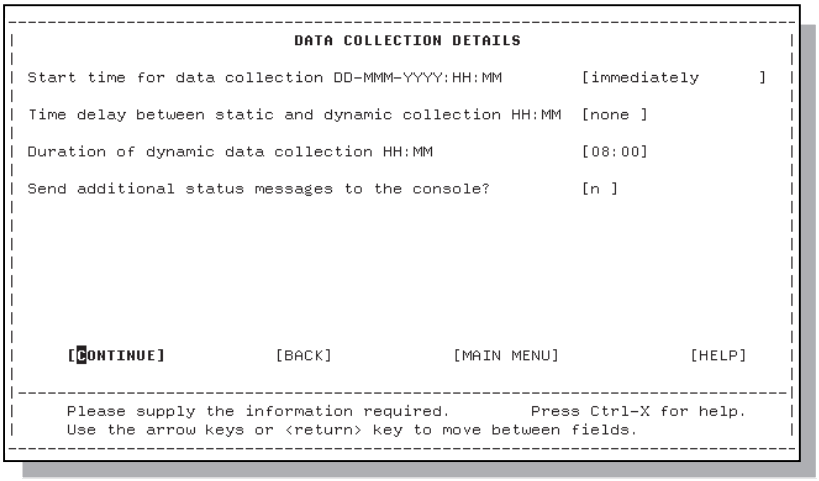
Input Required

The following table explains the input that is required for each data field:

Data Field	Input Required
Start time for data collection	Enter the time when the data collection job should begin. The default is 'Immediately' but you can specify any time in the future that you think is most suitable. You can overwrite the default value by typing a new start time.
Time delay between static and dynamic collection	Enter the required time delay between the end of the static data collection and the start of the dynamic data collection. The time delay enables you to start the dynamic data collection when the load on the system is typical of a normal working day. The default answer is 'None' which means that the dynamic data collection begins immediately after the static data collection. You can overwrite the default value by typing a new time delay.
Duration of dynamic data collection	Enter the length of time for which you want to collect dynamic data. The default and recommended value is 8 hours. You can overwrite the default value by typing a new time.
Send additional status messages to the console?	If you want the tool to send status messages to the OPA0 console during the data collection, enter Y in this field. The default is not to send messages to the console as you can use VAXmail™ messaging and the Check Collection Status option to check the status of a data collection job.

Screen Example

The following figure shows the Data Collection Details screen:



Entering Site Security Policy Details

Screen Description

The fifth screen that is displayed when you want to start a data collection job is the Site Security Policy screen. This screen prompts you for information about the security policy for the user accounts on the system. You must enter data for every data entry field before you can continue to the next screen.

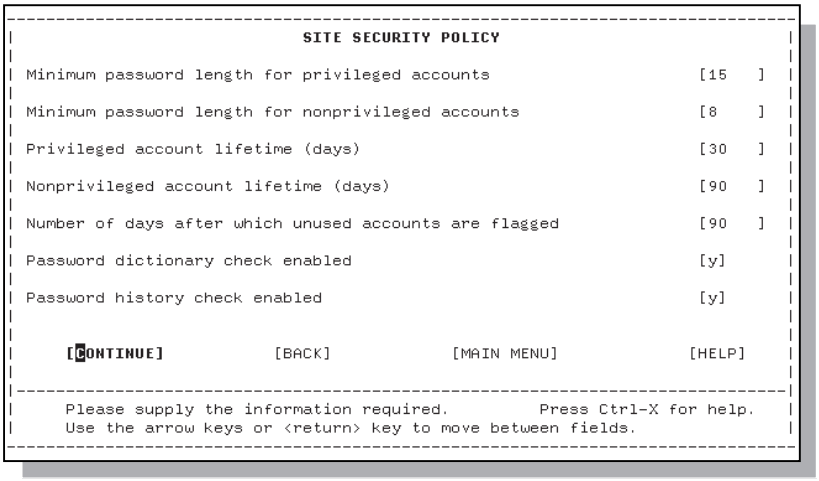
Input Required

The following table explains the input that is required for each data field:

Data Field	Input Required
Minimum password length for privileged accounts	Enter the minimum number of characters that is allowed for a privileged account password. The default is 15 characters.
Minimum password length for nonprivileged accounts	Enter the minimum number of characters that is allowed for a nonprivileged account password. The default is 8 characters.
Privileged account lifetime	Enter the number of days that can elapse before a privileged account user is requested to change a password. The default is 30 days.
Nonprivileged account lifetime	Enter the number of days that can elapse before a nonprivileged account user is requested to change a password. The default is 90 days.
Number of days after which unused accounts are flagged	Enter the number of days for which accounts can be unused before they are flagged as unused. The default is 90 days.
Password dictionary check enabled	Enter Y or N to indicate whether a dictionary check is done on passwords. The default is Y.
Password history check enabled	Enter Y or N to indicate whether a password history list is used to check passwords. The default is Y.

