



Installing an OS on a Server

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OS Installation Methods

Servers in the Cisco UCS support several operating systems, including Windows- and Linux-based operating systems. Regardless of the OS being installed, you can install it on a server using one of the following methods:

- PXE install server
- KVM dongle directly connected to the server
- KVM console in the UCS Manager GUI
- Third-party tool (not covered in this document)

PXE Install Server

A Preboot Execution Environment (PXE) install server allows clients (servers) to boot and install an OS over the network. To use this method, a PXE environment must be configured and available on a VLAN, typically a dedicated provisioning VLAN, and a client server must be set to boot from the network. When a client server boots, it sends a PXE request across the network, and the PXE install server acknowledges the request and starts a sequence of events that installs the OS on the client server.

PXE servers can use installation disks, disk images, and scripts to install the OS. Proprietary disk images can also be used install an OS and additional components or applications.

PXE installation is an efficient method for consistently installing an OS on a large number of servers. However, considering that this method requires configuring a PXE environment, if you do not already have an PXE

install server set up, it might be easier to use one of the other installation methods if you are installing an OS on only one or two servers,

KVM Dongle

The KVM dongle plugs into the front of a server and allows you to directly connect a keyboard, video monitor, mouse, and USB CD/DVD or floppy drive to the server. This direct access to the server allows you to locally install an OS.

To install an OS from a CD/DVD or floppy drive connected to the USB port, you must ensure that the CD/DVD or floppy drive is set as the first boot device in the service profile.

KVM Console

The KVM console is an interface accessible from the Cisco UCS Manager GUI that emulates a direct KVM connection. Unlike the KVM dongle, which requires you to be physically connected to the server, the KVM console allows you to connect to the server from a remote location across the network.

Instead of using CD/DVD or floppy drives directly connected to the server, the KVM console uses virtual media, which are actual disk drives or disk image files that are mapped to virtual CD/DVD or floppy drives. You can map any of the following to virtual drives:

- CD/DVD or floppy drives on your computer
- Disk image files on your computer
- CD/DVD or floppy drives on the network
- Disk image files on the network

To install an OS from a virtual CD/DVD or floppy drive, you must ensure that the virtual CD/DVD or floppy drive is set as the first boot device in the service profile.

Installing an OS using the KVM console may be slower than using the KVM dongle because the installation files must be downloaded across the network to the server. If you map a disk drive or disk image file from a network share to a virtual drive, the installation may be even slower because the installation files must be downloaded from the network to the KVM console (your computer) and then from the KVM console to the server. When using this installation method, we recommend that you have the installation media as close as possible to the system with the KVM console.

Installation Targets

The installation target is the location where you install the OS. The UCS server has two possible installation targets: a local hard drive or a SAN LUN. During the OS installation process, drivers for the local disk controller or HBA must be loaded so that the installer can find the drives. If the installer cannot find any drives, the drivers were probably not loaded. Newer OS installation disks should have the drivers; however, older OS installation disks may not have them.

If your OS installation disk does not have the needed drivers, you must provide them during the installation process. For local drives, you need LSI controller drivers, and for HBAs you need Emulex or Qlogic drivers.

Installing an OS Using a PXE Installation Server

Before You Begin

- Verify that a PXE installation environment has been configured to install the appropriate OS, and that the client server can be reached over a VLAN.
- Verify that a service profile is associated with the server onto which the OS is being installed.

Procedure

Step 1 Depending on whether your service profile is associated with a boot policy, or contains a local boot definition, perform one of the following:

- a) Set the boot order for the associated boot policy to boot from the LAN first.

```
scope org org-name
scope boot-policy policy-name
scope lan
set order 1
commit-buffer
```

For more information about configuring a boot policy, see "[Configuring a Boot Policy](#)."

- b) Set the boot order for the local boot definition to boot from the LAN first.

```
scope org org-name
scope service-profile profile-name
scope boot-definition
scope lan
set order 1
commit-buffer
```

For more information about configuring a local boot definition for a service profile, see "[Configuring a Boot Definition for a Service Profile](#)."

Step 2 Reboot the server.

```
scope server chassis-num/slot-num
reset hard-reset-immediate
commit-buffer
```

If a PXE install server is available on a VLAN, the installation process begins when the server reboots. PXE installations are typically automated and require no additional user input. Refer to the installation guide for the OS being installed to guide you through the rest of the installation process.

What to Do Next

After the OS installation is complete, reset the LAN boot order to its original setting.

