



Installation of Cisco UCS Director Express for Big Data Bare Metal Agent

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Installing Cisco UCS Director Express for Big Data Bare Metal Agent on VMware vSphere

Before You Begin

- You must have system administrator privileges for VMware vSphere or vCenter.
- If you want to use a static IP address rather than DHCP, you must know the following information:
 - IP address
 - Subnet mask

- Default gateway

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- Step 1** On the Cisco.com download site for Cisco UCS Director, download Cisco UCS Director Bare Metal Agent and unzip the OVF file.
- Step 2** Log in to VMware vSphere Client.
- Step 3** In the **Navigation** pane, click the vSphere host on which you want to deploy Cisco UCS Director Express for Big Data Bare Metal Agent.
- Step 4** Choose **File > Deploy OVF Template**.
- Step 5** In the **Source** screen of the **Deploy OVF Template** window, do one of the following to choose your OVF source location and then click **Next**:
- If the OVF file is stored on your local computer, browse to the location, choose the file, and click **Open**.
 - If the OVF file is stored on a server on your local area network, enter the location of the file including the IP address or fully qualified domain name of the server.
- Step 6** In the **OVF Template Details** screen, verify the details and click **Next**.
- Step 7** In the **End User License Agreement** screen, review the license agreement and click **Accept**.
- Step 8** In the **Name and Location** screen, do the following:
- In the **Name** field, enter a unique name for the VM.
 - In the **Inventory Location** area, choose the location where you want the VM to reside.
 - Click **Next**.
- Step 9** In the **Storage** screen, choose the storage location for the VM and click **Next**.
- Step 10** In the **Disk Format** screen, click **Next** to accept the default radio button for **Thick Provision (Lazy Zeroed)** format.
- Step 11** In the **Network Mapping** screen, choose the network for the VM and click **Next**.
- Step 12** In the **Properties** screen, do the following:
- In the **BMA Root User Password** field, enter the password that you want to use as the root password.
 - Configure the IP addresses for both the NICs (eth0 and eth1) that you want to assign, as follows:
 - To use DHCP to assign the IP addresses, leave the default of 0.0.0.0 in the IP address fields.
 - To use static IP addresses, enter the desired IP addresses in the IP address fields. If you only want to configure one NIC, only complete one set of IP addresses and leave the second set at the default.
 - Click **Next**.
- Step 13** In the **Ready to Complete** screen, verify the settings and click **Finish**.
A message appears to indicate that Cisco UCS Director Express for Big Data Bare Metal Agent is being deployed.
- Step 14** Log in to the Cisco UCS Director Express for Big Data Bare Metal Agent server with root privileges, and check if you are able to ping the Cisco UCS Director Express for Big Data Bare Metal Agent server.
- Step 15** In the **Navigation** pane, right-click the Cisco UCS Director Express for Big Data Bare Metal Agent server and choose **Edit Settings**.
- Choose the **Resources** tab.
 - In the **Resource Allocation** window, set CPU and Memory **Reservation** settings to the maximum.

c) Click **OK**.

Step 16 Power on the VM.

NTP Server Configuration on Cisco UCS Director Express for Big Data Bare Metal Agent

You can configure Cisco UCS Director Express for Big Data Bare Metal Agent to have its clock synchronized to an external NTP server. This ensures that the correct calendar time is maintained on the Bare Metal Agent.

Ensure that you synchronize Cisco UCS Director Express for Big Data and Cisco UCS Director Express for Big Data Bare Metal Agent before you deploy any Hadoop cluster. It is recommended that you also synchronize Cisco UCS Manager and Cisco UCS Director Express for Big Data on the configured NTP server.

Follow the steps to locate the `ntp_server_config.sh`:

- Locate `/opt/cnsaroot/bigdata_templates/ntp_server_config.sh`
- Add execute permissions (`chmod+x ntp_server_config.sh`)
- Execute (`./ntp_server_config.sh <ntp_server_ip or hostname>`) on the Cisco UCS Director Express for Big Data Bare Metal Agent server.

Adding Oracle JDK Software Versions to Bare Metal Agent

You can upload Oracle JDK software and use Oracle JDK for all Hadoop distributions (Cloudera, MapR, and Hortonworks) through an instant Hadoop cluster and customized Hadoop cluster creation actions. You can also add new nodes to the existing cluster and support upgrading existing clusters.