Screen Example

The following figure shows the Site Security Policy screen:



Completing the Consent Form

Screen Description

When you have finished entering the data required to begin the data collection, a Consent Form is displayed. This form describes how Digital could use, with your permission only, the information that is gathered during a data collection job to track how systems are configured and managed.

What to Do

You should read this Consent Form carefully and if you consent to allow Digital to use the information, you should enter Y at the end of the form. If you do not wish to allow Digital to use the information, enter N to continue with the data collection.

Selecting Nodes

Process

When you have entered all of the data required to start a data collection job, the following process takes place:

Step	Action
1.	The tool scans the system for nodes.
2.	One of the following actions takes place:

If ...	Then ...
the system consists of one standalone node	Step 5 takes place.
the system consists of a VMScluster with multiple nodes	Step 3 takes place.

3. The tool displays a list of the nodes in the VMScluster and by default all nodes are selected for data collection. You can deselect any node by moving the cursor to the nodename and pressing the space bar. When you are satisfied with the list of nodes for data collection, press Return.
4. The tool displays the following question:

   ```
   Please enter the approximate number of user accounts
   on the system:
   ```

   Enter the total number of user accounts on all SYSUAF.DAT files available in the VMScluster and press Return.

Step	Action

5. The tool displays the estimated disk space required and the available disk space. You are then given the option to exit from the tool if you do not have sufficient disk space as follows:

   ```
   Do you wish to exit here and free up disk space? (y/n)
   ```

   Take one of the following actions:

If you ...	Then ...
have sufficient disk space	enter N and Step 6 takes place.
do not have sufficient disk space	enter Y to exit from the tool.

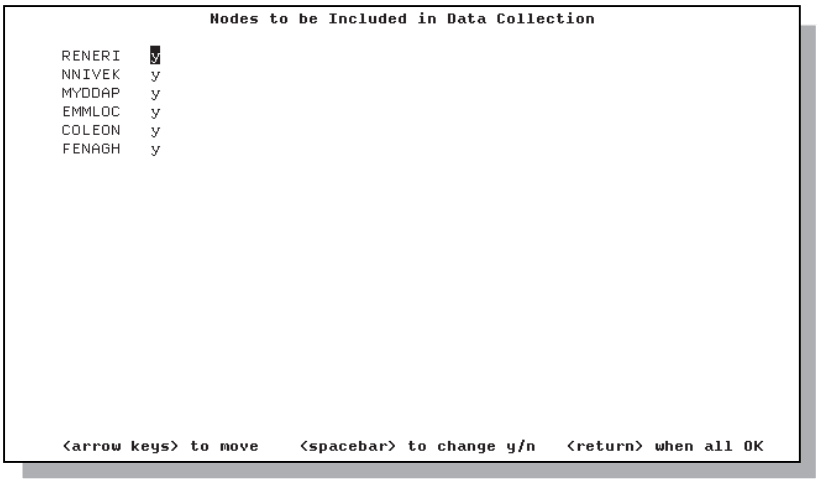
6. The data collection job begins.
7. The tool gives you the option of disabling VAXmail messaging to the account from which you are running the tool by displaying the following question:

   ```
   Do you wish to disable VAXMAIL messaging from
   SMSAT_GATHER <N>
   ```

   Enter Y or N depending on whether you want to disable VAXmail messaging and press Return.

Screen Example

The following figure shows the Nodes to be Included in Data Collection screen:



Important Note

If you wish, you can select Option 7 from the Main Menu to exit from the tool while it is collecting the data. Exiting from the tool does not interrupt the data collection job in any way. You can monitor the progress of a data collection job using the Check Collection Status option.

Checking the Data Collection Status

Screen Description

You use Option 2 - Check Collection Status on the Main Menu to check the progress of a data collection job. When you choose this option, you first see a graph representing the status of either the static or dynamic data collection, depending on which is in progress at the time. To view a screen display containing status messages, press the space bar. You can alternate the display between the graph and the status messages by pressing the space bar. To return to the Main Menu at any time, press Return.

Note

Checking the status of a data collection job does not affect the data collection in any way.

