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Cisco UCS Server Configuration Utility, Release 2.2(1)

For Cisco UCS C-Series Servers

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Preface

This preface describes the organization and conventions of the *Cisco UCS Server Configuration Utility, Release 2.2(1)*. It also provides information on how to obtain related documentation and submit a service request.

Audience

This guide is intended primarily for data center administrators with responsibilities and expertise in server, storage, and network administration and network security.

Organization

This guide is organized as follows:

Chapter	Title	Description
Chapter 1	Introduction to Cisco UCS-Server Configuration Utility	Provides an introduction to the utility and the features it provides.
Chapter 2	Getting Started with UCS-Server Configuration Utility	Contains information on getting started with the utility.
Chapter 3	Using UCS-Server Configuration Utility	Contains detailed instructions on using the utility.
Chapter 4	Troubleshooting and FAQs	Contains troubleshooting information and frequently asked questions.

Related Documentation

The documentation set for the Cisco Unified Computing System (UCS) C-Series rack-mount servers is described in the roadmap document at the following link:

[Cisco UCS C-Series Documentation Roadmap](#)

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Obtaining Documentation and Submitting a Service Request

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Introduction to Cisco UCS-Server Configuration Utility

This chapter introduces the UCS-Server Configuration utility along with the features added in the release.

This chapter contains the following sections:

[Overview, page 1-1](#)

[UCS-SCU Features, page 1-1](#)

Overview

The Cisco UCS-SCU (Server Configuration Utility) is an application that helps you manage various tasks on your server. The utility helps you easily set up and manage your servers from a single application.

UCS-SCU is intended for system administrators responsible for upgrading, troubleshooting, and configuring the UCS C-Series server. As a system administrator, you can use it to view server inventory, configure the BIOS boot order, configure a RAID volume on attached hard drives, install an operating system, perform interactive offline diagnostics and view server health and logs.

UCS-SCU Features

UCS-SCU reduces the complexity and time associated with setting up and maintaining Cisco C-series servers. Server deployment is made easier. It guides you through questions to help quickly configure the server through automatic recognition of server hardware, with minimal reboots and an automated unattended operating system installation.

UCS-SCU is packaged onto a single CD which contains its own operating system (Linux), a GUI, and supporting files for setup and deployment. The utility can be booted off a CD (physical or vMedia) and runs completely in a RAMDISK.

These are the features of this utility:

- **Diagnostic Tools**—Allows you to run various diagnostic tests to help identify sources of failure on your server. You can use new functionality like quick tests, comprehensive tests, quick tasks, tests suite and tests log summary to identify problems with your server. See [Using UCS-Server Configuration Utility](#) for details on using diagnostic tools.
- A unified framework to perform the following:

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- **Server Inventory**—View an inventory of your server’s CPU, memory, power supplies, fans, IO, storage, BIOS and CIMC.
- **Server Configuration**—Set the BIOS boot order and configure a RAID volume on attached hard drives of your server.
- **OS Installation**—Install the RHEL, SLES, and Windows operating systems in a fully unattended mode. The most recent drivers for all on-board components are added from the Tools and Drivers CD or from other supported locations during the operating system installation.
- **Diagnostic Tools**—Allow you to run various types of diagnostic tests to detect server failure.
- **Server Health**—View the health of the subsystems on your server like CPUs, memory, power supplies, fans, storage, PCI devices, BIOS and CIMC.
- **Server Logs**—View the System Log and System Event Log of your server.

New Features in SCU 2.2(1)

These are the features that have been added in SCU 2.2(1):

- Support for the UCS-C260 M2 server. This server comes with a Cisco Flexible Flash card, based on the Secure Digital (SD) card technology.
- A new **Update** icon to download the most current versions of UCS-SCU, Host Upgrade Utility (HUU) and drivers from cisco.com or from a network share location.
- A new **Server Snapshot** icon to take a point-in-time snapshot of the current server inventory.

Cisco Flexible Flash Cards on Cisco Servers

Many C-series servers today have support for hypervisors to some degree. Installation of the hypervisors from various vendors mostly requires the hypervisor to be installed on the local hard drive. Though many vendors have support for booting the hypervisor from a removable media such as a thumb drive, this method is not widely adopted due to reliability concerns.

The next generation of Cisco rack servers will be available with a Flexible Flash card that is based on the Secure Digital (SD) card technology, typically used in portable devices such as digital cameras and camcorders as well as other small form factor devices such PDAs and handheld computers. The other goal of this Flexible Flash card is to allow for an alternate mechanism to ship to the customer other utility software that is today included on CDs along with a rack server shipment. The utility software currently shipped includes Cisco device drivers, online diagnostic and server utilities. This Cisco Flexible Flash card built into the rack server will enable this software to be pre-loaded at the factory during the manufacturing process. Alternatively, the utility software can be made available online along with the rest of the firmware updates. These updates can then be downloaded to the storage on the Flexible Flash card through a dedicated set of management or user interface functions on the CIMC.



