

Cisco UCS Server Diagnostic Utilities User Guide

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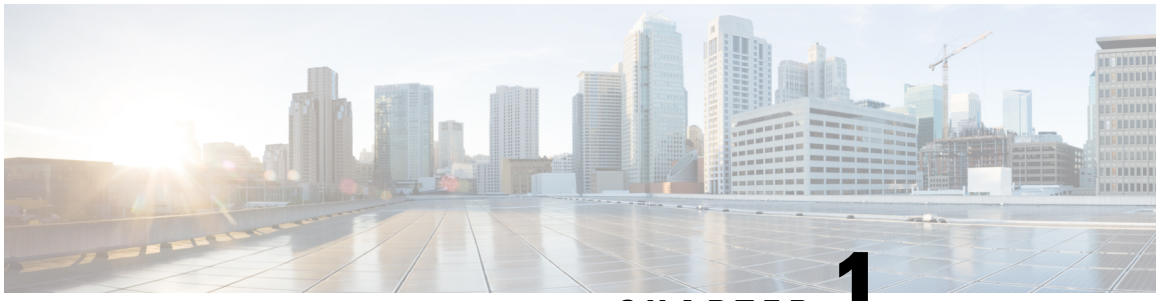
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CHAPTER 1

Overview

This chapter includes the following sections:

- Introduction, on page 1
- Supported Platforms, on page 2
- Hardware Requirements, on page 2

Introduction

Cisco provides the following diagnostics utilities for Cisco UCS C-Series Servers:

- **Cisco UCS Server Diagnostics Utility**—The Cisco UCS Server Diagnostics Utility (SDU) helps the user to perform interactive offline diagnostics on all the server components and also helps to view server health. SDU logs are captured as part of the server tech support which can be shared with Cisco TAC for further analysis.
- **Cisco UCS UEFI Diagnostics Utility**—Cisco UCS UEFI Diagnostics Utility helps you to perform interactive offline diagnostics from UEFI shell on CPU, Memory, HDD, OS, Video, and UEFI Drivers. Test logs can be captured to a USB drive which can be shared with Cisco TAC team for further analysis.



Note Cisco UCS UEFI Diagnostics Utility can be used when a server is rendered incapable of booting a UCS SDU due to any server hardware issue. UCS SDU is based on a Linux kernel and Cisco UCS UEFI Diagnostics Utility is a subset of the UCS SDU. If there are hardware errors which prevents the Linux kernel (UCS SDU) from booting up, you can use Cisco UCS UEFI Diagnostics Utility tests to identify the failed/failing component.

This user guide provides information about both the utilities. Both these utilities follow different release schedules. The information provided in this user guide applies to both the utilities unless specified otherwise.

This guide has the following chapters:

- Overview—Applies to both Cisco UCS Server Diagnostics Utility and Cisco UCS UEFI Diagnostics Utility
- Launching UCS Server Diagnostic Utilities—Applies to both Cisco UCS Server Diagnostics Utility and Cisco UCS UEFI Diagnostics Utility

- Understanding UCS Server Diagnostic Utilities User Interface—Applies to both Cisco UCS Server Diagnostics Utility and Cisco UCS UEFI Diagnostics Utility
- Viewing Server Properties in Diagnostics for the UCS C-Series Servers Utility—Applies only to Cisco UCS Server Diagnostics Utility
- Diagnostic Tools in Diagnostics for the UCS C-Series Servers Utility—Applies only to Cisco UCS Server Diagnostics Utility
- Viewing Logs in Diagnostics for the UCS C-Series Servers Utility—Applies only to Cisco UCS Server Diagnostics Utility
- UEFI Diagnostics Test for UCS C-Series Servers—Applies only to Cisco UCS UEFI Diagnostics Utility

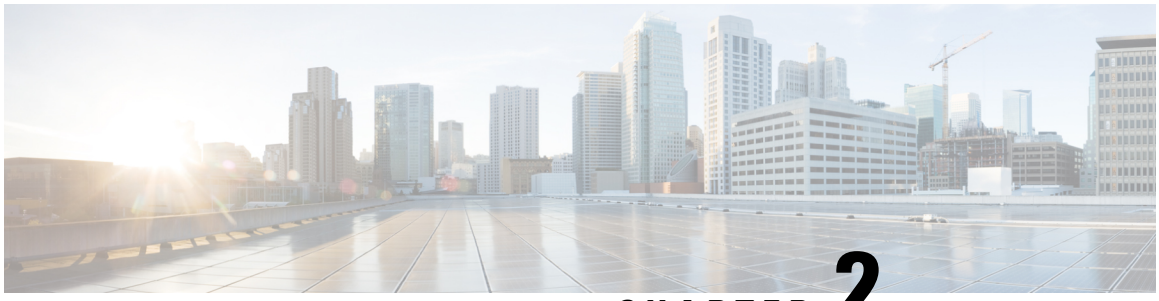
Supported Platforms

To determine which Cisco UCS C-Series rack-mount servers are supported by the release, see the associated Release Notes for Cisco UCS Server Diagnostic Utilities.

Hardware Requirements

The following are the minimum hardware requirements for Cisco UCS Server Diagnostics Utility:

- CD-ROM drive—A USB CD/DVD-ROM drive is required to be able to boot and run the Diagnostics Utility. You can also use the virtual media option in the CIMC KVM to boot the utility.
- Mouse—Some functions require a standard mouse (PS/2 or USB) for navigation.
- RAM—A minimum of 1 GB RAM. If the available RAM is less than the minimum recommended value, the diagnostics utility may not function as expected.



CHAPTER 2

Launching UCS Server Diagnostic Utilities

This chapter includes the following sections:

- Obtaining ISO Image From cisco.com, on page 3
- Booting Using Virtual Media, on page 4
- Booting Using Physical Media, on page 5
- Exiting Server Diagnostic Utilities, on page 6

Obtaining ISO Image From cisco.com

To find the ISO file download for your server online, follow these steps:

Procedure

Step 1 Go to *software.cisco.com* > **Access downloads**.

Step 2 Click **Select a Product** > **Browse All**

Step 3 Click **Unified Computing** in the middle column.

Step 4 Click **Cisco UCS C-Series Rack-Mount Standalone Server Software** in the right-hand column.

Step 5 Click the name of your server model in the right-hand column.