Screen Examples

The following figures show examples of the screens that are displayed when you check the status of a data collection job:

```
                          STATIC COLLECTION     Tue Apr 25 18:48:19 1995

    NODE      |-------------+--------------+--------------+-------------|
              0                           50                          100
    RENERI    ******************
    NNIVEK    ********************************
    MYDDAP    ******************************
    EMMLOC    ************************
    COLEON    **************************
    FENAGH    ************************

    <spacebar> for next screen       <return> to go to main menu
```

```
                       Check Collection Status     Tue Apr 25 18:45:59 1995

 Data Collection Process Submitted at 25-APR-1995 18:44:13.49.
 Static data collection will start immediately.
 Dynamic collection will start 00:00 hours after the static collection
 has finished.
 Dynamic collection will run for 08:00 hours.
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Starting Static Data Collection 25-APR-1995 18:44:27.65
 Static Data Collection in progress

   <spacebar> for next screen        <return> to go to main menu
```

Completing a Data Collection Job

Copying Collected Data to Media

You can copy the collected data to either a file on the application disk or to a TK50/TK70 tape or alternative media agreed with your local CSC. You must eventually however, copy the data to a tape in order to return it to Digital for analysis.

To copy the collected data to the media, carry out the following steps:

Step	Action
1.	Choose Option 3 from the Main Menu. **Result:** The tool asks you to confirm that you want to copy the data to a tape as follows: `Do you want to copy to tape? (y/n)`
2.	Take one of the following actions:

If you ...	Then ...
do not want to copy the data directly to a tape	enter N and go to Step 5. **Result:** The data is copied to a saveset on the disk called SHC-*nnnn*.BCK where *nnnn* is a unique identifier.
do want to copy the data directly to a tape	enter Y and go to Step 3.

3. Enter the name of a tape device when the following question is displayed and press Return:

```
Enter tape device name (eg. mua0) [          ]
or press EXIT to return to the menu.
```

Result: The tool displays the following:

```
Please insert a write-enabled tape into the drive and
press 'y' to copy the data to the tape. Or, press 'n' to
return to the menu.
```

Step	Action
4.	If you have not already done so, insert a tape in the tape drive and enter Y to copy the data to the tape or you can press Exit or F10 to return to the Main Menu. Ensure that the write protection tab on the tape is in the write-enable position. **Result:** The tape is mounted automatically by the software and the files containing the data are backed up to a saveset and copied to the specified tape.
5.	Press any key to return to the Main Menu.

If you decide at any time that you do not want to copy the files to a tape, you can press Exit or F10 to return to the Main Menu.

Deinstalling the System Healthcheck Software

To deinstall the System Healthcheck software on your system, choose Option 4 from the Main Menu. When you choose this option, you are asked to confirm that you want to delete the software as follows:

```
Do you really want to deinstall this software? (y/n)
```

If you answer Y, the System Healthcheck software is deleted from your system. However, if the [SHC] directory contains files other than those created by the System Healthcheck tool, the directory and those files are not deleted.

If you answer N, you are returned to the Main Menu.

Stopping a Data Collection Job

You can stop a data collection job at any time by choosing Option 5 from the Main Menu. This stops the job in a controlled manner, returning the system to its initial state.

If a serious error occurs during a data collection job and you are unable to select Option 5 from the Main Menu, see the section entitled Performing a Controlled Shutdown in Chapter 5 for more information.

Exiting from the Tool

You can exit from the tool by choosing Option 7 from the Main Menu. You can exit from the tool while a data collection job is in progress without affecting the data collection job in any way.

Returning the Collected Data

Procedure

When you have copied the collected data to tape, you must return the tape to Digital. To determine the correct procedure for returning the tape to Digital, you must call your local CSC for information. The CSC personnel will instruct you on how to return the collected data to Digital for analysis.

Country Telephone Numbers

To contact your local CSC, call one of the following numbers:

Country	Telephone Number
U.S.A:	1-800-354-9000
U.K:	01-256-373-373
France:	161-6987-4123
Germany:	089-95910
Australia	1-800-500-255
Japan	81-3-5349-7347
Other locations:	For a complete list of CSCs and their support telephone numbers, refer to the file CONTACT_LIST.TXT/PS located in *CD_DEV*:[SYSTEM_HEALTHCHECK .DOCUMENTATION][1]

[1] *CD_DEV* is the device name of the CD-ROM drive where you inserted the CD-ROM.

5
Error Handling Procedures

Introduction

This chapter describes the error handling procedures that you can use if you have problems running the System Healthcheck tool. When you run the System Healthcheck tool, certain log files are created that you can use to try to identify the problem. The log files that are created are as follows:

- SMSAT_CONTROL.LOG

  This log file details the progress of the control batch job, SMSAT_CONTROL.

- SMSAT_PROGRESS_*NODENAME*.LOG

  This log file details the progress of the data collection job. There is a different log file for each node on which the tool runs.

In This Chapter

This chapter contains the following sections:

- Troubleshooting the SMSAT_GATHER Command File
- Troubleshooting the SMSAT_CONTROL Command File
- Performing a Controlled Shutdown
- Getting Further Help

Troubleshooting the SMSAT_GATHER Command File

Procedure

If the DCL command file SMSAT_GATHER.COM fails during execution, carry out the following steps to determine where the failure occurred:

Step	Action
1.	Comment out the first line in the file SMSAT_GATHER.COM by placing an exclamation mark at the beginning of the line as follows: `$!SMSAT$VER = F$VERIFY(0)` This switches on the verification.
2.	Run the System Healthcheck tool again to determine where the failure occurred.