CHAPTER 2

Getting Started with UCS-Server Configuration Utility

This chapter helps you to get started with the UCS-Server Configuration Utility and contains the following sections:

- [Supported Operating Systems, page 2-1](#)
- [Supported Platforms, page 2-1](#)
- [Hardware and Software Requirements, page 2-2](#)
- [Obtaining the SCU .iso from cisco.com, page 2-2](#)
- [Booting UCS-SCU from CD, page 2-3](#)
- [Entering the Virtual KVM Console, page 2-3](#)
- [Booting in the Virtual KVM Console, page 2-4](#)
- [Exiting UCS-SCU, page 2-4](#)

Supported Operating Systems

UCS-SCU supports unattended installation of the following operating systems:

- Windows Server 2008 (64-bit)
- Windows Server 2008 R2 (64-bit)
- Windows Server 2008 R2 SP1 (64-bit)
- Red Hat Enterprise Linux 6 (x86-64)
- SLES 11 SP1
- SLES 10 SP3
- SLES 10 SP4

Supported Platforms

The UCS-SCU 2.2(1) is supported on the following Cisco platforms:

- UCS-C200 M1 and M2
- UCS-C200 M2 (SFF)

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- UCS-C210 M1 and M2
- UCS-250 M1 and M2
- UCS-C260 M2
- UCS-C460 M1 and M2

Hardware and Software Requirements

The following are the minimum hardware and software requirements for UCS-SCU 2.2:

- **CD-ROM Drive**—A USB, IDE, or SATA CD/DVD-ROM drive is required to be able to boot and run the UCS-SCU. The CD/DVD-ROM drive is a prerequisite for operating system installation. You can also use the virtual media option in the CIMC KVM to boot UCS-SCU
- **Mouse**—Some functions require a standard mouse (PS/2 or USB) for navigation.
- **USB Disk on Key device**—functions like saving UCS-SCU logs require a USB disk on key.
- **RAM**—A minimum of 1 GB RAM. If the available RAM is less than the minimum recommended value, UCS-SCU will not function properly.
- **Network Adapter**—Some optional functions, like downloading the OS drivers from support.cisco.com require network access. Any single on-board NIC adapter connection is supported.



Note

Currently UCS-SCU supports only Intel/Broadcom adapters.

- **RAID Cards**—RAID configuration and OS installation are supported on select controllers. For details refer to the following document:
 - [Hardware and Software Interoperability Matrix](#).

Obtaining the SCU .iso from cisco.com

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

- Step 1** See the following URL <http://www.cisco.com/cisco/software/navigator.html>
- Step 2** Click **Unified Computing** in the middle column.
- Step 3** Click **Cisco UCS C-Series Rack-Mount Servers** in the right-hand column.
- Step 4** Click the name of your model of server in the right-hand column.
- Step 5** Click **Software on Chassis** in the right-hand column.
- Step 6** Click **Unified Computing System (UCS) Server Configuration Utility**.
- Step 7** Click the release number that you are downloading.
- Step 8** Click **Download Now** to download the ISO file.
- Step 9** Verify the information on the next page, then click **Proceed With Download**. If prompted, use your cisco.com credentials to log in.
- Step 10** Continue through the subsequent screens to accept the license agreement and browse to a location where you want to save the utilities zip file.

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- Step 11** Extract the contents of the SCU zip file and note the location to which the SCU ISO file is saved.
-

Burning an .iso CD

To boot the UCS-SCU ISO image from a CD drive, you will need to make and use an .iso CD. You cannot simply copy the file from Cisco.com to a CD. To create an .iso CD, you must burn it using an application that burns .iso CDs.

To burn an .iso file, follow these steps:

- Step 1** Obtain an .iso file from Cisco.com as described in the previous section.
- Step 2** Create an .iso CD using a CD burning tool.
-

Booting UCS-SCU from CD

To boot the application on your server, follow these steps:

- Step 1** Insert the Cisco UCS Server Configuration Utility CD on to your system.
- Step 2** Restart the server, and press **F6** to enter boot selection menu and then select CDROM drive as boot device.
- Step 3** Use the arrow keys to select Cisco Virtual CD/DVD, and then press **Enter**.
- Step 4** The server boots using the UCS-SCU image and starts the application.



Note

The **Drivers** option in the **F6** boot selection screen is not a bootable option. If you select this option accidentally, you should restart your server as a workaround and select a different option. The **HUU** and **SCU** options are bootable. Use either of these options to boot the application with the images you downloaded and flashed to the SD card of your system. See [Update](#) for information on downloading the latest images of SCU and HUU to the SD card on your server.

Entering the Virtual KVM Console

To enter the virtual KVM console, follow these steps:

- Step 1** Log in to CIMC.
- Step 2** Click **Launch KVM Console**. The Virtual KVM Console displays with the SCU home page.
-

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Booting in the Virtual KVM Console

To boot in the virtual KVM console, follow these steps:

-
- Step 1** Place the .iso image file in your desktop.
 - Step 2** Log in to CIMC from your desktop.
 - Step 3** Click **Launch KVM Console**.
 - Step 4** Click **Tools** -> **Launch virtual media** -> Add Image to map the UCS-SCU iso to vmedia.
 - Step 5** Reboot the server, and press **F6** when the server starts to select boot device.
 - Step 6** Use the arrow keys to select Cisco Virtual CD/DVD, and then press **Enter**.
 - Step 7** The server boots using the UCS-SCU image and starts the application.
-

Exiting UCS-SCU

There are two ways you can exit the application:

- Use the **Reboot** button on the SCU toolbar. When you use the SCU toolbar, the virtual KVM Console no longer boots SCU.

The second method is as follows:

-
- Step 1** Remove the .iso disk from the disk drive.
 - Step 2** Click **Reboot**, and then click **Yes** to confirm reboot of your server.
 - Step 3** You can also unmount/unmap the SCU image to exit the application. To do this click Virtual Media on the KVM console, select the image you want to remove and click **Remove Image**.
-



CHAPTER 3

Using UCS-Server Configuration Utility

This chapter provides information on using the UCS-Server Configuration Utility and contains the following sections:

- [UCS-SCU Interface, page 3-1](#)
- [Server Inventory, page 3-3](#)
- [Server Health, page 3-4](#)
- [Server Snapshot, page 3-5](#)
- [Server Configuration, page 3-6](#)
- [OS Install, page 3-11](#)
- [Diagnostic Tools, page 3-15](#)
- [Logs, page 3-19](#)

UCS-SCU Interface

UCS-SCU is a bootable application that can be used to perform operations such as BIOS setup, configure RAID logical volume, install operating systems, and perform diagnostics on Cisco rack servers. It is designed to run on one server at a time. You can launch the application through physical or virtual media.