Step 1 Log in to the Cisco UCS Director Bare Metal Agent server.

Step 2 Create a JDK folder in `/opt/cnsaroot/bd-sw-rep/`.
For example, create a JDK folder in `/opt/cnsaroot/bd-sw-rep/JDK` in the Bare Metal Agent.

Step 3 Navigate to **Solutions > Big Data > Settings** and click the **Software Catalogs** tab to create JDK software version folder names for each version.

Step 4 Copy JDK files in `.rpm` or `.gz` format to the respective version folders.

Step 5 On the menu bar, choose **Administration > Integration** to track software uploads.

Step 6 Click the **Change Record** tab to track the software upload in progress and verify if completed, failed, or timeout.

Installation of User-Defined Software Post Hadoop Cluster Creation

Cisco UCS Director Express for Big Data provides an option to add user-defined installation packages (RPMs) post Hadoop cluster creation specific to a version. In Cisco UCS Director Express for Big Data, you cannot install more Hadoop related software other than what is required for the selected type of Hadoop distribution when creating an instant Hadoop cluster or customizing a Hadoop cluster.

To install user-defined Hadoop related software, you can specify a list of RPMs in the HadoopDistributionRPM.txt file. This modifiable list defines the required packages for each version of a Hadoop distribution. You can locate the HadoopDistributionRPM.txt here: `/opt/cnsaroot/bigdata_templates/common_templates` in the Cisco UCS Director Express for Big Data Bare Metal Agent server.

For example, you can specify a list of RPMs in the HadoopDistributionRPM.txt file for MapR-5.0.0:

- `mapr-v5.0.0GA.rpm.tgz`
- `mapr-ecosystem-5.x-20150709.rpm.tgz`
- `mapr-whirr-0.8.1.18380-GA.noarch.rpm`

Configuring the Network Interface using Shelladmin

This procedure is optional.

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- Step 1** Log in to the Cisco UCS Director Express for Big Data VM console with the following credentials:
- a) User—`shelladmin`
 - b) Password—`changeme`
- If you have already logged into the shelladmin and changed the default password, use your new password instead. After you have logged in, you can choose `Change shelladmin password` to change the default password.
- Step 2** Choose `Configure Network Interface`.
- Step 3** At the `Do you want to Configure DHCP/STATIC IP [D/S]` prompt, enter one of the following choices:
- If DHCP is enabled, enter `D` (IP addresses are assigned automatically)
 - To configure static IP, enter `S`, and then choose the interface you want to configure at the next prompt followed by the option to select IPv4 or IPv6. This is followed by the confirmation of the interface selected and the version of IP for which you select `Y` to continue. Then enter the following details:
 - IP address
 - Netmask
 - Gateway
 - DNS Server 1

- DNS Server 2

Step 4 Confirm when prompted.

Configuring the DHCP Server for a Bare Metal Agent Account



Note For a multi-home DHCP configuration, use this procedure to configure the first subnet for the DHCP server. For the remaining subnets, you must manually edit the DHCP configuration file (`/etc/dhcpd.conf`).

Before You Begin

To provide required DHCP services, ensure that at least one DHCP server is located in the same PXE VLAN as Bare Metal Agent. Configure the DHCP server with an appropriate IP address range. The DHCP server, together with the TFTP server, is used to communicate with a PXE server.

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- Step 1** Log in to the Cisco UCS Director Express for Big Data server with the following credentials:
- a) User—admin
 - b) Password—admin
- Step 2** On the menu bar, choose **Administration > Physical Accounts**.
- Step 3** Click the **Bare Metal Agents** tab.
- Step 4** Click the row for the Bare Metal Agent account for which you want to configure the DHCP server.
- Step 5** Click **Service Status** to verify that services for the Bare Metal Agent account are stopped.
- Step 6** Click **Configure DHCP**.
- Step 7** In the **Configure DHCP** dialog box, complete the following fields and click **Submit**.
- **DHCP Subnet**
 - **DHCP Netmask**
 - **DHCP Start IP**
 - **DHCP End IP**
 - **Router IP Address**
- The DHCP IP address assignments are updated, and the DHCP service is restarted.
- Step 8** Click the row for the Bare Metal Agent account and click **Start Services**.
- Step 9** After the services have started, do the following:
- Verify that the status of the account in the **Status** column is Active.