Troubleshooting the SMSAT_CONTROL Command File

Procedure

If the DCL command file SMSAT_CONTROL.COM fails during execution, carry out the following steps to determine the cause of the failure:

Step	Action
1.	Edit the file SMSAT_CONTROL.COM.
2.	Search this file for the string `debug_switch`.
3.	Change the value of `debug_switch` from 0 to 1 as follows: `$ debug_switch = 1`
4.	Search the file for `debug_switch` again.
5.	Change the value of `debug_switch` to 1 as follows: `debug_switch = "1"`
6.	Search the file for the word `submit`.

7.	Two lines below the word `submit`, you will see the following line:
	`/nolog -`
	Replace this line with the following line:
	`/log='path'smsat_gather_'node_buff'.log -`

8.	Save the file.
9.	Run the tool again and the following files will be available containing debug information: • SMSAT_CONTROL.LOG with DCL verification information. • A log file for each node from which data was collected, with DCL verification information. These log files are called SMSAT_GATHER_*NODENAME*.LOG.
10.	Read the log files to determine the cause of the failure.

Troubleshooting the SMSAT_CONTROL Command File

Important Note To collect data successfully from a node, DEBUG should be switched off.

Performing a Controlled Shutdown

Procedure

If a serious error occurs during a data collection job, you may not be able to select Option 5 to stop the data collection. If this happens, you should exit from the tool and enter the following command at the system prompt:

```
$ @smsat_gather_shutdwn.com
```

This stops the data collection job completely and returns the system to its initial state.

Getting Further Help

Who to Contact

If you have any problems with the System Healthcheck service or tool that you cannot resolve yourself, please refer to the file CONTACT_LIST.TXT/PS located in the [SYSTEM_HEALTHCHECK.DOCUMENTATION] directory and telephone your nearest Digital office requesting assistance with the System Healthcheck service.

A
Sample Installation Procedure

Overview

This appendix contains an example of the text that is output to the screen from an installation procedure. User input is shown in boldface type.

Important Note

The sample shown is an example of the output from one installation and may vary depending on your system.

Sample

```
$ @sys$update:vmsinstal shc011 CD_DEV:[system_healthcheck.kit] OPTIONS N
        VAX/VMS Software Product Installation Procedure V5.5-2

It is 17-FEB-1994 at 18:20.

Enter a question mark (?) at any time for help.

%VMSINSTAL-W-NOTSYSTEM, You are not logged in to the SYSTEM account.
%VMSINSTAL-W-ACTIVE, The following processes are still active:
        SQLSRV$SERVER
        DECW$MWM
        VUE$SMITH_11
        DECW$TE_0248
        _FTA15:
        _FTA16:
* Do you want to continue anyway [NO]? Y
* Are you satisfied with the backup of your system disk [YES]? Y

The following products will be processed:

  SHC V1.1

        Beginning installation of SHC V1.1 at 18:21

%VMSINSTAL-I-RESTORE, Restoring product save set A ...
```

```
    Release notes included with this kit are always copied to SYS$HELP.

    Additional Release Notes Options:

        1.  Display release notes
        2.  Print release notes
        3.  Both 1 and 2
        4.  None of the above

* Select option [2]: 1

DSA0:[SYS0.SYSUPD.shc011]shc011.RELEASE_NOTES;1

                SHC - SYSTEM HEALTHCHECK for OpenVMS - V1.1
                            RELEASE NOTES

The SHC Data Collection Kit is used to collect data from a VAX node or cluster
running OpenVMS Version 5.0 or more, or running AXP Version 1.5. The collected
data must be copied to tape and returned to the Digital CSC for analysis.

You will be asked to specify a disk on which the SHC collector will be
installed. If the system is a cluster, you should use a disk that is mounted
cluster-wide in order to collect data from every node in the cluster.

The disk must have sufficient free space to store the data collector software
and the collected data.  The approximate free space needed can be computed
using the following formula:

   Number of free blocks needed = 4000 + (number of nodes x 2000) + (number
      of user accounts on each SYSUAF * 3)


The files that make up the data collection package will be contained in a new
top level directory on this disk called [SHC].

The data collection process is started by setting default to this directory
and running the HEALTHCHECK command procedure as follows:

        $ set default disk:[shc]             (where 'disk' is the disk you will
        $ @healthcheck                        specify in the installation
                                              procedure)

A menu of options will be presented to allow collection of data, the transfer
of the collected data to tape, and the deinstallation of the data collection
package.

* Do you want to continue the installation [NO]? Y
%VMSINSTAL-I-RELMOVED, Product's release notes have been moved to SYS$HELP.

        ****************************************************************
        *                          SHC V1.1                            *
        *                                                              *
        *                System Healthcheck for OpenVMS                *
        *                                                              *
        ****************************************************************

        SHC for OpenVMS V1.1 Installation Procedure
             Building the product will take approximately 4 minutes.
```

```
* Are you ready [YES]? Y
%VMSINSTAL-I-RESTORE, Restoring product save set B ...
* Enter the name of the disk where you wish to install SHC: $1$DUA1
        This procedure will proceed to completion based on the
        answers already given - no more questions will be asked.
        ******************************************************

               Creating directory $1$DUA1:[SHC]

               Extracting product files...

               To run the data collector, type the following
               commands when the installation is complete:

               $ set default $1$DUA1:[SHC]
               $ @healthcheck

        ******************************************************
%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...
        Installation of SHC V1.1 completed at 18:27

        VMSINSTAL procedure done at 18:27
```