Installing an OS Using the KVM Dongle

Before You Begin

- Locate the following items:
 - USB keyboard and mouse
 - Video monitor
 - USB CD/DVD drive
 - USB floppy drive (optional)
 - OS installation disk or disk image file
- Verify that a service profile is associated with the server onto which the OS is being installed.

Procedure

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- Step 1** Connect the KVM dongle to the front of the server.
- Step 2** Connect the keyboard, video monitor, mouse, USB CD/DVD drive, and optionally a USB floppy drive to the KVM console.
- Note** The USB dongle contains only two USB ports. To connect more than two USB devices to the dongle, first connect a USB hub to the dongle and then connect your USB devices to the hub.
- Step 3** Load the OS installation disk into the USB CD/DVD drive connected to the dongle.
- Step 4** Log in to the Cisco UCS Manager CLI.
- Step 5** Depending on whether your service profile is associated with a boot policy, or contains a local boot definition, perform one of the following:
- a) Set the boot order for the associated boot policy to boot from the virtual media first.


```
scope org org-name
scope boot-policy policy-name
scope virtual-media read-only
set order 1
commit-buffer
```

For more information about configuring a boot policy, see "[Configuring a Boot Policy](#)."
 - b) Set the boot order for the local boot definition to boot from the virtual media first.


```
scope org org-name
scope service-profile profile-name
scope boot-definition
scope virtual-media read-only
set order 1
commit-buffer
```

For more information about configuring a local boot definition for a service profile, see "[Configuring a Boot Definition for a Service Profile](#)."
- Step 6** Reboot the server.
- ```
scope server chassis-num/slot-num
```

```
reset hard-reset-immediate
commit-buffer
```

When the server reboots, it begins the installation process from the CD/DVD drive. Refer to the installation guide for the OS being installed to guide you through the rest of the installation process.

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### What to Do Next

After the OS installation is complete, reset the virtual media boot order to its original setting.

## Installing an OS Using the KVM Console

### Before You Begin

- Locate the OS installation disk or disk image file.
- Verify that a service profile is associated with the server onto which the OS is being installed.

### Procedure

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- Step 1** Load the OS installation disk into your CD/DVD drive, or copy the disk image files to your computer.
  - Step 2** Log in to the Cisco UCS Manager GUI.
  - Step 3** In the **Navigation** pane, click the **Servers** tab.
  - Step 4** In the **Servers** tab, expand **Service Profiles**.
  - Step 5** Expand the node for the organization that contains the service profile associated to the server on which the OS is being installed and click the service profile.  
If the system does not include multi-tenancy, expand the root node and click the service profile.
  - Step 6** In the **Work** pane, click the **General** tab.
  - Step 7** In the **Actions** area of the **General** tab, click **KVM Console**.
  - Step 8** From the KVM console, choose **Tools ► Launch Virtual Media** to open the Virtual Media Session dialog box.
  - Step 9** In the Virtual Media Session dialog box, map the virtual media using either of the following methods:
    - Check the **Mapped** checkbox for the CD/DVD drive containing the OS installation disk.
    - Click **Add Image**, navigate to and select the OS installation disk image, click **Open** to mount the disk image, and then check the **Mapped** checkbox for the mounted disk image.
- Note** You must keep the Virtual Media Session dialog box open during the OS installation process; closing the dialog box unmaps all virtual media.
- Step 10** Log in to the Cisco UCS Manager CLI.
  - Step 11** Depending on whether your service profile is associated with a boot policy, or contains a local boot definition, perform one of the following:
    - a) Set the boot order for the associated boot policy to boot from the virtual media first.

```
scope org org-name
```

```
scope boot-policy policy-name
scope virtual-media read-only
set order 1
commit-buffer
```

For more information about configuring a boot policy, see "[Configuring a Boot Policy](#)."

- b) Set the boot order for the local boot definition to boot from the virtual media first.

```
scope org org-name
scope service-profile profile-name
scope boot-definition
scope virtual-media read-only
set order 1
commit-buffer
```

For more information about configuring a local boot definition for a service profile, see "[Configuring a Boot Definition for a Service Profile](#)."

**Step 12** Reboot the server.

```
scope server chassis-num/slot-num
reset hard-reset-immediate
commit-buffer
```

When the server reboots, it begins the installation process from the virtual CD/DVD drive. Refer to the installation guide for the OS being installed to guide you through the rest of the installation process.

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### What to Do Next

After the OS installation is complete, reset the virtual media boot order to its original setting.