C H A P T E R 3

Using UCS-Server Configuration Utility

This chapter contains the following sections:

UCS-SCU Interface

UCS-SCU is a bootable application that uses the Cisco UCS Server Configuration Utility CD to boot the server to operate functions such as update server firmware, setup BIOS and CIMC, configure RAID logical volume, and install operating systems. It is designed for one or a series of Cisco servers. You can launch the application either through the server KVM or through a virtual KVM.

This section contains the following topics:

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.

My Server Page

The My Server page is the application homepage that contains the toolbar and buttons to help you navigate the utility.

Table 3-1   UCS-SCU Main Menu Tabs

Menu Tab	Shortcut	Tasks
My Server	ALT+s	Enters the My Server page.
Get Updates	ALT+u	Enters the Server Firmware Update interface.
Configure	ALT+c	Enters the interface to configure server boot order.
RAID Configuration	ALT+a	Used to setup RAID logical volume. If the server does not have a RAID card, this menu is disabled.
OS Installation	ALT+o	Used to start unattended operating system installation process.
Save Logs	None	Save logs generated by the UCS-SCU.
Help	None	Displays a general introduction to UCS-SCU.
Exit	ALT+X	Exits the application.

My Server Information Box

On the UCS-SCU Homepage, the My Server Information Box detects and displays server system configuration information. The information displayed in this box depends on your server system hardware configuration. Click the **+** button to expand the list and **—** button to collapse it.

Primary Function Buttons

There are four primary function buttons in the UCS-SCU My Server page:

- **Get System Updates**—Has the same function as the menu Get Updates. Click to enter the Update Server System Firmware interface.

- **Configure a Server**—Has the same function as the menu Configure**.** Click to configure server boot order.

- **RAID Configuration**—Has the same function as the menu RAID Configuration. Click to enter RAID Logical Volume Setup interface.

- **OS Installation**—Has the same function as the menu OS Installation. Click to enter the OS Unattended Installation interface.

UCS-SCU Toolbar

The UCS-SCU toolbar provides you another option to access the function areas. In addition to the options in the Primary Function Buttons, the toolbar provides you with the following additional menu tabs:

- **Save Logs**—Saves the logs generated by the UCS-SCU.

- **Help**—Displays generic topics explaining UCS-SCU functionality.
- **Exit**—Logs you out of UCS-SCU.

Accessing Help

To access the Cisco UCS-SCU online help click on the Help tab to access generic help. Once you click any of the buttons on the home page, you can also access help by clicking on the **?** button.

Get System Updates

Get System Updates is a wizard that locates and downloads the latest BIOS and CIMC firmware update packages. This feature is supported on the C200, C210 and C250 systems only. It is not supported on C460.

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

Step 1   Click Get System Updates or the Get Updates menu from the UCS-SCU toolbar. The Download Updates page appears.

Step 2   Select from the following options:

- From www.cisco.com—To get the latest update package from the Cisco support website.
- From my network—To browse to a network share containing the update package.
- From USB media—To browse a USB key for the update package.

Note   Only LOM (LAN on motherboard), Intel and Broadcom cards are supported while using the first option (www.cisco.com).

Minimum Requirements for System Updates

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

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

Scnenario 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 web site. To update the firmware on your system, follow these steps:

Step 1   Make sure your server is connected to the network Internet connection.

Step 2   Boot server with UCS-SCU, and accept the end user license.

Send document comments to ucs-docfeedback@cisco.com

Step 3   Click Get Update from the UCS-SCU toolbar or click the Get System Updates button on the My Server page.

Step 4   Select From www.cisco.com (recommended) on the Download Updates page, and click **Next**.

Step 5   Set up your server network parameters to include IP address, subnet Mask, Gateway, DNS and proxy configuration on the Network Connection page, and click **Next**.

✎ **Note**   UCS-SCU can detect all available system firmware update packages. The most recent version is recommended.

Step 6   Click **View Contents** to check the firmware update package version details. Select your update package and click **Download**.

Step 7   You are prompted to select the components in the firmware package.

Step 8   Click **Apply** to start the firmware update.

✎ **Note**   Do not power off or reboot server during firmware upgrade. After the firmware upgrade process completes, click **Reboot** to restart your server.