B

Useful OpenVMS Commands

Overview

This appendix describes some of the OpenVMS commands that you may need to use to set up the prerequisites to run the tool. For more detailed information, see your OpenVMS System Management documentation.

Adding a Privilege to a User Account

To add a privilege to a user account, for example, CMEXEC, enter the following commands at the system prompt:

```
$ set default sys$system
$ mc authorize
UAF> modify username/priv=cmexec
UAF> exit
```

Checking the Disk Space Available

To check the amount of disk space that is available, enter the following command at the system prompt:

```
$ show device test$disk
```

The disk space available is indicated in the Free Blocks column.

Modifying PGFLQUOTA

To modify the value of PGFLQUOTA, enter the following commands at the system prompt:

```
$ set default sys$system
$ mc authorize
UAF> modify username/pgflquota=32768
UAF> exit
```

Modifying MAXJOBS

To modify the value of MAXJOBS, enter the following commands at the system prompt:

```
$ set default sys$system
$ mc authorize
UAF> modify username/maxjobs=0
UAF> exit
```

Modifying WSQUOTA

To modify the value of WSQUOTA, enter the following commands at the system prompt:

```
$ set default sys$system
$ mc authorize
UAF> modify username/wsquota=4096
UAF> exit
```

Modifying WSEXTENT

To modify the value of WSEXTENT, enter the following commands at the system prompt:

```
$ set default sys$system
$ mc authorize
UAF> modify username/wsextent=8192
UAF> exit
```

Modifying the Group UIC Value

To modify the value of the UIC group, enter the following commands at the system prompt:

```
$ set default sys$system
$ mc authorize
UAF> modify username/UIC=[1,member number]
UAF> exit
```

The *member number* is a number in the range of 0 to 177776 (octal).

C

Procedures for Heterogeneous VMSclusters

Summary

To run the System Healthcheck tool successfully on heterogeneous VMSclusters, you must first determine which of the following categories your system belongs to:

- Category 1: Systems with multiple SYSUAF.DAT files
- Category 2: Systems with multiple queue management files for multiple system disks
- Category 3: Systems with multiple queue management files independent of system configuration
- Category 4: Multiple SYSUAF.DAT files and multiple queue management files

Please read the section appropriate to your system type in the following pages, to find out the procedure to follow for your heterogeneous VMScluster.

Further Help

If you require further help after reading the appropriate section, please refer to the file CONTACT_LIST.TXT/PS located in the [SYSTEM_HEALTHCHECK.DOCUMENTATION] directory and telephone your nearest Digital office for assistance. The personnel at the Digital CSC will assist you in determining what procedure you need to carry out and will guide you in executing the correct procedure.

Category 1: Multiple SYSUAF.DAT Files

What Happens

If there are multiple SYSUAF.DAT files in the VMScluster, the System Healthcheck tool will run as long as the account from which it was invoked exists in each SYSUAF.DAT file and is identical in every respect.