Step 6 In the Select a Software Type list, select **Unified Computing System (UCS) Diagnostics** .

The Download Software page appears listing the release version and the images.

Step 7 Click **Download** icon to download the ISO file.

- Diagnostics for the Unified Computing System (UCS) C-Series Servers
- UEFI Diagnostics for the Unified Computing System (UCS) C-Series Servers

Step 8 Click **Accept License Agreement** on the **Cisco's End User Software License Agreement** dialog box.

Step 9 Continue through the subsequent screens to browse to a location where you want to save the ISO file.

Booting Using Virtual Media

About KVM Console

KVM Console is an interface accessible from Cisco IMC that emulates a direct keyboard, video, and mouse (KVM) connection to the server. KVM Console allows you to connect to the server from a remote location.

KVM Console has the following tabs:

- KVM—This tab displays the UCS-SDU application when the application is booted.
- Virtual Media—This tab allows you to map the following to a virtual drive:
  - CD/DVD on your computer or your network
  - Disk image files (ISO or IMG files) on your computer or your network

Entering the KVM Console

To enter the virtual KVM Console, follow these steps:

Procedure

Step 1 Log in to Cisco IMC.

Step 2 Select the server node to launch the corresponding KVM console.

Step 3 Click **Launch vKVM Console**.

Virtual KVM Console displays the server console.

Booting From Virtual KVM Console

To boot the UCS-SDU application using virtual KVM Console, perform these steps:

Before you begin

Download the ISO image file from cisco.com. For information on how to download the image, see Obtaining ISO Image From cisco.com, on page 3.

Procedure

Step 1 Log in to Cisco IMC from your desktop.

Step 2 Click **Launch vKVM Console** to launch virtual KVM Console.

Step 3 Click the **Virtual Media** tab.

The **Virtual Media** tab opens.

Step 4 Click **Activate Virtual Devices**.

A dialog box is displayed with the message that the session is being initiated and connected.

Step 5 Click **Map CD/DVD** and browse for the ISO file.

Step 6 Click **Map Device**.

Step 7 In the Client View section, select the check box in the Mapped column for the ISO file that you added and then wait for the mapping to complete.

Virtual KVM Console displays the progress in the Details section.

Step 8 Reboot the server by clicking **Power Cycle Server** in the CIMC.

Step 9 Press **F6** when the server starts to select a boot device.

The boot selection menu appears.

Step 10 Use the arrow keys to select Cisco Virtual CD/DVD and then press **Enter**.

The server boots using the **Diagnostics for the Unified Computing System (UCS) C-Series Servers** or **UEFI Diagnostics for the Unified Computing System (UCS) C-Series Servers** image and launches the application in the KVM tab.

Booting Using Physical Media

To boot the application on your server using a physical CD/DVD, follow these steps:

Before you begin

- Download the image file from cisco.com. For information on how to download the image, see Obtaining ISO Image From cisco.com, on page 3
- Create an .iso CD using an application that burns .iso CDs.

Procedure

Step 1 Connect the USB DVD drive to the server through the USB port.

Step 2 Insert the physical media on to your DVD drive.

Step 3 Restart the server and press **F6** to enter the boot selection menu. Select **CDROM drive** as the boot device.

The server boots using the **Diagnostics for the Unified Computing System (UCS) C-Series Servers** or **UEFI Diagnostics for the Unified Computing System (UCS) C-Series Servers** image and starts the application.

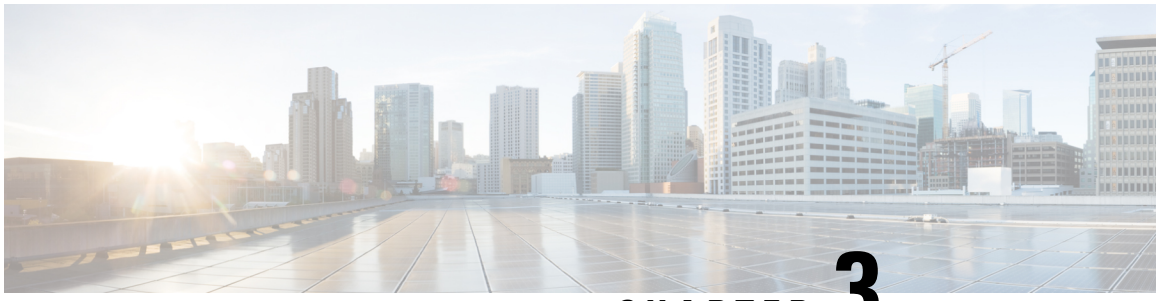
Exiting Server Diagnostic Utilities

To exit the Server Diagnostic Utilities, follow these steps:

Procedure

Step 1 Remove the .iso disk from the disk drive.

Step 2 Click **Reboot** and then click **Yes** to confirm reboot of your server.



CHAPTER 3

Understanding User Interface for the Diagnostic Utilities

This chapter includes the following sections:

- License Agreement, on page 7
- Diagnostics for the UCS C-Series Servers GUI Home Page, on page 7
- UEFI Diagnostics for UCS C-Series Servers GUI Home Page, on page 11

License Agreement

After UCS-SDU boots up, the first interface is the End User License Agreement. Select **I Accept** and click **Next** to agree to this license.

Diagnostics for the UCS C-Series Servers GUI Home Page

The illustration below shows the **Diagnostics for the UCS C-Series Servers** home page and the different elements in the GUI.

