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 3-2
Server Health, page 3-3
Server Configuration, page 3-3
Firmware Update, page 3-8
OS Install, page 3-11
Diagnostic Tools, page 3-14
Logs, page 3-16

UCS-SCU Interface

UCS-SCU is a bootable application that can be used to perform operations such as update server firmware, setup BIOS and CIMC, 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.

This section contains the following topics:

License Agreement, page 3-1
Home Page, page 3-1
Accessing Help, page 3-2

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.

Home Page

The UCS-SCU home page consists of the following:
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:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Click the Server Inventory tab on the left navigation pane.</td>
</tr>
<tr>
<td>Step 2</td>
<td>Click the Server Information tab on the left navigation pane. The server properties and server summary appear.</td>
</tr>
<tr>
<td>Step 3</td>
<td>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.</td>
</tr>
</tbody>
</table>

Table 3-1 explains the various subsystem details you can view.

<table>
<thead>
<tr>
<th>Subsystem</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>View the socket name, status, number of cores, number of threads, vendor, version, cores enabled, and signature of the CPUs on your server.</td>
</tr>
<tr>
<td>Memory</td>
<td>View the size, data width, locator, speed, and serial number of the DIMMs on your server.</td>
</tr>
</tbody>
</table>
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.

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 3-4
- RAID Configuration, page 3-4
- Supported RAID Devices, page 3-4

---

Table 3-1  Server Inventory Properties

<table>
<thead>
<tr>
<th>Subsystem</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Supplies</td>
<td>View the input power, output power (in watts), part number, version, serial number, and product name of the power supply units on your server.</td>
</tr>
<tr>
<td>Fans</td>
<td>View the status, power state, and speed of the fans on your server.</td>
</tr>
<tr>
<td>IO Devices</td>
<td>View the type, vendor, description, and MAC address/serial number of the IO devices on your server.</td>
</tr>
<tr>
<td>Storage</td>
<td>View the type, description, vendor, size, BUS information, and serial number of the storage devices on your server.</td>
</tr>
<tr>
<td>BIOS</td>
<td>View the vendor, version, physical ID, size, capacity, and boot order of the BIOS on your server.</td>
</tr>
<tr>
<td>CIMC</td>
<td>View the IP address, MAC address, firmware version, and IPMI version of the CIMC on your server.</td>
</tr>
</tbody>
</table>
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, click the up or down arrow keys to arrange the server boot order you prefer, and click **Apply**.

**Step 3**  Click **Apply**.

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

Supported RAID Devices

The RAID devices supported by UCS-SCU are the following:

- Intel I/O Controller Hub 10 RAID (ICH10R)/Embedded MegaRAID
- LSI MegaRAID SAS 8708EM2
- LSI 1064E Controller Based Mezzanine Adapter
- LSI MegaRAID 9261-8i PCIe RAID Controller
- LSI SAS3081E-R PCIe RAID Controller
- LSI 9260-8i RAID Controller
- LSI MegaRAID SAS 9260-4i
- LSI MegaRAID SAS 9240-8i

**Note**  The UCS-SCU RAID configuration utility detects the physical drivers only once when you enter this function area. Do not remove or add hard disk drivers while navigating within this function area.
Note
On C200 servers, ICH10R should be configured in SWRAID mode for RAID configuration to function. If ICH10R is configured in enhanced mode, the controller is not be visible for RAID configuration.

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.
UCS-SCU RAID Configurations

This section contains the following topics:
- Automatic Setup With Redundancy, page 3-6
- Automatic Setup Without Redundancy, page 3-6
- Create Custom or Multiple RAID Arrays, page 3-6

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:
Chapter 3      Using UCS-Server Configuration Utility

Server Configuration

Cisco UCS Server Configuration Utility, Release 2.0(1)

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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.

**Note**  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 appears.

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 list and click **Next**. The summary page displays.

Step 10  Click **Create Array**.

**Note**  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.

---

Table 3-2 explains the various disk status conditions.

**Table 3-2  Disk Status Conditions**

<table>
<thead>
<tr>
<th>Status Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online</td>
<td>The drive is already used in another array.</td>
</tr>
<tr>
<td>Global Hotspare</td>
<td>The drive will be used to repair any array in the system that had a drive</td>
</tr>
<tr>
<td></td>
<td>failure, if the failed drive is equal to, or smaller than the hot spare drive.</td>
</tr>
<tr>
<td>Unconfigured Good</td>
<td>The drive is unused or available.</td>
</tr>
<tr>
<td>Ready</td>
<td>The drive is online and operating correctly.</td>
</tr>
<tr>
<td>Offline</td>
<td>The drive is offline or absent. No actions can be performed on the drive</td>
</tr>
<tr>
<td></td>
<td>until it is back online.</td>
</tr>
</tbody>
</table>
The Firmware Update functionality allows you to locate and download the most recent BIOS and CIMC firmware update packages. This feature is supported on the C200, C210, C460 and C250 systems.