Scnenario 2: Updating firmware From My Network

If your server does not have an Internet connection, UCS-SCU can also download firmware update packages from a Windows file server. To update server firmware from a local network, follow these steps:

Step 1   Download the Cisco server update package from http://www.cisco.com.

Step 2   The update package for UCS-SCU is a .zip file. Copy it to a Windows file server share folder.

Step 3   Boot the server with UCS-SCU, and accept the end user license.

Step 4   Click **Get Update** from the toolbar or click the **Get System Updates** on the My Server page.

Step 5   Select **From my network** from the Download Updates page, and click **Next**.

Step 6   Configure network parameters on the Network Connection page. Make sure your server is connected to a local network. Click **Next** to continue.

Step 7   Enter the network username and password that you use to login to the network file server. The network location is the file server name and share folder where the update package is stored.

Step 8   Click **Connect** and choose the system update package file in a pop-up window. UCS-SCU displays the share folder on the file server in a pop-up window for you to select the update package.

✎ **Note**   For security reasons, the file server administrator cannot be used. Use a normal account as login user.

Step 9   Select the firmware components displayed in a package file. Click Release Notes to view system update package release notes that contains server firmware version details, known issues, and new features.

Step 10   Click **Apply** to start the firmware update.

Configure a Server

You can configure your server's BIOS settings using the Configure a Server function. To enter this function area, from the UCS-SCU My Server home page, click Configure a Server or click Configure on the toolbar.

BIOS Settings - Setting Boot Order

UCS-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   From the **My Server** homepage, either click the **Configure a Server** button or click **Configure** from the UCS-SCU toolbar.

Step 2   Select the **BIOS Settings** checkbox on the What do you want to do? page and click **Next**.

Step 3   Highlight a device on the Set Boot Order page, click **Move Up** or **Move Down** to arrange the server boot order you prefer, and click **Next**.

Step 4   Click Apply on the Apply Configuration page. The Restart Server page displays.

Step 5   Click **Restart** to restart the server and apply the configuration.

The Boot Order is saved on this server. The boot device names are determined by the BIOS on your system. For example, Network boot devices might be listed as "IBA GE Slot..." for the NIC PXE boot capability.

RAID Configuration

You can enter the UCS-SCU RAID Configuration function area from the My Server page by either clicking RAID Configuration on the My Server page or Configure on the toolbar. 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 Choose RAID Controllers page. Only 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

> **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.

UCS-SCU RAID Configurations

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 above two options, follow these steps:

Step 1   From the My Server home page either click the RAID Configuration or click RAID Configuration from the toolbar.

Step 2   From the Choose RAID Controllers page, select the RAID controller you want to configure and click **Next**. The RAID Configuration page appears with three options:

- Automatic Setup with Redundancy
- Automatic Setup without Redundancy
- Create Custom or multiple RAID arrays

Step 3   Select either the first or second option and click **Create Array**. The Array Definition Complete page appears.

Step 4   Click **Finish** or **Create Another Array**.

Create Custom or Multiple RAID Arrays

When you select the option Create Custom or Multiple RAID arrays, UCS-SCU displays a window in which you can select physical hard disks.

Clear the configuration to make all the disks' statuses Unconfigured Good. Only disks with a status of Unconfigured Good can be used for RAID configuration.

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

Step 1   From the My Server home page click the RAID Configuration or click RAID Configuration from the UCS-SCU toolbar.

Step 2   From the Choose RAID Controllers page, select the RAID controller you want to configure and click **Next**. The RAID Configuration page with three options displays. The options are:

- Automatic Setup with Redundancy
- Automatic Setup without Redundancy
- Create Custom or multiple RAID arrays

Step 3   Select the third option and click Next. The Select Drives for Logical Drive page appears.

Step 4   Select the **Unconfigured Good** physical drives that you want to include in the RAID array.

Step 5   Check the Status column to verify that the drive is Unconfigured Good.

Step 6   Set the other attributes like RAID level, stripe size, read policy.

Step 7   Choose **Create Array**.

Note   If you choose to clear configuration, all the old configurations applied to the list are lost.