Note

On UCS-C260 M2 servers you can launch UCS-SCU from the F6 boot option as well.

This section contains the following topics:

- [License Agreement, page 3-1](#)
- [Home Page, page 3-2](#)
- [Accessing Help, page 3-3](#)

License Agreement

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

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Home Page

The UCS-SCU home page consists of the following:

- **Navigation Pane**—The navigation pane on the left hand provides a tree for easy navigation.
- **Content Pane**—The content pane is the primary area for information and interaction.
- **Tests Summary Pane** (for Diagnostic Tools)—Provides details of tests passed, tests in queue and tests failed.
- **Toolbar**—The toolbar on the left hand top corner has a set of icons that allow you to access the following:

Network Configuration

Configures the IP address, DNS and Subnet mask and Cisco.com credentials. This configuration will be used to connect to Cisco.com or other network share locations to access the OS installation drivers or firmware. Click the icon to enter details of the network configuration, proxy server Cisco.com user credentials and click **Configure**.

Probe Server

Performs a server health check. Once complete, you can select the Server Health and check for the warning/failure/information.

Save Logs

Logs can be saved to a USB with this option.

Refresh

This will refresh the content area, if supported.

Reboot

Reboots the server.

Update

Allows you to download the most recent versions of UCS-SCU, OS drivers and Host Upgrade Utility (HUU). These images can be flashed to the SD card on your system. The **F6** option on the server can then be used to boot with the most recent images (HUU and SCU) you downloaded.

Updating from cisco.com

To obtain the most recent version of UCS-SCU, OS drivers and HUU from cisco.com, follow these steps:

-
- Step 1** On the home page, click on the update icon. The software selection window displays.
 - Step 2** Select from one of the three options of software available for download.
 - Step 3** Click **From Cisco.com**. The **Select Updates** screen displays.
 - Step 4** Select the required version from the **Select Updates** screen and click OK.
 - Step 5** Click **Apply** to download the image from Cisco.com and flash it to the SD card on your system. You can cancel the download at any time using the cancel icon. You can also minimize this screen, using the minimize icon. This action docks the screen to the toolbar, allowing you to perform other operations while the download takes place.

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Once the image is flashed on to your system, you will be able to boot your system with the most current versions of the software you downloaded (SCU and HUU) from the **F6** option on your server.

Updating from Network Share

To obtain the most recent version of UCS-SCU, OS drivers and HUU from a network share location, follow these steps:

-
- Step 1** On the home page of SCU, click on the update icon. The SD update software selection window displays.
 - Step 2** Select from one of the three options of software available for download.
 - Step 3** Click **From Network**. The **Network Location** screen displays.
 - Step 4** Enter the User Name, Password and Network Location (where the updates you downloaded are located), click **Connect**. The network share location window with the most recent software images displays.
 - Step 5** Select the required image and click **OK**.
 - Step 6** Click **Apply** to download the image and flash it to the SD card on your system. A confirmation message displays.
-

Accessing Help

To access the Cisco UCS-SCU online help, click the **Help** tab in the right hand corner.

Server Inventory

You can use the server inventory functionality to perform an inventory of your server. You can view details like server summary, server properties and an inventory of subsystems on your server like CPU, memory, power supplies, fans, IO devices, storage, BIOS and CIMC.

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

-
- 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, like CPU, memory, power supplies, fans, IO devices, storage, BIOS, and CIMC.
-

[Table 3-1](#) explains the various subsystem details you can view.

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Table 3-1 Server Inventory Properties

Subsystem	Description
CPU	View the socket name, status, number of cores, number of threads, vendor, version, cores enabled, and signature of the CPUs on your server.
Memory	View the size, data width, locator, speed, and serial number of the DIMMs on your server.
Power Supplies	View the input power, output power (in watts), part number, version, serial number, and product name of the power supply units on your server.
Fans	View the status, power state, and speed of the fans on your server.
IO Devices	View the type, vendor, description, and MAC address/serial number of the IO devices on your server.
Storage	View the type, description, vendor, size, BUS information, and serial number of the storage devices on your server.
BIOS	View the vendor, version, physical ID, size, capacity, and boot order of the BIOS on your server.
CIMC	View the IP address, MAC address, firmware version, and IPMI version of the CIMC on your server.

Server Health

Using this functionality you can view the health of all the subsystems of your server (like memory, processor, power supply, hard disk, fans, chipset and CIMC) along with the status and message of a specific subsystem.

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

-
- Step 1** Click the **Server health** 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** To view the latest status of the subsystem, click **Probe Server** from the toolbar. Click on server health again to refresh the page after clicking on probe server
 - 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. In case the subsystem has multiple issues, they will show up below in the Server Health Details pane.

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Server Snapshot

You can use the Server Snapshot feature in UCS SCU user interface to take a point-in-time inventory of a server. This feature allows you to compare inventories or components of a server over certain periods of time. Prior to initiating a server snapshot, ensure that you connect a USB flash drive into the server. Without a flash drive available, the log file created by the server snapshot is not saved.

When you initiate a server snapshot, UCS SCU retrieves information on the server components, and also runs a series of quick tests to determine the state of the server. Taking a server snapshot could take around 20 minutes. After the server snapshot process is complete, the log file is saved on to the USB flash drive that you specified. You can open this log file in any editor. For example, WordPad. To help compare server inventories across time periods, it is recommended that you store these log files in a location and archive it. When you have multiple logs files, you can use a comparison tool from the Internet to view differences in the server inventory.