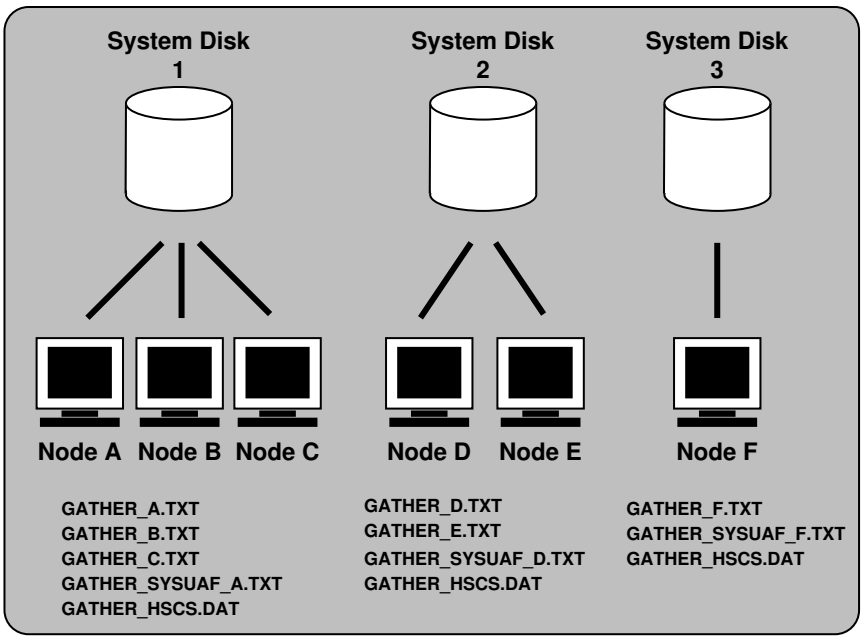
Category 2: Multiple Queue Management Files for Multiple System Disks

Sample Heterogeneous VMScluster Configuration

The following figure shows a sample heterogeneous VMScluster configuration and the files that are generated when you run the System Healthcheck tool on each set of nodes:

Note

This example assumes that there is a unique queue management system for each system disk and that **HSCs** exist on each disk.



GA_EN00692D_93A

Category 2: Multiple Queue Management Files for Multiple System Disks

What To Do

If there are multiple queue management files in the system and the files are associated with separate system disks, you should take the following steps to perform a data collection:

Step	Action
1.	Determine the names of the system disks in the VMScluster and the names of the nodes running off each disk.
2.	Run the System Healthcheck tool on the nodes connected to a specific system disk by deselecting the nodes connected to the other system disks. See Chapter 4 for more information.
3.	Run the System Healthcheck tool on the nodes connected to the remaining disks. **Note:** You should start the System Healthcheck tool at the same time for each set of nodes and you should also ensure that you run the tool from a different directory for each set of nodes. This is recommended because the dynamic data for each node will cover the same period of system activity.
4.	When the data collection is complete, create a new directory by issuing the following command: `$ CREATE/DIR [.HET_CLUSTER]`

5.	Copy the following data and executable files to the new directory using commands similar to the following:
	`$ COPY [SET1]GATHER_*.TXT+GATHER_HSCS.DAT [.HET_CLUSTER]*.*`
	`$ COPY [SET2]GATHER_*.TXT+GATHER_HSCS.DAT [.HET_CLUSTER]*.*`
	`$ COPY [SET3]GATHER_*.TXT+GATHER_HSCS.DAT [.HET_CLUSTER]*.*`
	`$ COPY SMSAT_*.EXE [.HET_CLUSTER]*.*`
	The directory [SET1] contains the files from the data collection job on System Disk 1, while [SET2] contains the files from System Disk 2, and [SET3] contains the files from System Disk 3.

6.	Change your directory location to the new directory using the following command: `$ SET DEFAULT [.HET_CLUSTER]`

7.	To consolidate the data files, issue the following command on OpenVMS VAX systems:
	`$ RUN SMSAT_GC`
	or on OpenVMS AXP systems, issue the following command:
	`$ RUN SMSAT_GC_AXP`
	The valid binary files for analysis are then created and contained in the directory [HET_CLUSTER].

Category 3: Multiple Queue Management Files Independent of System Configuration

What to Do

If there are multiple queue management files in the system and they are organized independently of the system disk configuration, you should carry out the following steps to run the System Healthcheck tool:

Step	Action

1.	Determine the number of unique queue management files, that is JBCSYSQUE.DAT or QMAN$MASTER.DAT in the case of OpenVMS Version 5.5 or higher. To do this, issue the following command on each node in the VMScluster:
	
	`$ ANALYZE/SYSTEM`
	`SDA> SHOW PROCESS/CHANNEL JOB_CONTROL`

2.	Follow the procedure outlined in Category 2 to run the System Healthcheck tool on the different sets of nodes associated with each of the queue management files.

Category 4: Multiple SYSUAF.DAT Files and Queue Management Files

What To Do

To run the System Healthcheck tool on a heterogeneous VMScluster with multiple SYSUAF.DAT files and multiple queue management files, you must do the following:

Step	Action
1.	Carry out the steps outlined in Category 1.
2.	Carry out the steps outlined in Category 2 or Category 3 as appropriate.

