



# Upgrading to Cisco UCS Director Express for Big Data Baremetal Agent, Release 1.1

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## Upgrading to Cisco UCS Director Express for Big Data Baremetal Agent, Release 1.1

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- Step 1** Log in to the Cisco UCS Director Express for Big Data Baremetal Agent (BMA) server using the default credentials (root/pxeboot). Copy the UCSExpress\_BMA\_5.2\_Big\_Data\_1.1\_Upgrade\_Package.zip (BMA upgrade package) file and extract the BMA package file. Change directory to scripts/bin, add execute permissions to copyfiles.sh (chmod+x copyfiles.sh), and execute the copyfiles.sh (./copyfiles.sh).
- Step 2** Copy Red Hat ISO contents into /opt/cnsaroot/images/RHEL6.x, a directory that already exists in the Cisco UCS Director Express for Big Data Baremetal Agent server.
- Step 3** Copy Red Hat specific image files such as TRANS.TBL, boot.msg, initrd.img, isolinux.cfg, splash.jpg, vmlinuz, boot.cat, grub.conf, isolinux.bin, memtest, vesamenu.c32 that can be located in the Red Hat ISO directory /opt/cnsaroot/images/RHEL6.x/isolinux/ into /opt/cnsaroot/RHEL6.x.
- Step 4** Add Baremetal Agent account to Cisco UCS Director Express for Big Data, as described in [Configuring Cisco UCS Director Express for Big Data Baremetal Agent](#).
- Step 5** Configure DHCP, as described in [Configuring the DHCP Server for a Baremetal Agent Account](#), on page 6
- Step 6** Download Cloudera, MapR, Hortonworks software RPMS to the Cisco UCS Director Express for Big Data server, as listed in [Cloudera, MapR, and Hortonworks RPMs on Cisco UCS Director Express for Big Data Baremetal Agent](#), on page 2.
- Step 7** Initiate Baremetal Agent services by clicking **Start Services**.  
If the DHCP sever is not correctly configured, the status displayed in the Enabled Services column will indicate that services are not enabled.  
BMA status will become "active" once the network services are started correctly.
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## What to Do Next

Apply licenses to Hadoop distributions.

- For Cloudera, download the ClouderaEnterpriseLicense.lic file to `/opt/cnsaroot/bd-sw-rep/cloudera-5.0.1` directory of the Baremetal Agent server.
- For MapR, copy the license text in the license.txt file from MapR to the `/opt/cnsaroot/bd-sw-rep/MapR_RPMS` directory of the Baremetal Agent server.

# Cloudera, MapR, and Hortonworks RPMs on Cisco UCS Director Express for Big Data Baremetal Agent

## Common Packages for Cloudera, MapR, and Hortonworks

Download the following common packages to `/opt/cnsaroot/bd-sw-rep/`:

- pssh-2.3.1.tar.gz from <https://pypi.python.org/packages/source/p/pssh>
- clusterhell-1.6-1.el6.noarch.rpm from [http://dl.fedoraproject.org/pub/epel/6/x86\\_64](http://dl.fedoraproject.org/pub/epel/6/x86_64)

## Common Packages for Cloudera

Download the following packages to `/opt/cnsaroot/bd-sw-rep/cloudera-5.X.X`:

- ClouderaEnterpriseLicense.lic— Get the license keys from Cloudera
- userrpmlist.txt—For additional packages list
- catalog.properties—Provides the label name for the Cloudera version (x represents the Cloudera version on the Cisco UCS Director Express for Big Data Baremetal Agent)
- mysql-connector-java-5.1.26.tar.gz from <http://cdn.mysql.com/archives/mysql-connector-java-5.1>

## Cloudera 5.2.0 Packages

Download the following packages to `/opt/cnsaroot/bd-sw-rep/cloudera-5.2.0`:

- cm5.2.0-centos6.tar.gz from <http://archive.cloudera.com/cm5/repo-as-tarball/5.2.0>
- cdh5.2.0-centos6.tar.gz from <http://archive.cloudera.com/cdh5/repo-as-tarball/5.2.0>