To take a server snapshot, perform these steps:

-
- Step 1** Connect a USB flash drive to the server or through vMedia.
- Without this flash drive, you cannot save the server snapshot log file. Also ensure that there is adequate space on the flash drive to save the log file.
- Step 2** Click the Server Snapshot icon in the UCS SCU interface.
- A dialog box prompting you to insert the USB flash drive is displayed.
- Step 3** Click **Yes** to continue.
- A dialog box prompts you to select the USB flash drive in which you would like to save the log file.
- Step 4** Choose the USB flash drive from the drop-down menu and click **Save**.
- The Server Snapshot process is initiated. This process could last up to 20 to 30 minutes. A dialog box indicating the progress of the server snapshot process appears. During this process, you cannot perform any other tasks on the server. At any moment during the process, you can cancel the server snapshot process by clicking **Cancel** in the dialog box.
-
-  **Note** During the server snapshot process, if the KVM connection is terminated, it does not terminate the server snapshot process. When you login again to the KVM console, you will notice that the server snapshot process is still running or has completed. However, if the USB flash drive is connected through vMedia and the KVM connection is terminated, then the server snapshot process is halted as the connection to the USB flash drive is lost.
-
- Step 5** After the snapshot process is complete, a dialog message appears to indicate that the server snapshot process is complete. Click **OK**.
- The log file is saved on the USB flash drive. The log file is a text file and is saved with the server name and includes the date when the server snapshot was taken. For example:
Server_C260-BASE-2646_FCH1234345_06_08_2011 is the log file name of a server snapshot taken for UCS C-260 server on August 6th, 2001.
- Step 6** Open this log file with any editor. For example, WordPad.



Tip

To compare inventory information of the same server over a period of time, it is recommended that you archive these log files so that they are always available for comparison.

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The log file of the server snapshot process includes the following information:

- Chassis Summary
- BaseBoard Summary
- CIMC Summary
- Processor Summary
- Memory Summary
- Storage Summary
- PCI Adapter Summary
- Power Supply Summary
- Server diagnostics Quick Test Results
- Server Probe Data



Note

The server snapshot feature, while running quick tests on the server, can only determine if a server component passed or failed a test. It cannot determine the reasons for a component not passing the quick test. While viewing the log file of the server snapshot process, if you notice that a server component did not pass the quick test, then check the quick test logs available under the **Diagnostics Tools**.

Server Configuration

You can configure your server's BIOS boot order settings and perform RAID configuration using the Server Configuration function. To enter this function area, from the left navigation pane, click **Server Configuration**.

This section contains the following topics:

[Boot Order Configuration, page 3-6](#)

[RAID Configuration, page 3-7](#)

[Supported RAID Devices, page 3-7](#)

Boot Order Configuration

SCU displays a list of all bootable devices on the server. To set the BIOS boot order of your server, follow these steps:

- Step 1** Click **Server Configuration** in the left navigation pane, and then click **Boot order Configuration**. You will be able to choose the devices you want to participate in the boot order configuration using the arrow keys between the **Device Types** and **Boot Order** column.
- Step 2** Highlight a device in the **Boot Order** column (choose from either HDD, CD/DVD, Internal EFI Shell, Network Device or FDD), click the up or down arrow keys to arrange the server boot order you prefer, and click **Apply**.
- Step 3** Click **Apply**.

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Step 4 The Boot Order is saved on this server.

Step 5 To reset the boot order click **Reset**.



Note

If the system has multiple boot devices under each component, for example, if the system has multiple bootable hard disks under the same controller or CD drives, SCU will not display this information. You will have to enter the BIOS and configure the order of these subcomponents manually.

RAID Configuration

You can use RAID Configuration to configure your systems' on-board (Mezz or ICH10R RAID controller) or PCIe supported RAID controller cards.

If your system has multiple RAID controllers, UCS-SCU displays a list of all available RAID cards on the RAID Configuration page. The RAID levels supported by SCU are RAID 0, 1, 5 and 6.

Supported RAID Devices

The LOM and LSI controller devices supported by UCS-SCU are the following:

Server	LOM Device	LSI Controller
C200	Intel 82576	1064E 1068E 8708EM2 9260-4i 9260-8i 9280-4i4e
C210	Intel 82576	1064E 8708EM2 9261-8i 9280-4i4e
C250	Broadcom BCM5709	3081E-R 9261-8i
C260	Broadcom BCM5709 Broadcom BCM57711	9261-8i
C460	Broadcom BCM5709 Broadcom BCM57711	9260-8i 9240-8i



Note

The UCS-SCU RAID configuration utility detects the physical drivers only once when you enter this function area after the system is rebooted. Do not remove or add hard disk drivers while navigating within this function area.

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**Note**

Some LSI RAID controllers take time to complete the operation during RAID configuration. SCU does not have any control over this issue. As a workaround, you can either recreate the RAID or wait for the operation to complete.

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UCS-SCU RAID Configuration

This section contains the following topics:

[Automatic Setup With Redundancy, page 3-9](#)

[Automatic Setup Without Redundancy, page 3-9](#)

[Create Custom or Multiple RAID Arrays, page 3-9](#)

UCS-SCU supports three types of RAID configurations:

Automatic Setup With Redundancy

Automatic setup with redundancy requires at least two hardware drives. If your server has two drives, UCS-SCU creates RAID 1. If it has more than two drives, UCS-SCU recommends creating RAID 5. If the controller does not support RAID 5, RAID 1 is created.



Note

The common parameters, except for total size, are the default values for the controller.