D
Function Keys

Function Keys Available

The following table describes the function keys that you can use when entering details in the user input screens:

Key	Function
Help, F15, or Ctrl/X	Displays online help.
Remove or Ctrl/K	Removes all characters from the current position to the end of the field.
F10 or Ctrl/D	Exit
Insert Here or Ctrl/V	Toggles between the Insert and Overstrike editing modes.
Ctrl/A	Moves the cursor to the beginning of the current field.
Ctrl/E	Moves the cursor to the end of the current field.
Enter	Accepts the user input on a screen and moves you to the next screen.
Return, Ctrl/M, or Ctrl/J	Accepts the data in the current field and moves you to the next field.
Left arrow key or Ctrl/B	Moves the cursor one space to the left.
Right arrow key or Ctrl/F	Moves the cursor one space to the right.
Up arrow key	Accepts the data in the current field and moves the cursor to the previous field.
Down arrow key	Accepts the data in the current field and moves the cursor to the next field.

Important Note

If the terminal on which you are displaying the System Healthcheck user interface is not at least as advanced as a VT200, then some of the function keys may not work correctly or may not be available. However, full functionality is available by using the alternate keys described in the previous table.

E

Sample Extracts from the System Healthcheck Report

Summary

This appendix contains the following sample extracts from a System Healthcheck for OpenVMS report:

- Sample Scorecard
- Sample System and Disk Performance Conditions
- Sample Supporting Data

Sample Scorecard

The following is an example of the scorecard in the System Healthcheck report:

2.2 System Healthcheck for OpenVMS Score Card

AREAS TESTED	TOTAL Tests	NO Problem Found	ATTENTION REQUIRED Condition Priority HIGH	MEDIUM	LOW
SYSTEM CONFIGURATION					
H/W Physical Configuration	18	18	**0**	0	0
S/W Logical Configuration	84	81	**0**	3	0
System Design	23	16	**0**	2	5
System Environment	4	3	**0**	1	0
SYSTEM OPERATIONS					
General Operations	11	9	**1**	0	1
Security Checks	50	47	**0**	1	2
System Configuration	53	43	**0**	7	3
SOFTWARE UPDATE					
Product Revisions	4	3	**1**	0	0
Operational Checks	17	16	**0**	0	1
SYSTEM SECURITY					
Account Setup	0	0	**0**	0	0
File Protection/Auditing	27	25	**2**	0	0
Security Parameters	17	17	**0**	0	0
NETWORKS					
Network Performance	39	38	**0**	1	0
Network Security	9	8	**1**	0	0
SYSTEM & DISK PERFORMANCE					
CPU Performance	43	40	**0**	3	0
I/O Performance	28	20	**4**	3	1
Job Controller Performance	4	4	**0**	0	0
Memory Performance	70	64	**0**	4	2
AVAILABILITY					
System Availability	37	33	**3**	1	0
Network Availability	32	32	**0**	0	0
TOTAL TESTS	570	517	**12**	26	15

Sample System and Disk Performance Conditions

The following is a sample extract from the System and Disk Performance Conditions section of the System Healthcheck report:

2.8 System and Disk Performance Conditions

High Priority Conditions

	Cond. No.	Times Detected	Condition Description
1:	DI040	15	System file RIGHTSLIST.DAT on system disk.
2:	DI039	15	VMSMAIL_PROFILE.DATA file on system disk.
3:	DI038	15	System file NETPROXY.DAT on system disk.
4:	DI036	15	System file SYSUAF.DAT on system disk.