Figure 1: Diagnostics for the UCS C-Series Servers Home Page

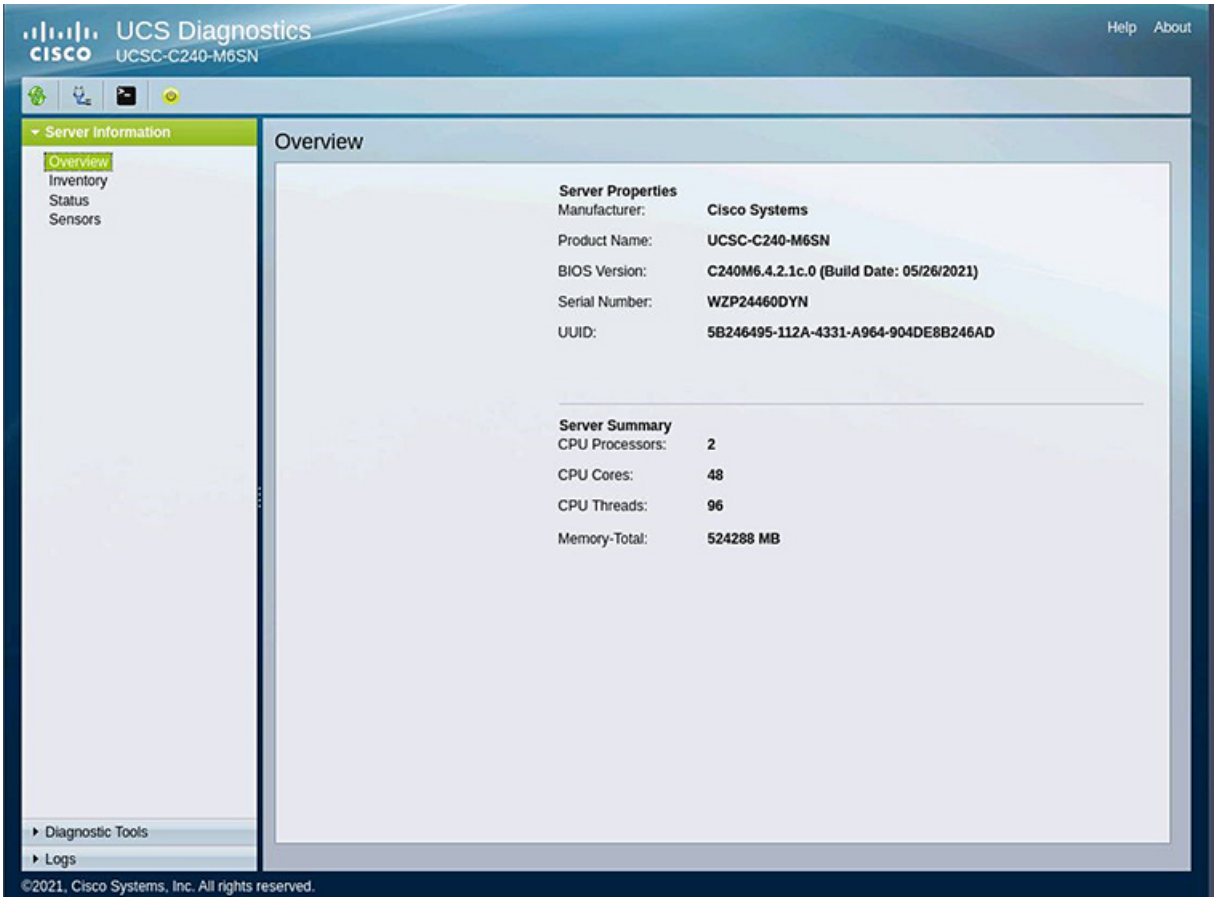


Table 1: UCS-SDU GUI Elements

Element	Description
Navigation Pane	Displays on the left side in the **Diagnostics for the UCS C-Series Servers** user interface. See Navigation Pane, on page 9 for a description of all the navigation pane elements.
Toolbar	Displays on the left-hand top corner and has a set of icons. See Toolbar Pane, on page 10 for a description of all the toolbar icons.
Help	Opens a window in the application that displays context-sensitive help for the displayed page.
Content Pane	Displays on the right side of the GUI. Different pages appear on the content pane depending on the tab that you select in the Navigation Pane.
Tests Status Pane	Provides details of tests passed, tests in the queue, and tests failed. Viewed only when Diagnostic Tools is selected.
Tests Summary Pane	Provides details of tests passed, tests in the queue, and tests failed. Viewed only when Diagnostic Tools is selected.

Navigation Pane

The following table describes the elements in the navigation plane.

Table 2: Navigation Pane Elements

Element	Description
Server Information	Displays the server information on the left hand pane, for the following tabs: • Overview • Inventory • Status • Sensors
Overview	Contains Server Overview information. For more information, see Overview, on page 1
Inventory	Contains links to the following pages: • Server Information • Inventory For more information about Server Inventory, see Viewing Server Inventory, on page 15
Status	Displays the health of the subsystems on your server such as CPUs, memory, power supplies, fans, storage, PCI devices, BIOS, and CIMC. For more information about Server Status, see Viewing Server Health, on page 16
Sensors	Displays the sensor values of the server. For more information about sensors, see Viewing Sensors, on page 16
Diagnostic Tools	Allows you to run various types of diagnostic tests to detect server failure. For more information about diagnostic tools, see Diagnostic Tools in Diagnostics for the UCS C-Series Servers Utility, on page 19
Logs	Displays the System Log and System Event Log of your server. Contains links to the following pages: • System Logs • System Event Logs For more information about logs, see Viewing Logs in Diagnostics for the UCS C-Series Servers Utility, on page 25

Toolbar Pane

The following table lists and describes all the UCS-SDU icons that you can use to perform specific tasks

Table 3: Toolbar Elements

Toolbar Icon	Name	Function
	Refresh	Refreshes the content area, if supported.
	Probe server	Probes the server.
	Enter CLI Mode	Enters the command prompt mode using a KVM console window.
	Reboot	Reboots the server.

Performing Server Health Check

To view the health check results, click the **Status** tab in the navigation pane.

For more information about the **Status** tab, see Viewing Server Health, on page 16.

Rebooting the Server

To reboot the server, follow these steps:

Procedure

Step 1 Click the **Reboot** icon on the toolbar.

The **Reboot** dialog box appears.

Step 2 Click **Yes** to reboot.

The server is rebooted, and the UCS-SDU GUI reappears.

Using the CLI Command Option

To use the CLI command option, follow these steps:

Procedure

Click the **Enter CLI mode** icon.

The **KVM Console** window appears. Use the Tab key on the keyboard to navigate and perform actions in this window.

UEFI Diagnostics for UCS C-Series Servers GUI Home Page



Note **UEFI Diagnostics** supports only keyboard. Use the arrow keys to navigate through the UI and press **Enter** to select any option.

Table 4: UEFI Diagnostics GUI Elements

Element	Description
Cisco Diag Fo UEFI Version	Displays **UEFI Diagnostics** version.
Test Menu	Displays on the top menu bar and has list of supported tests.
Test Dialog Box	Displays the list of test supported for each test menu.
Status display area	You can view ongoing test status and results in the display area.