Automatic Setup Without Redundancy

Automatic setup without redundancy requires one or more hard drives. UCS-SCU creates RAID 0 with this option. To configure RAID using the automatic setup with or without redundancy, follow these steps:

-
- Step 1** Click **Server Configuration** in the left navigation pane and then click **RAID configuration**. The RAID Configuration page displays.
 - Step 2** Click the **Configure** button displayed next to the device. The RAID Configuration page displays. You can also view properties of the device by clicking Show Details.
 - Step 3** On the RAID Configuration page, the following options appear:
 - Automatic Setup with Redundancy
 - Automatic Setup without Redundancy
 - Create Custom or multiple RAID arrays
 - Step 4** Select either the first or second option and click **Create Array**. A pop-up displays upon completion of this task.
-

Create Custom or Multiple RAID Arrays

When you select Create Custom or Multiple RAID arrays, UCS-SCU displays a window in which you can select physical hard disks. Only unconfigured good disks can be used for RAID configuration. Disks that are already part of RAID will not be available for RAID configuration. Clear the configuration to make all the disks' statuses Unconfigured Good. You can use the Clear configuration option to remove these disks from existing RAID, but be extra careful here as the data on the existing RAID will be lost if you clear the configuration.

To create custom or multiple RAID arrays, follow these steps:

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-
- Step 1** Click **Server Configuration** in the left navigation pane and then click RAID configuration. The RAID Configuration page displays.
- Step 2** Click the **Configure** button displayed next to the device. The RAID Configuration page appears. You can also view properties of the device by clicking Show Details.
- Step 3** On the RAID Configuration page, the following options appear:
- Automatic Setup with Redundancy
 - Automatic Setup without Redundancy
 - Create Custom or multiple RAID arrays
- Step 4** Select the third option (Create Custom or multiple RAID arrays) and click **Create Array**. The Select Drives for Logical Drive page appears.
- Step 5** Select the **Unconfigured Good** physical drives that you want to include in the RAID array. If you choose to clear configuration, all the old configurations applied to the list are lost.
- Step 6** Check the Status column to verify that the drive is **Unconfigured Good**.
- Step 7** Click **Next**. The Select Hotspare Drives page displays.
- Step 8** Select the required physical drives to be used as global hot spare drives and click **Next**. The Define Array Attributes page displays.
- Step 9** Select the required array attributes from the drop-down lists and click **Next**. The summary page displays.
- Step 10** Click **Create Array**.
-

Table 3-2 explains the various disk status conditions.

Table 3-2 Disk Status Conditions

Status Condition	Description
Online	The drive is already used in another array.
Global Hotspare	The drive will be used to repair any array in the system that had a drive failure, if the failed drive is equal to, or smaller than the hot spare drive.
Unconfigured Good	The drive is unused or available.
Ready	The drive is online and operating correctly.
Offline	The drive is offline or absent. No actions can be performed on the drive until it is back online.
Unconfigured Bad	The drive is not operational and needs to be replaced. Disks with a status of "Unconfigured bad" cannot be used for RAID configurations.
Foreign	The drive is part of an array created on a different controller, or created within one enclosure and moved to another on the same controller. It can be used to create a new array after clearing configuration.

Table 3-3 explains the RAID array attributes.

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Table 3-3 RAID Array Attributes

Option	Description
RAID level	RAID 0 (Data striping), 1 (Disk Mirroring), 5 (Data Striping with Striped Parity), 6 (Distributed Parity and Disk Striping).
Stripe size	Size of the data stripe across all disks. Each physical disk has a smaller stripe of data. The sum of all the stripes equals the stripe size.
Read policy	No Read Ahead, Read Ahead, Adaptive. Read Ahead will read additional consecutive stripes. Adaptive will turn on Read Ahead for sequential reads and turn it off for random reads.
Write policy	Write Through or Write Back. With Write Through, I/O completion for write operations is signaled when the data is written to the disk. With Write Back, I/O completion is signaled when the data is transferred to cache.
Cache policy	Direct I/O or Cached I/O. Choose Direct I/O for uncached read and write operations. Choose Cached I/O to cache all write operations and check the cache first for read operations
Size	Logical drive size. The maximum value depends on RAID level selected and the physical disks size involved.

OS Install

The unattended operating system installation function helps you install the Microsoft Windows, SuSE Linux, and RedHat Linux operating system families. UCS-SCU has integrated device drivers including RAID drivers to seamlessly install operating systems on supported RAID logical arrays without additional load driver steps or devices such as the USB. UCS-SCU supports OS installation only on Virtual Disks. OS installation on Physical Disks is not supported. All UCS-SCU supported operating systems are organized into three groups: Windows, RHEL, and SUSE.



Note

While installing the OS on C-260 servers, after you provide the OS CD, the system prompts you to reboot to continue with the installation. At this time, you must change the boot order for the server, and set the appropriate HDD or VD as the first boot device.

This section contains the following topics:

[Windows Server 2003 and 2008 Operating System Installation, page 3-12](#)

[Linux Server Series Operating System Installation, page 3-14](#)



Tip

Prior to initiating the operating system installation, ensure that you have disabled the Watchdog Timer. If this feature is enabled and the value is set for a time duration that is lesser than the time taken to install the OS, then the OS installation process is interrupted. This Watch Dog Timer feature automatically reboots or powers off the server after the specified time duration. To ensure that the OS installation is not interrupted, disable the Watchdog Timer on the server.