## Cloudera 5.2.1 Packages

Download the following packages to `/opt/cnsaroot/bd-sw-rep/cloudera-5.2.1`:

- cm5.2.1-centos6.tar.gz from <http://archive.cloudera.com/cm5/repo-as-tarball/5.2.1>
- cdh5.2.1-centos6.tar.gz from <http://archive.cloudera.com/cdh5/repo-as-tarball/5.2.1>

### Cloudera 5.3.0 Packages

Download the following packages to `/opt/cnsaroot/bd-sw-rep/cloudera-5.3.0`:

- `cm5.3.0-centos6.tar.gz` from <http://archive.cloudera.com/cm5/repo-as-tarball/5.3.0>
- `cdh5.3.0-centos6.tar.gz` from <http://archive.cloudera.com/cdh5/repo-as-tarball/5.3.0>

### Common Packages for MapR 4.0.x

Download the following common packages to `/opt/cnsaroot/bd-sw-rep/MapR-4.0.X`:

- `libgenders-devel-1.14-2.el6.rf.x86_64.rpm` from <http://pkgs.repoforge.org/libgenders/>
- `libgenders-1.14-2.el6.rf.x86_64.rpm` from <http://pkgs.repoforge.org/libgenders/>
- `ext-2.2.zip` from <http://dev.sencha.com/depoy/ext-2.2.zip>
- `sshpass-1.05-1.el6.x86_64.rpm` from [ftp://ftp.univie.ac.at/systems/linux/fedora/epel/6/x86\\_64](ftp://ftp.univie.ac.at/systems/linux/fedora/epel/6/x86_64)
- `soci-mysql-3.2.2-2.el6.x86_64.rpm` from [http://ftp.univie.ac.at/systems/linux/fedora/epel/6/x86\\_64](http://ftp.univie.ac.at/systems/linux/fedora/epel/6/x86_64)
- `soci-3.2.2-2.el6.x86_64.rpm` from [http://ftp.univie.ac.at/systems/linux/fedora/epel/6/x86\\_64](http://ftp.univie.ac.at/systems/linux/fedora/epel/6/x86_64)
- `pdsh-2.27-1.el6.rf.x86_64.rpm` from <http://pkgs.repoforge.org/pdsh>
- `mapr-whirr-0.7.0.16780-1.noarch.rpm` from <http://archive.mapr.com/releases/ecosystem-all/redhat>, or use the latest file `mapr-whirr-0.8.1.18380-GA.noarch.rpm` from <http://archive.mapr.com/releases/ecosystem-all/redhat>
- `mapr-drill-0.7.0.29434-1.noarch.rpm` from <http://archive.mapr.com/releases/ecosystem/redhat> or use `mapr-drill-0.8.0.31168-1.noarch.rpm` from <http://package.mapr.com/releases/ecosystem-4.x/redhat>
- `mapr-ecosystem-20150309.rpm.tgz` from <http://package.mapr.com/releases/ecosystem-all/redhat>
- `catalog.properties`—Provides the label name for the MapR version (x represents the MapR version on the Cisco UCS Director Express for Big Data Baremetal Agent)

### MapR 4.0.1 Packages

Download the following packages to `/opt/cnsaroot/bd-sw-rep/MapR-4.0.1`:

- `mapr-v4.0.1GA.rpm.tgz` from <http://archive.mapr.com/releases/v4.0.1/redhat>

### MapR 4.0.2 Packages

Download the following packages to `/opt/cnsaroot/bd-sw-rep/MapR-4.0.2`:

- `mapr-v4.0.2GA.rpm.tgz` from <http://archive.mapr.com/releases/v4.0.2/redhat>

### Common Packages for MapR 4.1.x

Download the following packages to `/opt/cnsaroot/bd-sw-rep/MapR-4.1.0`

- `libgenders-devel-1.14-2.el6.rf.x86_64.rpm` from <http://pkgs.repoforge.org/libgenders/>
- `libgenders-1.14-2.el6.rf.x86_64.rpm` from <http://pkgs.repoforge.org/libgenders/>
- `ext-2.2.zip` from <http://dev.sencha.com/depoy/ext-2.2.zip>