Medium Priority Conditions

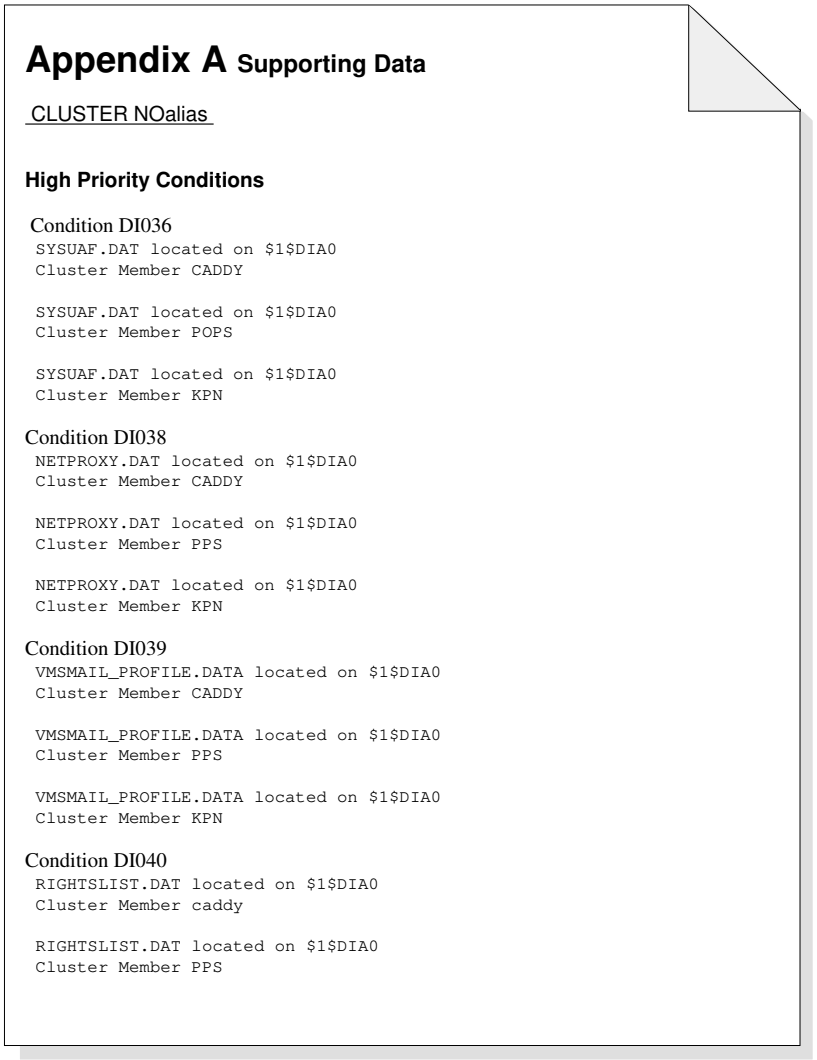
	Cond. No.	Times Detected	Condition Description
1:	FU003	1	Evidence of disk fragmentation.
2:	LP009	13	LOCKDIRWT parameter setting is too low.
3:	FU004	1	System page and swap files found on system disk.
4:	DP002	1	Maximum outstanding disk I/Os high.
5:	PF018	1	AUTOGEN REPORT file older than 30 days.
6:	PF012	1	IRP expansion.
7:	PF010	1	BALSETCNT parameter may need retuning.
8:	PF027	1	Resource utilization greater than RESHASHTBL.
9:	LP026	1	Modified page writer MPW_THRESH needs tuning.
10:	LP024	1	Modified page writer MPW_LOLIMIT needs tuning.

Low Priority Conditions

	Cond. No.	Times Detected	Condition Description
1:	SU022	15	OpenVMS VAX not at the latest version upgrade advised.
2:	DI011	1	System disk is not shadowed.
3:	LP039	1	Modified page writer MPW_HILIMIT needs tuning.

Sample Supporting Data

The following are sample extracts from the Supporting Data section of the System Healthcheck report:



Appendix A Supporting Data

CLUSTER NOalias

High Priority Conditions

Condition DI036

```
SYSUAF.DAT located on $1$DIA0
Cluster Member CADDY

SYSUAF.DAT located on $1$DIA0
Cluster Member POPS

SYSUAF.DAT located on $1$DIA0
Cluster Member KPN
```

Condition DI038

```
NETPROXY.DAT located on $1$DIA0
Cluster Member CADDY

NETPROXY.DAT located on $1$DIA0
Cluster Member PPS

NETPROXY.DAT located on $1$DIA0
Cluster Member KPN
```

Condition DI039

```
VMSMAIL_PROFILE.DATA located on $1$DIA0
Cluster Member CADDY

VMSMAIL_PROFILE.DATA located on $1$DIA0
Cluster Member PPS

VMSMAIL_PROFILE.DATA located on $1$DIA0
Cluster Member KPN
```

Condition DI040

```
RIGHTSLIST.DAT located on $1$DIA0
Cluster Member caddy

RIGHTSLIST.DAT located on $1$DIA0
Cluster Member PPS
```

Medium Priority Conditions

Condition DP002

```
Clusterwide Max I/O Request Queue Length > 10
Disk Name WS6$DKA300
Max I/O Request Queue Length = 20.830000
```

Condition FU003

```
The INDEXF.SYS file has more than 5 extents on device WS6$DKA300
Number of extents = 19
```

Condition FU004

```
Page / Swap Files are on the System Disk
Cluster NOalias Disk Name $1$DIA0
```

Condition LP009

```
SYSGEN parameter LOCKDIRWT = 0
Node CADDY
Recommended = 1 or greater

SYSGEN parameter LOCKDIRWT = 0
Node WS7
Recommended = 1 or greater

SYSGEN parameter LOCKDIRWT = 0
Node WS1
Recommended = 1 or greater
```

Low Priority Conditions

Condition SU022

```
VAX systems should be running OpenVMS VAX Version V6.0
The following nodes require OpenVMS VAX to be upgraded:
         CADDY
         PPS
         KPN
         WS7
```

Condition DI011

```
System Disk is NOT Shadowed
Cluster NOalias System Disk $1$DIA0
```

Glossary

HSC

HSC is a VAXcluster device used to make disks and tape drives available clusterwide.

System Healthcheck Report

The System Healthcheck Report is the end result of the System Healthcheck service. It is a written report outlining the findings of the data collection and analysis.

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