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Windows Server 2003 and 2008 Operating System Installation

For unattended Windows Server 2003 and 2008 OS installation, follow these steps:

-
- Step 1** To enter the unattended OS installation function area, click **OS Install** in the left navigation pane. The OS Install page appears.
- Step 2** Click the Windows radio button and choose an operating system from the drop-down list. For Windows 2008 operating system, an additional edition drop-down list displays.
- Step 3** Click **Next**.
- Step 4** On the Set Installation Partition page, select a disk from the Select Disk drop-down list to create a partition.
- Step 5** If your server has more disk controllers such as SATA, SAS, or RAID, click **Select Disk** to choose an active disk. UCS-SCU switches to the corresponding disk that is under the selected disk controller.
- To create a new partition on disk free space, click **New**.
 - To remove a partition, click **Delete**.
 - To change a partition size, click **Edit**.
- Step 6** If you have multiple arrays created under the same controller, UCS-SCU marks the array chosen for OS installation as the primary bootable array.
- Step 7** Click **Next**.
- Step 8** Enter the following information in the subsequent screens:
- Region and Location
 - Windows 2003 server series—UCS-SCU prompts you to select Time Zone, Windows Language and additional language
 - Windows 2008—You can select the Time Zone.
 - Personalization
 - Enter server owner name, organization, license information and license type.
 - Name and password
 - On Windows 2003 server series you must set the server computer name and administrator password.
 - On Windows 2008 server series you must set the server computer name. Because administrator password is reset when Windows 2008 installation completes, UCS-SCU does not request a Windows administrator password.
 - Network Settings—Enter the network configuration settings for the onboard network adapters that will be detected by the operating system during installation. You will be able to view the link status of available network interfaces along with the IP address, subnet mask, gateway, DNS, link status, vendor, type and MAC address on this page. You can also enter the Work Group or Network Domain information on this page and enable Remote Access (RDP). These settings will not affect the network settings for the CIMC. We recommend that you set different IP addresses for the OS and CIMC. The "network interface" column lists each network adapter detected by the UCS-SCU. Your operating system may have a different name after you install the operating system.
 - Get Updated Drivers—This section allows you to select the source from where UCS-SCU can download server driver packages. The selected drivers are installed to the operating system by UCS-SCU.

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Choose one of the following options:

- **From www.cisco.com**—To get the most recent drivers from the Cisco support website, select this option. Ensure that the server is only connected to one network during the download. You will have the option to setup a network connection for your server, configure proxy server to access internet and cisco.com user credentials.
- **From SCU boot media**—Directly use the driver packages that are stored in the Tools and Drivers CD. UCS-SCU selects this option as default.
- **From my network**—UCS-SCU can download a driver package stored on a network share folder. You must manually download the most recent drivers from <http://www.cisco.com> and copy them to your network share.
- **From USB Disk on Key or Hard Drive**—UCS-SCU can get the drivers stored on a USB key or USB hard disk drive. You must manually download the most recent drivers from <http://www.cisco.com> and copy them to a USB key. To download drivers from <http://www.cisco.com> follow these steps:

1. Log on to <http://www.cisco.com>.
2. Click **Support**.
3. Click **Download Software** and then click **Products**.
4. Click **Unified Computing and Servers**.
5. Click **Cisco UCS C-Series Rack-Mount Servers**.
6. Select the required server type and then select **Software on Chassis**.
7. Select Unified Computing System (UCS) Server Configuration Utility Device Drivers Package and then select either VMWare, Linux, Windows and EFI.
8. Select the required release and click either **Download Now** or **Add to cart**.

-
- **Choose Drivers to Install**—UCS-SCU displays all available drivers downloaded from the driver source. Uncheck the drivers that you do not want to install. If you want to install an operating system on a RAID volume, you can deselect the driver for the appropriate RAID controller. The path to the selected drivers will be stored and will then be used to download and install the drivers during the operating system installation.
 - Remove the UCS-SCU CD and insert the required operating system CD.
-

Windows 2003 Server Series

For unattended installation of the Windows 2003 operating system, follow these steps:

-
- Step 1** Insert the Windows 2003 operating system CD, and click **Next** for UCS-SCU to apply all settings.
 - Step 2** After completing this process, UCS-SCU prompts you to reboot the server.
 - Step 3** Leave the operating system CD in the CD-ROM, while the system completes the OS installation after this reboot.
-

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Windows 2008

For unattended installation of the Windows 2008 operating system, follow these steps:

-
- Step 1** Insert the Windows 2008 OS DVD and a USB key with at least 10 MB free space on which UCS-SCU can store server drivers temporarily. The answer file `unattended.xml` is also stored in the USB during installation.
 - Step 2** Click **Next** to apply all settings.
 - Step 3** Click **Restart** to reboot the server.
 - Step 4** During server POST, press **F2** to enter the server BIOS configuration interface.



Note

You can use only virtual USB drives for OS installation on the C460 M1. Both physical and virtual are supported on all other platforms.

Linux Server Series Operating System Installation

For unattended Linux operating system installation, follow these steps:

-
- Step 1** Click **OS Install** in the left navigation pane. The OS Install page appears.
 - Step 2** Click either the RHEL or SLES radio button, choose an operating system from the drop-down list and click **Next**.
 - Step 3** On the Set Installation Partition page, select a disk from the Select Disk drop-down list to create a partition.
 - Step 4** If the server has more disk controllers such as SATA, SAS, or RAID controller, click **Select disk to choose active disk controller**. UCS-SCU switches to the corresponding disk that is under the selected disk controller and displays a recommended default partition.
 - Step 5** Click **New** to create a new partition on disk free space. Click **Delete** to remove a partition, or click **Edit** to change partition size. Partition Root and Swap are necessary. If you miss them, SCU generates an alert message. SCU displays a suggested partition solution. Accept it if you are not familiar with Linux partition.
 - Step 6** If you have multiple arrays created under the same controller, UCS-SCU marks the array that is chosen for OS installation as primary bootable array.
 - Step 7** Enter the following information in the subsequent screens:
 - Basic configuration—Edit the following items on the Basic Configuration page:
 - Root Password
 - Default language
 - Keyboard
 - Time Zone
 - Additional Languages
 - Package Selection—Select all Linux packages that you want to install on your server.