- Verify that the **Enabled Services** column shows that all services are running. If this status indicates that one or more services are stopped, verify the configuration of your DHCP server and try again.
- Click **Service Status** to verify that the status of all expected services is up:
 - Network Services status in the Bare Metal Agent appliance
 - Database connectivity status from the Bare Metal Agent appliance

What to Do Next

Set up PXE boot requests.

Setup and Configuration for PXE Boot Requests

You can use Cisco UCS Director Express for Big Data Bare Metal Agent (Bare Metal Agent) to create and send a request through the DHCP server for a PXE boot for a specified operating system (OS).

Before you can create and send a PXE boot request, the OS image that you want to use in a given PXE boot request must be configured correctly and be available in Bare Metal Agent. If the OS image that you want to PXE boot is not listed as an available OS type, you must first create the OS image template in Bare Metal Agent.



Note

Although you can perform all the OS image setup procedures manually, we recommend that you use Bare Metal Agent to set up your OS images.

Adding a New Red Hat Version for Hadoop Cluster

For more information on uploading supported Red Hat Enterprise Linux versions, see Chapter 12, Managing Hadoop and Splunk Clusters in *Cisco UCS Director Express for Big Data Management Guide*.

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- Step 1** On the menu bar, choose **Solutions > Big Data > Settings**.
 - Step 2** Click the **Software Catalogs** tab.
 - Step 3** Click **Add**.
 - Step 4** Click **Upload**.
 - Step 5** Choose the target Cisco UCS Director Express for Big Data Bare Metal Agent from the **Target BMA** drop-down list.
 - Step 6** Check the **Restart BMA Services** check box to restart Cisco UCS Director Express for Big Data Bare Metal Agent after uploading the required files.
 - Step 7** To verify that the new Red Hat version (operating system software) is available in the Cisco UCS Director Express for Big Data server, perform the following:
 - a) Log in to the Cisco UCS Director Express for Big Data user interface.

- b) On the menu bar, choose **Administration > Physical Accounts**.
- c) Click the **Bare Metal Agents** tab.

You can find the new Red Hat version listed in the **Image Catalogs** column of the **Bare Metal Agents** report.

New RHEL Version

Red Hat Enterprise Linux 7.2

Download the following file:

- rhel-server-7.2-x86_64-dvd.iso from [Red Hat Enterprise Linux](#)

Upgrading Bare Metal Agent to Release 6.0

Before You Begin

- Upgrade Cisco UCS Director to Release 6.0.

If your system is running versions prior to release 5.4, then you must first migrate to Release 5.4, then upgrade to Release 5.5 and then upgrade to Release 6.0. For information on upgrading to release 5.4, see the *Cisco UCS Director Release 5.4 Upgrade Guide* available at: <http://www.cisco.com/c/en/us/support/servers-unified-computing/ucs-director/products-installation-guides-list.html>

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- Step 1** Download the Bare Metal Agent, Release 6.0 patch to the existing Bare Metal Agent.
 - Step 2** Log in to the Bare Metal Agent console through PuTTY or another Secure Shell (SSH) client, using the default root credentials shown or the root credentials for your system.
Username: root
Password: pxeboot
 - Step 3** Navigate to the `/opt/infra` directory and run **StopInfraAll.sh** to stop the services.
 - Step 4** Unzip the patch.
 - Step 5** Navigate to the directory of the unzipped file.
`cd ucsd_bma_patch_6_0_0_0`
 - Step 6** Run **./applyPatch.sh** to apply the patch to Bare Metal Agent.
 - Step 7** Wait for the installation to complete.
 - Step 8** Navigate to the `/opt/infra` directory.
 - Step 9** Run **./showBMAVersion.sh** to verify that you have the correct version of Bare Metal Agent.
 - Step 10** Run **startInfraAll.sh** to start the BMA services.
 - Step 11** Run **statusInfra.sh** to check the status of the BMA services.
 - Step 12** Log in to Cisco UCS Director, Release 6.0, and choose **Administration > Physical Accounts > Bare Metal Agents**.
 - Step 13** Choose the account for the Bare Metal Agent that you have upgraded.

If your system has more than one instance of Bare Metal Agent, you can identify the correct account by the IP address.

Step 14

Confirm that the Bare Metal Agent account is reachable from Cisco UCS Director and then stop and start the services for that account.