UEFI Diagnostics Test Menu

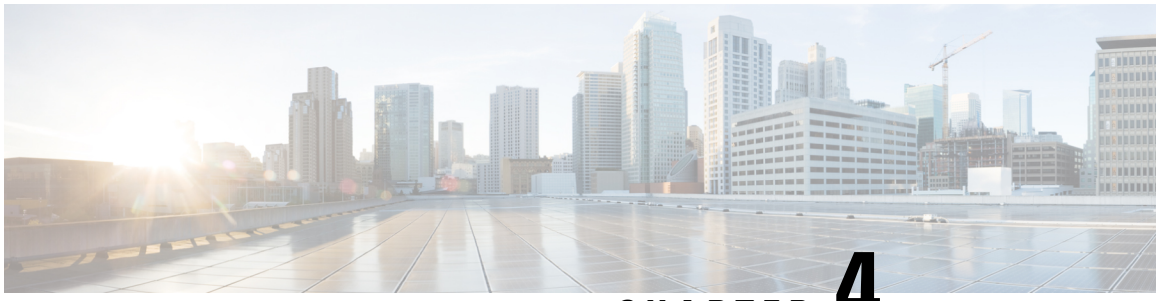
The following table lists all the UEFI tests that you can perform:

Table 5: UEFI Test Menu

Test Name	Description
CPU	You can perform the following CPU tests: • Basic Functionality Test • Processor Speed Test • CPU Protected Mode Test • Multi Processor Test

Test Name	Description
Memory	You can perform the following Memory tests: • Pattern Test • Extended Pattern Test • Walking 1's Test • Walking 0's Test • Random Memory Test • Address Test • Cache Memory Test • Data Bust Test • Row Hammer Test • Butterfly Test
HDD	You can perform the following HDD tests: • HDD Read Test • HDD Performance Test • HDD Quick Test
OS	You can perform the following OS tests: • NVRAM Tests • Firmware Volume Test • OS Detect Path Test • ACPI Table Test • ACPI Timer Test • MADT Support Test • MADT Checksum Test

Test Name	Description
VIDEO	You can perform the following video tests: • Test Cursor Test • Text Color Test • Text Geometric Shape Test • Graphics Pattern Test • Graphics Videofill Test • Graphics Text Test • AER Test
Drivers	You can perform the following drivers test: • Driver Health Status
Options	You can perform the following actions: • Generate Report • Exit Cisco Diag



CHAPTER 4

Viewing Server Properties in Diagnostics for the UCS C-Series Servers Utility

This chapter includes the following sections:

- Viewing Server Inventory, on page 15
- Viewing Server Health, on page 16
- Viewing Sensors, on page 16

Viewing Server Inventory

This chapter provides information on viewing the server inventory.

Note Information in this chapter is applicable only to Diagnostics for the UCS C-Series Servers Utility.

You can use the server inventory functionality to perform an inventory of your server. You can view details such as server summary, server properties, and an inventory of subsystems on your server such as CPU, memory, IO devices, storage, BIOS, and PCI devices.

To view the inventory of your server, follow these steps:

Procedure

Step 1 Click the **Server Inventory** tab on the left navigation pane.

Step 2 Click the **Server Information** tab on the left navigation pane. The server properties and server summary appear.

Step 3 Click the **Inventory** tab to view an inventory of your server's subsystems.

The following table explains the various subsystem details you can view:

Table 6: Server Inventory Properties

Subsystem	Description

CPU	Displays the socket name, status, number of cores, number of threads, vendor, version, cores enabled, and signature of the CPUs on your server.
Memory	Displays the size, data width, locator, speed, and serial number of the DIMMs on your server.
Fans	Displays the status, power state, and speed of the fans on your server.
IO	Displays the type, vendor, description, and MAC address and serial number of the I/O devices on your server.
Storage	Displays the type, description, vendor, size, bus information, and serial number of the storage devices on your server.
BIOS	Displays the vendor, version, physical ID, size, capacity, and boot order of the BIOS on your server.
PCI	Displays a list of PCI devices present in the server.

Viewing Server Health

This chapter provides information on viewing the health of your servers.

With the Server Health functionality, you can view the health of all the subsystems of your server (such as memory, processor, power supply, hard disk, fans, chipset, and Cisco IMC) along with the status and message of a specific subsystem.

To view the health of your server, follow these steps:

Procedure

Step 1 Click the **Status** tab in the left navigation pane.

The server health displays in the right-hand content pane, along with the status and message for a specific subsystem.

Step 2 Click **Refresh** to refresh the page.

Step 3 Click the line corresponding to a subsystem to view details of your server health in the Server Health Details pane.

Note The message column in the server health pane displays the first issue corresponding to the subsystem. If the subsystem has multiple issues, they will appear in the **Server Health Details** pane.

Viewing Sensors

This chapter provides information on viewing sensor values.

You can view sensor values of the server using the Sensors tab in the web UI.

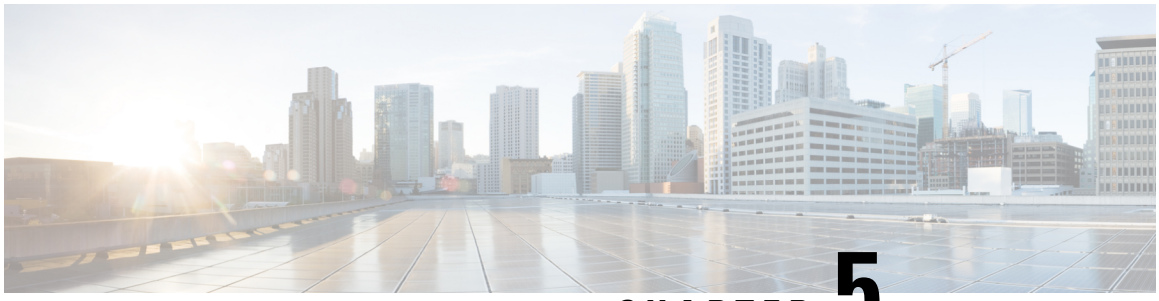
To view sensors, follow these steps:

Procedure

Step 1 Click the **Sensors** tab in the left navigation pane.

The sensor values are displayed in the right-hand content pane.

Step 2 Enter the relevant information in the **Filters** field to view corresponding details. You can filter information by Class or Sensor Name.



