



## Manual Setup of Operating System Images

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## Manual Setup of Linux and ESXi Operating System Images for PXE Installation

We recommend that you set up Linux and ESXi operating system (OS) images for Cisco UCS Director Baremetal Agent (Baremetal Agent) through a PXE boot request or orchestration workflow, as described in [Adding and Configuring PXE Boot Requests](#) and [Orchestration Workflow Tasks for PXE Boot](#). However, if you prefer, you can set up these OS images manually.

## Adding a Linux Operating System Image

### Procedure

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- Step 1** Create a directory for the operating system image in the `/opt/cnsaroot/images` directory of the Baremetal Agent VM.

```
mkdir /opt/cnsaroot/images/image_name
```

This directory is used to store the operating system image files required for PXE installation.

**Note** This directory name is included in the **OS Type** drop-down list in the Setup PXE Boot task. We recommend that you make the directory name descriptive enough that you can identify the operating system of the images within it. For example, we recommend that you name the directory `RHEL6.2` or `CentOS5`.

- Step 2** Create a directory for the operating system image with the same name as the one that you created in Step 1 in the `/opt/cnsaroot/templates` directory of the Baremetal Agent VM.

```
mkdir /opt/cnsaroot/templates/new_image_name
```

This directory is used to store the Kickstart and PXE configuration template files for the operating system image.

**Step 3** Copy the `.iso` file or files for the required operating system to the `/tmp` directory of the Baremetal Agent VM.

**Step 4** Mount the `.iso` file to the `iso` directory.  
**mount -o loop /tmp/.iso\_file /mnt/iso**

**Step 5** Copy the entire contents of the `.iso` file to the `/opt/cnsaroot/images/image_name` directory that you created in Step 1.  
**cp -R /mnt/iso/\* /opt/cnsaroot/images/image\_name**

**Note** Make sure that you use the **cp -R** command to recursively copy the entire contents of the `.iso` file. This command copies the underlying directories and their contents also.

**Step 6** When the copy operation is complete, unmount the `.iso` file.  
**umount /mnt/iso**

**Step 7** If the operating system image consists of more than one `.iso` file, repeat Steps 5, 6, and 7 for each `.iso` file until the contents of all `.iso` files have been copied to the `/opt/cnsaroot/images/image_name` directory.

**Step 8** Create a `ks.cfg` file and a `pxe.cfg` file in the `/opt/cnsaroot/templates/image_name` directory that you created in Step 2.

**touch /opt/cnsaroot/templates/image\_name/ks.cfg**  
**touch /opt/cnsaroot/templates/image\_name/pxe.cfg**

**Step 9** Add the required configuration information to the `ks.cfg` and `pxe.cfg` files. For sample `ks.cfg` and `pxe.cfg` files and more information about these files, see [Sample Operating System Configuration Template Files](#).

**Step 10** Create a soft link in the `/var/www/html` directory for this operating system image.  
**ln -s /opt/cnsaroot/images/image\_name /var/www/html/**

**Step 11** (Optional) If necessary, update the `initrd.img` and `vmlinuz` files for the operating system image as follows:

- a) Copy the `initrd.img` and `vmlinuz` files from the `/opt/cnsaroot/images/image_name` directory to the `/opt/cnsaroot/` directory.
- b) Overwrite the current files in this location.

**Step 12** In Cisco UCS Director, verify that the operating system image is available from the **OS Type** drop-down list in the Setup PXE Boot task.

Wait two minutes, or for whatever duration has been set for the Baremetal Agent synchronization frequency. By default, Baremetal Agent is synchronized with Cisco UCS Director every two minutes. You can change this frequency with the `bma.sync.frequency` property in **service.properties.template** file under `/opt/infra` in the Baremetal Agent VM.

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# Adding a VMware vSphere ESXi Operating System Image

## Procedure

- Step 1** Create a directory for the operating system image data in the `/opt/cnsaroot` directory of the Baremetal Agent VM.

```
mkdir /opt/cnsaroot/images
```

This directory is used to store the operating system image files required for PXE installation.

**Note** This directory name is included in the **OS Type** drop-down list in the Setup PXE Boot task. We recommend that you make the directory name descriptive enough that you can identify the operating system of the images within it. For example, we recommend that you name the directory `ESXi5.0-update1` or `ESXi5.1`.

- Step 2** Create a directory for the operating system image with the same name as the one that you created in Step 1 in the `/opt/cnsaroot/templates` directory of the Baremetal Agent VM.

```
mkdir /opt/cnsaroot/templates/new_image_name
```

This directory is used to store the Kickstart and PXE configuration template files for the operating system image.

- Step 3** Copy the `.iso` file or files for the required operating system to the `/tmp` directory of the Baremetal Agent VM.

- Step 4** Mount the `.iso` file to the `iso` directory.

```
mount -o loop /tmp/.iso_file /mnt/iso
```

- Step 5** Copy the entire contents of the `.iso` file to the `/opt/cnsaroot/image_name` directory that you created in Step 1.

```
cp -R /mnt/iso/* /opt/cnsaroot/image_name
```

**Note** Make sure that you use the `cp -R` command to recursively copy the entire contents of the `.iso` file. This command copies the underlying directories and their contents also.

- Step 6** When the copy operation is complete, unmount the `.iso` file.

```
umount /mnt/iso
```

- Step 7** If the operating system image consists of more than one `.iso` file, repeat Steps 5, 6, and 7 for each `.iso` file until the contents of all `.iso` files have been copied to the `/opt/cnsaroot/image_name` directory.

- Step 8** Create a `ks.cfg` file and a `pxe.cfg` file in the `/opt/cnsaroot/templates/image_name` directory that you created in Step 2.

```
touch /opt/cnsaroot/templates/image_name/ks.cfg  
touch /opt/cnsaroot/templates/image_name/pxe.cfg
```

- Step 9** Add the required configuration information to the `ks.cfg` and `pxe.cfg` files. For sample `ks.cfg` and `pxe.cfg` files and more information about these files, see [Sample Operating System Configuration Template Files](#).

**Step 10** Copy the `boot.cfg` file from the `/opt/cnsaroot/image_name` directory to the `/opt/cnsaroot/templates/image_name` directory.

```
cd /opt/cnsaroot/templates/image_name/  
cp /opt/cnsaroot/image_name/boot.cfg ./
```

**Step 11** Edit the `boot.cfg` file in the `/opt/cnsaroot/templates/image_name` directory as follows:

- a) After the `title=` line, add a `prefix=/image_name/` line.
- b) Append `pxebooting ks=$PXE_KS_URL` to the end of the `kernelopt=runweasel` line.
- c) Remove the leading `/` from all modules listed in the `boot.cfg` file.
- d) Save the edited file.

**Step 12** In Cisco UCS Director, verify that the operating system image is available from the **OS Type** drop-down list in the Setup PXE Boot task.

Wait two minutes, or for whatever duration has been set for the Baremetal Agent synchronization frequency. By default, Baremetal Agent is synchronized with Cisco UCS Director every two minutes. You can change this frequency with the `bma.sync.frequency` property in `service.properties.template` file under `/opt/infra` in the Baremetal Agent VM.

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