Note   UCS-SCU does not support 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 completely certify this method.

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. **Note:** 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.

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 the RAID level selected.

OS Installation

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 USB floppy. All UCS-SCU supported operating systems are organized into three groups: Windows, RHEL, and SUSE.

Windows Server 2003 and 2008 Operating System Installation

For unattended Windows Server 2003 and 2008 operating system installation follow these steps:

Step 1   To enter the unattended OS installation function area, click the **OS Installation** on the My Server page or click **OS Installation** on the toolbar.

Step 2   On the Choose Operating System page, select the OS to install from the Windows Server 2003/2008 series. For the Windows 2008 series, an additional option to select the edition is available.

Step 3   On the Set Installation Partition page, create a partition.

Step 4   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 new partition on disk free space, click **New**.
- To remove a partition, click **Delete**.
- To change partition size, click **Edit**.

Step 5   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 6   Enter information in the following areas:

- 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 and organization.
- License Information
  - Enter Windows server production key.
- 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.

Step 7   **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 will 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.

Step 8   **Get Updated Drivers** - This section allows you to select the source from where UCS-SCU can download server driver packages. The selected drivers are automatically installed to the operating system by UCS-SCU.

Choose one of the following options:

- **From www.cisco.com**—To get the latest drivers from the Cisco support website, select this option. Ensure that the server is only connected to one network during the download.
- **From Tools and Drivers CD**—Directly use the driver packages that are stores 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 need to manually download the latest drivers from http://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 need to manually download the latest drivers from http://www.cisco.com and copy them to a USB key.

Step 9   **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.

Step 10   Insert the OS 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 all OS install steps 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 10MB 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 **Nex**t 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.

Step 5   If your server has more than one hard disk device, edit the [Hard Disk Order] in the BIOS menu [Boot Options] to move the disks that have installed Windows 2008 server by UCS-SCU as the first Hard Disk #1.

Step 6   Return to BIOS [Boot Option] page, set Boot Option #1 to the DVD-ROM that has the Windows 2008 server DVD, set disk that have installed Windows 2008 server as Boot Option #2.

Step 7   Press **F10** to save BIOS settings. The server boots from the Windows 2008 DVD and starts installation automatically. Do not remove the USB key on this server during this process.

> **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

Perform the following steps for unattended Linux operating system installation:

Step 1   Select one of Linux servers from Red Hat or SuSE series that you want to install at the UCS-SCU Choose Operation System page.

Step 2   Create a partition on the Set Installation Partition page.

Step 3 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 4 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 5 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 6 Basic configuration - Edit the following items on the **Basic Configuration** page:

- Root Password
- Default language
- Keyboard
- Time Zone
- Additional Languages

Step 7 Package Selection - Select all Linux packages that you want to install on your server.

Step 8 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.

Step 9 Get Updated Drivers - This section allows you to select the source from which the UCS-SCU can download server driver packages. Those drivers are automatically 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 the Tools and Drivers CD**—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 need to manually download the most recent drivers from http://cisco.com and copy it to your network share.

- **From USB Disk on Key or Hard Drive**—The UCS-SCU can get the drivers stored on a USB key or USB hard disk drive. You need to manually download the most recent drivers from http://cisco.com and copy them to the USB key.

Step 10 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 11   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.

UCS-SCU Support for Third Party Drivers

UCS-SCU OS installation allows you to load third-party device drivers also. This option is useful if your server has hardware devices that require drivers other than those listed in the Tools and Drivers CD.

Any third-party drivers that need to be slipstreamed into an operating system using the UCS-SCU application must be packaged in the format described below:

- All driver files for the hardware component should be packaged into a single .zip file.
- The zip package cannot contain zip files inside. It can contain tar.gz and .img files.
- The zip file should contain a properly formatted osd.xml file in the root of the zip file.

Save Logs

The Save Logs menu option allows you to save logs that are generated by the UCS-SCU backend process. These logs are useful for troubleshooting the UCS-SCU functionality.

To access the Save Logs menu, follow these steps:

Step 1   Mount a USB key on Key (virtual or physical) or hard disk on your server.

Step 2   On the My Server home page, click the **Save Logs** from the toolbar to save the UCS-SCU logs.