CHAPTER 5

Diagnostic Tools in Diagnostics for the UCS C-Series Servers Utility

This chapter includes the following sections:

- Diagnostic Tools Functions, on page 19
- Using Diagnostic Tools, on page 20

Diagnostic Tools Functions

Note Information in this chapter is applicable only to Diagnostics for the UCS C-Series Servers Utility.

Diagnostic tools allow you to:

- Run tests on various server components to find out hardware issues and analysis of the test results in a tabular format.
- Run all the tests using the Quick Tasks functionality without browsing through available tests.
- Run tests serially, as running some tests in parallel may interfere with other tests.
- Configure the test by entering different argument values other than the default ones.
- Select tests you want to run using the Test Suite functionality.
- Probe the current state of the server and view hardware issues.

The following table describes when you should use a specific diagnostic functionality.

Table 7: Using Diagnostics

Diagnostic Component	Function
F7 Option	Use this option to run a specific set of tests when the server is booting up. The components that are tested are memory, processor, cache, Smart disk, UPI, memory pattern, and RAID adapter.

Quick Tests	Use this when you want to quickly check the status of a subsystem within a stipulated period. The components that can be tested under the quick test are processor, cache, memory, disk, video, network, UPI, CIMC, RAID, and chipset.
Comprehensive Tests	Use this when you want to test a subsystem in detail. These tests are designed to stress the subsystems and report the error. The tests that can be run are processor, memory, UPI, disk, and NUMA.
Quick Tasks	Allows for consolidated testing of both comprehensive and quick tests. You can run both types of tests using quick tasks.
Test Suite	All the tests available under the quick and comprehensive tests are available here. The test suite gives you an option to choose as many tests as you like (using a check box) and running them together.
Tests Log Summary	Use the test log summary to view the log, error log, and analysis of all the tests you have run. You can use four filters to sort the logs.
Tests Summary	This table on the left-hand navigation gives you the results of the tests you have run in the form of either passed tests, tests in queue or failed tests.

Using Diagnostic Tools

Using the F7 Diagnostics Option

UCS-SDU provides you with an option to run a few pre-defined diagnostic tests on the server when it is booting. You can initiate these diagnostic tests by using the F7 option. This F7 option boots the SDU image mounted on the FlexMMC and automatically runs a set of pre-defined diagnostic tests.

If the SDU image is not mounted on the FlexMMC, then you should have mapped the SDU image using virtual media. If you have not mapped the SDU image using virtual media, and the SDU image is not mounted on the FlexMMC on the server, then these diagnostic tests cannot be completed. After the tests are completed, the SDU interface appears and displays the test results. The interface displays a progress report indicating diagnostic tests that have passed, failed and those that are queued for completion.



Note You can use this option only when the server is booting.

Quick Tests

You can run these tests quickly to determine any hardware issue. These tests usually take 20 to 30 minutes to run and test limited functionality for a few subsystems. The comprehensive test provides more exhaustive diagnostics.

To run the quick test follow these steps:

Procedure

Step 1 Click **Diagnostic Tools** from the left navigation pane.

Step 2 Click **Tests**.

Step 3 Click the **Quick Tests** collapsible button to view the types of quick tests available for you to run.

Step 4 Click a subsystem (such as memory, video, or network).

Step 5 On the content pane, click **Run all quick tests**.

The test is run and the status is displayed in the **Tests Status** area.

The following table describes the sub-systems covered under **Quick Tests**.

Table 8: Quick Tests

Test	Description
Cache Validation Test	Runs CPU cache-specific tests to exercise the CPU caches and checks for correctable/uncorrectable cache errors.
Chipset Test	Runs a test to check the chipset for any errors logged in the chipset RAS registers.
Enclosure Test	Runs test to check the enclosure.
Video Memory Stress	Runs stress tests on the Video Memory.
CIMC Test	Runs CIMC self-test through the IPMI interface and also checks for SEL fullness.
CPU Stress	CPU Stress Test
CPU Stream	CPU Stress Test using stream benchmark.
CPU Cache	CPU Stress Test that is run in parallel on all processors.
CPU Register	CPU Register access test
Memory Noise Test	Write or verify random data and its complement with large address variation.
Memory Butterfly Test	Each loop write, then verify address and address complement in next address (64-bit data).
Network Test	Tests the available network interfaces by running the internal loopback test, register test, Electrically Erasable Programmable Read Only Memory (EEPROM) test and interrupt test.
UPI Test	Tests the quick path interconnect fabric. **Note** Applicable to Intel only.

Comprehensive Tests

The Comprehensive tests can run for hours and usually runs when quick tests cannot diagnose the issue with your server. The tests are designed to test multiple hardware components and find issues that may be caused due to multiple components on your server.

The individual tests can be customized and run to test some user-defined conditions. You can also select a group of tests to be run.

To run the comprehensive test, follow these steps:

Procedure

Step 1 Click **Diagnostic Tools** from the left navigation pane.

Step 2 Click **Tests**.

Step 3 Click the **Comprehensive Tests** collapsible button to view the types of comprehensive tests available for you to run.

Step 4 Click a subsystem (such as processor, memory, or network).

Step 5 On the content pane, click **Run all comprehensive tests**.

The test is run and the status is displayed in the **Tests Status** area.

The following table describes the sub-systems covered under comprehensive tests.

Table 9: Comprehensive Tests

Test	Description
Processor Stress Test	Imposes maximum stress on CPU and memory on the system. You can set the time (in minutes) that you want this test to run for.
Video Memory Stress	Runs stress tests on the video memory.
UPI Stress Test	Runs test to stress the UPI interconnect by generating traffic between the NUMA nodes. **Note** Applicable to Intel only.
CIMC Test	Runs CIMC self-test through the IPMI interface and also checks for SEL fullness.
CPU Stress	CPU Stress Test
CPU Stream	CPU Stress Test using stream benchmark.
CPU Cache	CPU Stress Test that is run in parallel on all processors.
CPU Register	CPU Register access test
Memory Noise	Write or verify random data and its complement with large address variation.
Memory Random	Sequentially write random data to memory, verify, write complement, verify, increment seed for next loop.