To get started with the Get System Updates feature, follow these steps:

**Step 1**
Click **Firmware Update** in the left navigation pane.

**Step 2**
Select from the following options from the firmware update toolbar:

- From www.cisco.com (recommended)—To get the most recent update package from the Cisco support website.
- From boot media—To get the most recent update package from the boot media.
- From USB disk on key—To browse a USB key for the update package.
This section contains the following topics:

Minimum Requirements for Firmware Update, page 3-9
Scenario 1: Updating firmware when your server has an Internet connection, page 3-9
Scenario 2: Updating firmware from SCU boot media, page 3-10
Scenario 3: Updating firmware From USB disk on key, page 3-10
Scenario 4: Updating firmware From Network, page 3-10

Minimum Requirements for Firmware Update

In order to support the BIOS and CIMC update, the following minimum requirements should be met:

- BIOS/CIMC version should be 1.1.1 on C200/C210.
- BIOS/CIMC version should be 1.1.1d on C250.
- CIMC 1.2.1a and BIOS 1.2.1.0 on C460.

The Get System Updates functionality is disabled if the above-mentioned criteria are not met.

Scenario 1: Updating firmware when your server has an Internet connection

If your server has an Internet connection, UCS-SCU helps you locate and download the current server system firmware package from the Cisco support website. To update the firmware on your system, follow these steps:

Step 1 Make sure your server has Internet connectivity.
Step 2 Boot the server with UCS-SCU, and accept the end user license.
Step 3 Click Firmware Update in the left navigation pane.
Step 4 Click Select From cisco.com (recommended) on the Firmware Update page. The Network Configuration page displays.
Step 5 Select the appropriate options on the Network Connection page for your server, and click Configure. A pop-up window displays a confirmation message.
Step 6 Click the Select All checkbox.
Step 7 Click Apply to start the firmware update process.

Note UCS-SCU can detect all available system firmware update packages. The most recent version is recommended.
Scenario 2: Updating firmware from SCU boot media

If your server does not have an Internet connection, you can download firmware update packages from the SCU CD. To update server firmware from the SCU boot media, follow these steps:

Step 1  Click Firmware Update in the left navigation pane.
Step 2  Click From SCU boot media on the Firmware Update page.
Step 3  Click the Select All checkbox.
Step 4  Click Apply to start the firmware update process.

Scenario 3: Updating firmware From USB disk on key

In this scenario, you can use 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 update firmware using this method, follow these steps:

Step 1  Click Firmware Update in the left navigation pane.
Step 2  Click From USB disk on key on the Firmware Update page.
Step 3  Click the Select All checkbox.
Step 4  Click Apply to start the firmware update process.

Scenario 4: Updating firmware From Network

In this scenario, you can update firmware from a network location. To update firmware using this method, follow these steps:

Step 1  Click Firmware Update in the left navigation pane.
Step 2  Click From Network on the Firmware Update page. The Network Configuration page appears.
Step 3  Enter the network configuration details and click Configure. If the network is configured, a confirmation message displays.
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. All UCS-SCU supported operating systems are organized into three groups: Windows, RHEL, and SUSE.

This section contains the following topics:

Windows Server 2003 and 2008 Operating System Installation, page 3-11
Linux Server Series Operating System Installation, page 3-13

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.

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 Update 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.

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.
- **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.

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.

UCS-SCU can load third-party drivers by selecting the checkbox—Please select if you want to add additional drivers from a different location.

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.
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.
Network Settings—Enter the network configuration settings for the onboard network adapters that will be detected by the operating system during installation.

**Note**
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.

**Step 8** 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.

This section contains the following topics:

- Quick Test, page 3-15
- Comprehensive Test, page 3-15
- Quick Tasks, page 3-15
- Tests Suite, page 3-16
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 like memory, CPU and disks. The comprehensive test provides more exhaustive diagnostics.

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 Tests.
Step 6  If you click Run Tests, the test is run and the status displays in the Tests Status area.

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.
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.

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.
Log

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 3-17
System Event Log, page 3-17
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.
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 Logs.
Step 3 Select a filter from the filter drop-down list.
Step 4 Click Go. The system event log displays.
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