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- **Network Settings**—Enter the network configuration settings for the onboard network adapters that will be detected by the operating system during installation. These settings do not affect the network settings for the CIMC. We recommend that you set different IP addresses for the operating system and CIMC. The network interface column lists each network adapter detected by the UCS-SCU. Your operating system may have a different name after you install the operating system.
- **Get Update Drivers**—This section allows you to select the source from which the UCS-SCU can download server driver packages. Those drivers are installed to the operating system by UCS-SCU.

Choose one of the following options:

- **From www.cisco.com**—You can get the most recent drivers from the Cisco support website by selecting this option. Please check that the server is only connected to one network during the download.
- **From SCU boot media**—Directly use the driver packages stored in the Tools and Drivers CD. Although this CD may not contain the most recent driver packages, this option is the fastest. UCS-SCU selects this as a default option.
- **From my network**—UCS-SCU can download a driver package stored on a network share folder. You must manually download the most recent drivers from <http://www.cisco.com> and copy it to your network share.
- **From USB stick on Key**—UCS-SCU can get the drivers stored on a USB key or USB hard disk drive. You must manually download the most recent drivers from <http://www.cisco.com> and copy them to the USB key.
- **Network Location**—Enter the login and location information for the network share where the update packages are located.
- **Choose Drivers to Install**—UCS-SCU displays all available drivers that downloaded from the driver source. Uncheck the drivers that you do not want to install. If you want to install an operating system on a RAID volume, you can select the driver for the appropriate RAID controller. The path to the selected drivers will be stored and will then be used to download and install the drivers during the operating system installation.
- **Insert OS CD**—Insert the Linux Server OS CD and click **Next**. UCS-SCU starts to apply all settings. Reboot the server after the process completes. You should leave the OS CD in the CD-ROM. The server will complete all the operating system installation steps after this reboot.

Diagnostic Tools

You can use diagnostics tools to diagnose hardware problems with your Cisco servers. The user interface displays the status of the test run and examines log files for troubleshooting hardware issues.

Features of Diagnostic Tools

These are the features of Diagnostic tools:

- Allows you to run tests on various server components to find out hardware issues along with analysis of the test results in a tabular format.
- Provides an easy interface to run all the tests using the Quick Tasks functionality, without browsing through available tests.

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- Runs tests serially, as running some tests in parallel may interfere with other tests.
- Allows you to configure the test by entering different argument values other than the default ones.
- Allows you to select tests you want to run using the Test Suite functionality.
- Allows you to save all the tests logs such SEL logs to an external USB flash drive.
- Provides a method to probe the current state of the server and displays hardware issues.

This section contains the following topics:

[Quick Test, page 3-16](#)

[Comprehensive Test, page 3-17](#)

[Quick Tasks, page 3-18](#)

[Tests Suite, page 3-18](#)

[Tests Log Summary, page 3-19](#)

Using Diagnostic Tools

The table below details when you should use a specific diagnostic functionality:

Table 3-4 **Using Diagnostics**

Diagnostic Component	Usage
Quick Test	Use this test when you want to quickly check the status of a sub-system within a stipulated period. The components that can be tested under the quick test are - processor, cache, memory, disk, video, network, QPI, CIMC, RAID and chipset.
Comprehensive Test	Use this test when you want to test a sub-system elaborately. These tests are designed to stress the sub-systems and report the error. The tests that can be run are - processor, memory, QPI, 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 test are available here. The test suite gives you an option to pick 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. There are four filters you can use 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 and failed tests.

Quick Test

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

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To run the quick test follow these steps:

- Step 1** Click **Diagnostic Tools** from the left navigation pane.
- Step 2** Click **Tests**.
- Step 3** Click the **Quick Test** collapsible button to view the types of quick tests available for you to run.
- Step 4** Click a subsystem (like memory, video, or network).
- Step 5** On the content pane, click **Run Test**.
- Step 6** If you click **Run Test**, the test is run and the status displays in the **Tests Status** area.

The table below describes the sub-systems covered under quick tests:

Table 3-5 Quick Tests

Test	Description
Processor Test	Runs processor specific tests. This test performs arithmetic and floating point operations on all available cores. You can also specify the duration of the tests
Cache Test	Runs test to exercise the CPU caches and checks for correctable/uncorrectable cache errors.
Memory Test	Tests DIMMs and memory controllers.
Disk Test	Tests the available disks in the system by reading each disk block-by-block.
Video Test	Test to stress the Video Memory.
Network Test	Tests the available network interfaces by running internal loopback test, register test, eeprom test and interrupt test.
QPI Test	Tests the Quick path interconnect fabric.
CIMC Test	Runs CIMC self test through the IPMI interface and also checks for SEL fullness.
Chipset Test	Runs a test to check the chipset for any errors logged in the chipset RAS registers.
RAID Adapter Test	Runs test to check the LSI MegaRAID 9260-8i and 8708 controller and battery backup unit diagnostics.