Memory March	Each loop write 0, read 0/write 1 (up direction), then read 1, write 0/read 0 (down direction).
Memory Walk	Each loop walk ones followed by walk zeroes (64-bit data).
Memory Address	Using 64-bit addressing write address in address for each loop.
Memory Pattern	Write sequence 0x00 to 0xFF which is prime 257 byte sequence that ensures the low address starts with different byte each loop.
Memory Butterfly Test	Each loop write, then verify address and address complement in next address (64-bit data).
NUMA Test	Runs test to stress the NUMA memory access patterns and check for errors.

Quick Tasks

Quick Tasks allow you to get started with diagnostic tools immediately. You can run all the tests (Quick and Comprehensive) from here and report the details to Cisco to troubleshoot the logs and provide information about problems with your system. To use this feature, follow these steps:

Procedure

Step 1 Click **Diagnostic Tools** from the left navigation pane.

Step 2 Click **Quick Tasks**.

Step 3 Select either **Run Quick Tests** or **Run Comprehensive Tests** from the toolbar.

The status appears in the **Tests Status** pane. You can also view detailed test results under test log summary.

Tests Suite

The Test Suite allows you to run the quick test and comprehensive test in a batch. It lists the various tests available, along with the test type and description of the test. You can select any number of tests you want to run from the list and view the result in the Tests Status column.

To run the test suite, follow these steps:

Procedure

Step 1 Click **Tests Suite** from the left navigation pane.

Step 2 Select the tests you want to run by clicking the required check boxes.

Step 3 Click **Run Tests Suite** to run the tests you added to the test suite.

The status appears in the Tests Status pane along with the name, suite ID, Result, start time and end time. You can also view the Tests Log Summary to view the execution status of the tests in the test suite.

Tests Log Summary

Use the Tests Log Summary functionality to examine the test logs for troubleshooting. To view the Tests Log summary, follow these steps:

Procedure

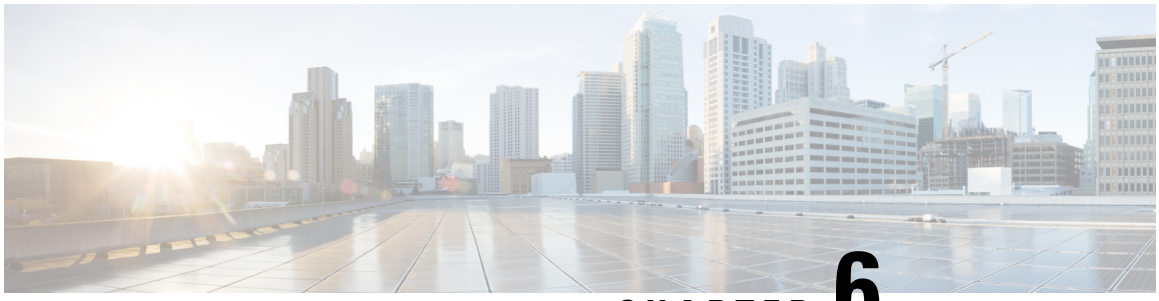
Step 1 Click **Diagnostic Tools** on the left navigation pane.

Step 2 Click **Tests Log Summary** on the left navigation pane.

Step 3 Select a filter from the filter drop-down and click **Go**. The status, result, start time, and end time of the test displays.

Step 4 Click a specific log entry (for example, click **Memory Test**) for more details.

The Log, Error Log (if the test failed), and the analysis of the specific test appears in the content pane.



CHAPTER 6

Viewing Logs in Diagnostics for the UCS C-Series Servers Utility

This chapter includes the following sections:

- System Logs, on page 25
- System Event Log, on page 26
- Generating and Downloading Snapshot File, on page 26

System Logs

Note Information in this chapter is applicable only to Diagnostics for the UCS C-Series Servers Utility.

The system log file displays events that are logged by the operating system components. These events are often predetermined by the operating system itself. System log files display information about device changes, device drivers, system changes, events, operations, and more.

To view the system logs, follow these steps:

Procedure

Step 1 Click **Logs** on the left navigation pane.

Step 2 Click **System Logs**.

Step 3 Select from either the **Description** filter or **Module** filter from the drop-down list.

- If you select the **Description** filter and click **Go**, all the system logs with timestamp, module name and description are displayed.
- If you select the **Module** filter, you can enter the module name and click **Go**. A list with the logs of the specified module, timestamp and description is displayed.
- Click **Clear Filter** to clear the filter you applied.

Step 4 Click **Go**.

The system log is displayed.

Note Select the number of logs that are displayed per page from the drop-down list on the toolbar on the right-hand content pane.

The maximum number of logs that can be displayed per page is 100. By default, 50 logs are displayed per page.

System Event Log

The system event log file displays events that are logged by your server.

To view the system event logs follow these steps:

Procedure

Step 1 Click **Logs** on the left navigation pane.

Step 2 Click **System Event Log**.

Step 3 Select from either the **Description** filter or **Severity** filter from the drop-down list.

- If you select the **Description** filter and click **Go**, all the system event logs with a description and severity are displayed.
- If you select the **Severity** filter, you can select the type of severity from the second drop-down list and click **Go**. A list with the logs of the specified severity type is displayed.
- Click **Clear Filter** to clear the filter you applied.

Generating and Downloading Snapshot File

1. Boot the shared SDU ISO.
2. Start the quick test using one of the following options:
   - Press F7 from the **BIOS** menu.
   - Allow the ISO to boot.

     When SDU GUI is displayed, start the quick test from **Quick Tasks** tab.
3. After the tests are complete, open the Cisco IMC GUI.
4. In the **Navigation** pane, click the **Admin** tab.
5. In the **Admin** tab, click **Utilities**.

6. Click **Generate Technical Support Data for Local Download** and download the technical support data to the desired location on the host.
7. Navigate to the location on the host where you downloaded the technical support `.tar` file.
8. Extract the technical support `.tar` file.

