



Adding Non-Windows OS Images

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Adding a Non-Windows OS Image in Bare Metal Agent

This procedure creates a Non-Windows OS image template in Bare Metal Agent. You must add the OS image template before you can request a PXE boot for the OS image.



Note

You cannot use this procedure to create supported Windows operating systems images. For more information about how to set up Windows OS images, see [Adding Windows OS Images](#).

Before You Begin

You must have all resources and requirements in place for each operating system image that you want to install through a Bare Metal Agent PXE boot request.

Procedure

- Step 1** Copy the OS image(s) to one of the following locations:
- An appropriate location in the Bare Metal Agent directory structure
 - An NFS mount point that you have added to Bare Metal Agent

- Step 2** Navigate to `/opt/infra` and run `isoExtractor.sh`.

Example:

The following sample `isoExtractor.sh` file shows a scenario for an OS image in the Bare Metal Agent directory structure. The image path field contains the location of the VMware image in the `/opt/image/` folder.

If you have added an NFS mount point, the image path field would contain the location of the image in the /mnt/external folder. For example, if you want to create a CentOS image that is located in a CentOS folder in an NFS mount point, the image path field would contain /mnt/external/CentOS/image.iso.

```
root@localhost infra]# pwd
/opt/infra
root@localhost infra]# ./isoExtractor.sh
Please select the OS Type

    1) ESXi 4.1
    2) ESXi 5.0
    3) ESXi 5.1
    4) ESXi 5.5
    5) ESXi 6.0
    6) ESXi 6.5
    7) ESXi 5.5 VSAN
    8) ESXi 6.0 VSAN
    9) CentOS or RHEL [Pre 7.0]
   10) CentOS 7.x or RHEL 7.x
   11) SUSE Linux
   12) Other

SELECT> 4
Image path : /opt/image/VMWare-VMvisor-Installer-5.5.0-1111111.x86_64.iso

OS catalog name : BMA-184-ESXi5.5
Input file being used: /opt/images/VMware-VMvisor-Installer-5.5.0-1111111.x86_64.iso
OS catalog name being used: BMA-184-ESXi5.5
Mounting the image....
Preparing the image....
Creating catalog directory /opt/cnsaroot/templates/BMA-184-ESXi5.5
Creating configuration files for ESXi 5.5 ...
Copied the image and created the configuration files...
is /opt/cnsaroot/images/
BMA-184-ESXi5.5 centos60-small
is /opt/cnsaroot/templates/
BMA-184-ESXi5.5 CentOS60 Win2k12R2x64 Win2k12x64 Win2k8R2x64
is /opt/cnsaroot/templates/BMA-184-ESXi5.5
boot.cfg ks.cfg pxe.cfg
[root@localhost infra]#
```

- Step 3** When prompted, choose the image category and provide the image location and catalog name.
- Step 4** After the script execution is completed, navigate to /opt/cnsaroot/images/*catalogname* and confirm that the image is available in that location.
- Step 5** Navigate to /opt/cnsaroot/templates/*catalogname* and confirm that the PXE configuration templates are available in that location.
- Step 6** To verify that the OS image is created, do the following:
- In Cisco UCS Director, choose **Physical > Compute**.
 - In the left pane, navigate to the pod that contains the Bare Metal Agent.
 - In the right pane, click **PXE Boot Requests**.
 - Click **Add PXE Boot Request** and verify that the OS image is included in the **OS Type** drop-down list.

Manually Adding a Linux OS Image in Bare Metal Agent

Procedure

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- Step 1** Create a directory for the operating system image in the `/opt/cnsaroot/images` directory of the Bare Metal 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 Bare Metal 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 Bare Metal 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 Bare Metal Agent synchronization frequency. By default, Bare Metal 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 Bare Metal Agent VM.

## Manually Adding a VMware vSphere ESXi OS Image in Bare Metal Agent

### Procedure

**Step 1** Create a directory for the operating system image data in the `/opt/cnsaroot` directory of the Bare Metal 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 Bare Metal 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 Bare Metal 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:
- After the `title=` line, add a `prefix=/image_name/` line.
 - Append `pxebooting ks=$PXE_KS_URL` to the end of the `kernelopt=runweasel` line.
 - Remove the leading `/` from all modules listed in the `boot.cfg` file.
 - 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 Bare Metal Agent synchronization frequency. By default, Bare Metal 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 Bare Metal Agent VM.
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