Comprehensive Test

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

The individual tests run can be customized 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:

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

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- Step 2** Click **Tests**.
- Step 3** Click the **Comprehensive Test** collapsible button to view the types of comprehensive tests available for you to run.
- Step 4** Click a subsystem (like processor, memory, or network).
- Step 5** On the content pane, click **Run Tests**.
- Step 6** If you click **Run Tests**, the test is run and the status displays in the **Tests Status** area.
The table below describes the sub-systems covered under comprehensive tests:

Table 3-6 Comprehensive Tests

Test	Description
Processor Stress Test	Imposes maximum stress on CPU and memory on the system. You can set the time (in minutes) you want this test to run for.
Memory Pattern Test	Tests the available free memory by writing and reading various patterns to the memory.
QPI Stress Test	Runs test to stress the QPI interconnect by generating traffic between the NUMA nodes.
Smart Disk Test	Tests the available disks in the system by reading each disk block by block
NUMA Test	Runs test to stress the NUMA memory access patterns and check for errors.
VDisk Stress Test	Runs test to stress the virtual disks in the system. This test runs for a longer time, depending on the size of the virtual disk.

Quick Tasks

Quick Tasks allow you to get started with diagnostic tools immediately. You can run all the tests (Quick/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:

-
- Step 1** Click **Diagnostic Tools** from the left navigation pane.
 - Step 2** Click **Quick Tasks**.
 - Step 3** Click either **Run Quick Tests** or **Run Comprehensive Test** from the toolbar. The status appears in the **Test Status** pane. You can also view detailed test results under **Tests 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:

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

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- Step 2** Select the tests you want to run by clicking the required checkboxes.
- 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:

- 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** For more details, click a specific log entry (for example, click **memory test**). The Log, Error Log (if the test failed) and the analysis of the specific test displays in the content pane.

Tests Summary

The **Test Summary** table in the left navigation area provides you with a quick view of the tests that have passed, tests in queue and tests that have failed.

Logs

The Logs functionality allows you to take corrective action by examining your server's logs. UCS-SCU provides three types of logs:

- System logs
- System event logs

This section contains the following topics:

[System Logs, page 3-19](#)

[System Event Log, page 3-20](#)

System Logs

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:

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

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- Step 2** Click **System Logs**.
- Step 3** Select a filter from the filter drop-down list.
- Step 4** Click **Go**. The system log displays.
-

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:

- Step 1** Click **Logs** on the left navigation pane.
- Step 2** Click **System Event Log**.
- Step 3** Select from either the **Description** 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 displays.
 - If you select the **Severity** filter, you can select the type of severity from the second dropdown and click **Go**. A list with the logs of the specified severity type displays.
 - Click **Clear Filter** to clear the filter you applied.



CHAPTER 4

Troubleshooting and FAQs

This chapter provides information on troubleshooting and frequently asked questions for the UCS-Server Configuration Utility.

Troubleshooting

This section lists various troubleshooting options while using the UCS-SCU application.

1. The OS installation process is interrupted and the server is rebooted.

Determine the value set for the Watch Dog Timer. The Watch Dog Timer is a new feature in the BIOS of the C-series servers. If this feature is enabled and the value is set for a time duration that is lesser than the time taken to install the OS, then the OS installation process is interrupted. This Watch Dog Timer feature automatically reboots or powers off the server after the specified time duration. So prior to initiating the OS installation process, disable the Watchdog Timer feature.
2. SCU prints **No USB Disk on Key detected** even after mapping virtual USB or connecting physical USB
 - For USB devices mapped through vmedia, try **USB reset** from the vmedia GUI (virtual media session -> details -> USB Reset)
 - For physical USB device, check the vendor/product information; try a different device.
3. After installing Windows OS, the KVM mouse does not work and windows device manager displays a yellow bang for USB human interface device

Check the version of CIMC. Ensure that you have the latest version of CIMC installed on your server.
4. Windows 2008 installation fails with message - selected disk has MBR partition table. On EFI systems, Windows can only be installed to GPT disks.

The EFI CDROM device for virtual drive was used to boot the Windows 2008 image. Use the CDROM device from BIOS 'CDROM order
5. After installing the Windows operating system through UCS-SCU, the Windows device manager displays some devices with a yellow bang.
 - The device may not be in the Cisco support matrix.
 - You may not have selected some device drivers in the SCU GUI.
6. Windows setup fails with BSOD 0x7B (inaccessible boot device).

You may not have selected the device driver for boot controller in SCU GUI.

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7. On C200 servers, if ICH10R is configured in enhanced mode, the controller is not visible for RAID configuration.
This is expected behavior. On C200 servers, ICH10R should be configured in SWRAID mode for RAID configuration to function.
8. After RAID configuration completes, the new disks that were created do not get updated in the inventory data.
To see the newly configured disk in the inventory, you will need to reboot the server with the SCU image. SCU will perform the discovery again and display the configured disk in the inventory data.
9. During RHEL6 installation, if DHCP configuration is selected and DHCP fails to provide an IP address, the installation will display an error, prompting to continue (unlike RHEL5/RHEL4).
Select continue (at the prompt), and the OS installation will go through fine. You can assign the IP address manually after the installation completes.
10. On servers with multiple hard disks (without a logical volume) PDisk tests, both quick and comprehensive fail with an error - at least one logical volume should be present.
Create atleast one logical volume before starting the tests.
11. CIMC change doesn't reflect in SCU immediately.
Changes made to virtual disks using CIMC may not be immediately viewable in the SCU user interface, if the server is booted with SCU. Reboot the server to sync with CIMC.

Frequently Asked Questions

This section lists the frequently asked questions.

1. Does UCS-SCU support the creation of nested RAID levels (RAID 10, 50, 60)?
Answer: No, UCS-SCU does not support the creation of nested RAID levels (RAID 10, 50, 60). However, you can configure these RAID levels by logging in to the LSI controller BIOS. We do not currently certify this method.
2. Does UCS-SCU support OS installation on SAN disks?
Answer: No, UCS-SCU does not support OS installation on SAN disks.
3. Does the network test in diagnostics support cards other than Broadcom and Intel?
Answer: No, network tests for other cards are not supported currently.



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