   Example:

   ```
   tar -xf C240-ABCP23430PQR-20211207-012345.tar.gz -C ts
   ```

9. Extract the SDU log file from the following path:

   ```
   tar -xf ts/var/nuova/BIOS/SDU_log.tar.gz
   ```

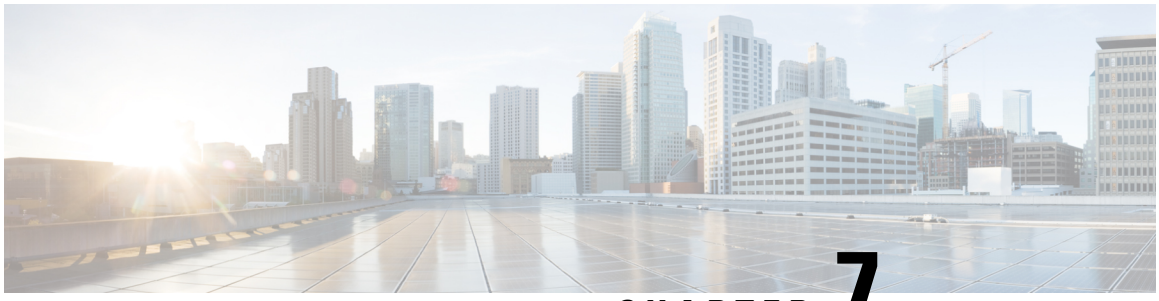
10. Access the snapshot file from the path `sdu/tmp/`.

    Example:

    ```
    sdu/tmp/Server_UCSC-C240-M5SD_ABCP23430PQR_12_03_2021.txt
    ```



Note When the tests are complete, the snapshot file is automatically sent to BMC.



CHAPTER 7

UEFI Diagnostics Test for UCS C-Series Servers

This chapter includes the following sections:

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- Running Memory Tests, on page 30
- Running HDD Tests, on page 33
- Running OS Tests, on page 34
- Running VIDEO Tests, on page 35
- Running Drivers Tests, on page 37
- Generating Test Report, on page 38
- Exiting UEFI Diag, on page 39

Running CPU Tests

Information in this chapter is applicable only to **UEFI Diagnostics for the UCS C-Series Servers**.

To skip any test in progress, press **Esc**.

Procedure

Step 1 From the **UEFI Diagnostics** home screen, use the arrow keys to select the **CPU** menu and press **Enter**.

CPU test dialog box is displayed.

Step 2 Use the arrow keys to select the desired test from the list and press **Enter**.

Following CPU tests are available:

Test	Description
Basic Functionality Test	This test performs the following basic CPU test: • Register Read/Write • Data Access through FS, GS • Extended FLAG Instructions • Multiplication

Test	Description
Processor Speed Test	This test performs the following processor speed test: • Calculated CPU Speed (in MHz) • CPU Speed Comparison
CPU Protected Mode Test	This option tests the protected mode entry instructions.
Multi Processor Test	This test performs basic CPU test on multiple processors automatically. You can see the test progress in the display area.

Step 3 Test progress is displayed in the status area.

Step 4 Once the test is complete, **TEST PASSED** dialog box is displayed.

You can **Return to Main Menu** from this dialog box or select **Browse All Test Errors**.

Note Error list is generated only in case there is any error report.

Running Memory Tests

Procedure

Step 1 From the **UEFI Diagnostics** home screen, use the arrow keys to select the **Memory** menu and press **Enter**.

Memory test dialog box is displayed.

Step 2 Use the arrow keys to select the desired test from the list and press **Enter**.

Following Memory tests are available:

Test	Description
Pattern Test	You can perform customized pattern test on memory DIMMs. You can customize the following options (Use arrow keys to move up and down): • Memory Start (in MB)—Press **Enter** and type in the start memory size in MB. • Memory End (in MB)—Press **Enter** and type in the end memory size in MB. • Pattern Size—Press **Enter** to select the pattern size in BYTE, WORD, DWROD, or ALL. Press **Enter** again after making your selection. • Percentage—Press **Enter** and type the desired percentage of each DIMM you wish to test. **Note** The test duration may vary depending on the percentage mentioned here. • Pattern—You can customize the following test patterns. Press **Enter** to toggle between **YES** and **NO**. • Bit Stuck High Test • Bit Stuck Low Test • Checker Board Test • CAS Line Test • Incremental Test • Decremental Test • Incremental Decremental Test • To save the values, select **CONTINUE** and press **Enter**. Select **CONTINUE** to start the test.

Test	Description
Extended Pattern Test	**Extended Patten Test** is similar to **Pattern Test** with the only difference in **Pattern** values. You can select YES or NO for the following patterns: • Pattern1(F0...h) • Pattern2(E1...h) • Pattern3(D2...h) • Pattern4(C3...h) • Pattern5(B4...h) • Pattern6(A5...h) • Pattern7(96...h) • Pattern8(87...h)
Walking 1's Test	**Walking 1's Test** is similar to **Pattern Test** without the **Pattern** values.
Walking 0's Test	**Walking 0's Test** is similar to **Pattern Test** without the **Pattern** values.
Random Memory Test	You can perform customized random memory test on memory DIMMs. You can customize the percentage of each DIMM you wish to test. **Note** The test duration may vary depending on the percentage mentioned here.
Address Test	This test checks for shorts on the address lines. Address lines are used to access data at specified memory locations. Data can be written to and read from the wrong location if there is a short or malfunction in the address lines.
Cache Memory Test	This test runs on the cache memory of the server. You cannot customize this test. This test is conducted on complete cache memory size.
Data Bus Test	This test makes sure that the data bus is working properly.
Row Hammer Test	Test the memories for row hammer vulnerability.
Butterfly Test	Each loop writes and then verifies addresses and address complement in next address.

Step 3 Test progress is displayed in the status area.

Step 4 Once the test is complete, **TEST PASSED** dialog box is displayed.

You can **Return to Main Menu** from this dialog box or select **Browse All Test Errors**.

Note Error list is generated only in case there is any error report.

Running HDD Tests

Procedure

Step 1 From the **UEFI Diagnostics** home screen, use the arrow keys to select the **HDD** menu and press **Enter**.

HDD test dialog box is displayed.

Step 2 Use the arrow keys to select the desired test from the list and press **Enter**.

Following HDD tests are available:

Test	Description
HDD Read Test	You can select **CONTINUE** to start the test with default options or select any HDD drive from the list to customize the test. If you select any drive from the list and press **Enter**, you can customize the following options: • Test Drive—You can select **YES** or **NO** to select or deselect this drive for the test. • Start LBA Number— This option allows you to set an LBA number to start the test. Default setting is set as 0. • End LBA Number • Percentage to Test—Percentage of the HDD to be tested. • Sequential Test— Option to perform Sequential test on the drive. The default value is set as YES. • Random Test— Option to perform random test on the drive. • Soft Error Threshold—This soft error threshold limit for the HDD allows errors to be accepted up to a particular threshold limit. If the limit is crossed, then the test is aborted. The value is set as 0.

Test	Description
HDD Performance Test	Select each HDD and press **Enter** to toggle between **YES** or **NO** to include or exclude the HDD from the test. Select **CONTINUE** and press **Enter** to start the test.
HDD Quick Test	Select each HDD and press **Enter** to toggle between **YES** or **NO** to include or exclude the HDD from the test. Select **CONTINUE** and press **Enter** to start the test.

Step 3 Test progress is displayed in the status area.

Step 4 Once the test is complete, **TEST PASSED** dialog box is displayed.

You can **Return to Main Menu** from this dialog box or select **Browse All Test Errors**.

Note Error list is generated only in case there is any error report.

Running OS Tests

Procedure

Step 1 From the **UEFI Diagnostics** home screen, use the arrow keys to select the **OS** menu and press **Enter**.

OS test dialog box is displayed.

Step 2 Use the arrow keys to select the desired test from the list and press **Enter**.

Following OS tests are available:

Test	Description
NVRAM Test	NVRAM test runs the following sub tests: • Variable Insertion Test • Variable Deletion Test • Attribute Reset Test • Variable Enumeration Test
Firmware Volume Test	Firmware volume test runs the following sub tests: • Firmware Volume CheckSum Test • Firmware Volume Access Test

Test	Description
OS Detect Path Test	This test verifies whether the OS Grub file is present.
ACPI Table Test	This test checks the integrity of ACPI tables and rests whether the checksum of all RSDT tables is zero. Reports error if the checksum is invalid.
ACPI Timer Test	This test checks the timer's functionality by reading the timer counter value and testing the updating of overflow bit if the timer count exceeds its maximum value. Reports error when the timer count is not updating or when the timer count is not in the expected range.
MADT Support Test	This test checks the signatures of MADT table header in ACPI Tables.
MADT Checksum Test	This test checks the checksum of the MADT Tables that are available. The test calculates the byte checksum of MADT Tables.

Step 3 Test progress is displayed in the status area.

Step 4 Once the test is complete, **TEST PASSED** dialog box is displayed.

You can **Return to Main Menu** from this dialog box or select **Browse All Test Errors**.

Note Error list is generated only in case there is any error report.

Running VIDEO Tests

Procedure

Step 1 From the **UEFI Diagnostics** home screen, use the arrow keys to select the **VIDEO** menu and press **Enter**.

Video test dialog box is displayed.

Step 2 Use the arrow keys to select the desired test from the list and press **Enter**.

Following Video tests are available:

Test	Description
Text Cursor Test	Select this test and press **Enter** to select or deselect **Mode 80x25**. Select **CONTINUE** and press **Enter** to start the test. **Note** This test runs only when **Mode 80x25** is selected.

Test	Description
Text Color Test	Select this test and press **Enter** to select or deselect **Mode 80x25**. Select **CONTINUE** and press **Enter** to start the test. **Note** This test runs only when **Mode 80x25** is selected. Once the test starts, press **Y** or **N** as per the instructions on screen.
Text Geometric Shape Test	Select this test and press **Enter** to select or deselect **Mode 80x25**. Select **CONTINUE** and press **Enter** to start the test. **Note** This test runs only when **Mode 80x25** is selected. Once the test starts, press **Y** or **N** as per the instructions on screen.
Graphics Pattern Test	Select this test and press **Enter** to select or deselect the following modes: • Mode 640x480 • Mode 800x600 • Mode 1024x768 Select **CONTINUE** and press **Enter** to start the test. Once the test starts, press **Y** or **N** as per the instructions on screen.
Graphics VideoFill Test	Select this test and press **Enter** to select or deselect the following modes: • Mode 640x480 • Mode 800x600 • Mode 1024x768 Select **CONTINUE** and press **Enter** to start the test. Once the test starts, press **Y** or **N** as per the instructions on screen.

Test	Description
Graphics Text Test	Select this test and press **Enter** to select or deselect the following modes: • Mode 640x480, 80x25 • Mode 800x600, 80x25 • Mode 1024x768, 80x25 Select **CONTINUE** and press **Enter** to start the test. Once the test starts, press **Y** or **N** as per the instructions on screen.
AER Test	This test will read the PCI Errors from the advanced error reporting capability registers.

Step 3 Test progress is displayed in the status area.

Step 4 Once the test is complete, **TEST PASSED** dialog box is displayed.

You can **Return to Main Menu** from this dialog box or select **Browse All Test Errors**.

Note Error list is generated only in case there is any error report.

Running Drivers Tests

Procedure

Step 1 From the **UEFI Diagnostics** home screen, use the arrow keys to select the **Drivers** menu and press **Enter**.

Drivers test dialog box is displayed.

Step 2 Use the arrow keys to select the desired test from the list and press **Enter**.

Following Drivers tests are available:

Test	Description
Driver Health Status	This test runs on all the drivers and reports any driver issues.

Step 3 Test progress is displayed in the status area.

Step 4 Once the test is complete, **TEST PASSED** dialog box is displayed.

You can **Return to Main Menu** from this dialog box or select **Browse All Test Errors**.

Note Error list is generated only in case there is any error report.

Generating Test Report

Procedure

Step 1 From the **UEFI Diagnostics** home screen, use the arrow keys to select the **Options** menu and press **Enter**.

Step 2 Select **Generate Report** and press **Enter**.

Report generation parameters dialog box is displayed.

Step 3 Use the arrow keys to select the desired parameters from the list and press **Enter**:

Parameter	Description
Report destination	Press **Enter** to change the destination. **Note** You should have a USB drive plugged in.
Log errors	Press **Enter** to toggle between **YES** or **NO** to include or exclude the option in the report.
Log test activities	
Log test start time	
Log test end time	
Log test Duration	
Log errors only	
Log errors only with time	
Append to old log file	

Step 4 Select **CONTINUE** and press **Enter** to generate a report.

You can run the test cases and all the logs related to the test cases will be stored in the pen drive.

Exiting UEFI Diag

Procedure

Step 1 From the **UEFI Diagnostics** home screen, use the arrow keys to select the **Options** menu and press **Enter**.

Step 2 Select **Exit Cisco Diag** and press **Enter**.

Select **YES** and press **Enter** to confirm.

Step 3 System exits the UEFI Diagnostics and displays the boot selection menu.