- sshpass-1.05-1.el6.x86\_64.rpm from [http://ftp.pbone.net/mirror/download.fedora.redhat.com/pub/fedora/epel/6/x86\\_64](http://ftp.pbone.net/mirror/download.fedora.redhat.com/pub/fedora/epel/6/x86_64)
- soci-mysql-3.2.2-2.el6.x86\_64.rpm from [http://ftp.pbone.net/mirror/download.fedora.redhat.com/pub/fedora/epel/6/x86\\_64](http://ftp.pbone.net/mirror/download.fedora.redhat.com/pub/fedora/epel/6/x86_64)
- soci-3.2.2-2.el6.x86\_64.rpm from [http://ftp.pbone.net/mirror/download.fedora.redhat.com/pub/fedora/epel/6/x86\\_64](http://ftp.pbone.net/mirror/download.fedora.redhat.com/pub/fedora/epel/6/x86_64)
- pdsh-2.27-1.el6.rf.x86\_64.rpm from <http://pkgs.repoforge.org/pdsh>
- mapr-whirr-0.8.1.18380-GA.noarch.rpm from <http://package.mapr.com/releases/ecosystem-all/redhat>
- mapr-ecosystem-4.x-20150610.rpm.tgz from <http://package.mapr.com/releases/ecosystem-4.x/redhat>

### MapR 4.1.0 Packages

Download the following packages to /opt/cnsaroot/bd-sw-rep/MapR-4.1.0

- mapr-v4.1.0GA.rpm.tgz from <http://package.mapr.com/releases/v4.1.0/redhat>

### Common Package for Hortonworks

Download the following common package to /opt/cnsaroot/bd-sw-rep/Hortonworks-2.X:

- openssl-1.0.1e-30.el6.x86\_64.rpm from [ftp://rpmfind.net/linux/centos/6.6/os/x86\\_64/Packages](ftp://rpmfind.net/linux/centos/6.6/os/x86_64/Packages)
- catalog.properties—Provides the label name for the Hortonworks version (x represents the Hortonworks version on the Cisco UCS Director Express for Big Data Baremetal Agent)

### Hortonworks 2.1 Packages

Download the following packages to /opt/cnsaroot/bd-sw-rep/Hortonworks-2.1:

- HDP-2.1.5.0-centos6-rpm.tar.gz from <http://public-repo-1.hortonworks.com/HDP/centos6>
- ambari-1.6.1-centos6.tar.gz from <http://public-repo-1.hortonworks.com/ambari/centos6>
- HDP-UTILS-1.1.0.17-centos6.tar.gz from <http://public-repo-1.hortonworks.com/HDP-UTILS-1.1.0.17/repos/centos6>
- ambari.repo from <http://public-repo-1.hortonworks.com/ambari/centos6/1.x/updates/1.6.1>

### Hortonworks 2.2 Packages

Download the following packages to /opt/cnsaroot/bd-sw-rep/Hortonworks-2.2:

- HDP-2.2.0.0-centos6-rpm.tar.gz from <http://public-repo-1.hortonworks.com/HDP/centos6>
- ambari-1.7.0-centos6.tar.gz from <http://public-repo-1.hortonworks.com/ambari/centos6>
- HDP-UTILS-1.1.0.20-centos6.tar.gz from <http://public-repo-1.hortonworks.com/HDP-UTILS-1.1.0.20/repos/centos6>
- ambari.repo from <http://public-repo-1.hortonworks.com/ambari/centos6/1.x/updates/1.7.0>

## NTP Server Configuration on Cisco UCS Director Express for Big Data Baremetal Agent

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

Ensure that you synchronize Cisco UCS Director Express for Big Data and Cisco UCS Director Express for Big Data Baremetal 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.

When you extract the BMA upgrade package (UCSDEExpress\_BMA\_5.2\_Big\_Data\_1.1\_Upgrade\_Package.zip) file, locate the `ntp_server_config.sh` file, add execute permissions (`chmod+x ntp_server_config.sh`), and execute (`./ntp_server_config.sh <ntp_server_ip or hostname>`) on the Cisco UCS Director Express for Big Data Baremetal Agent server.

## 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 distribution specific to a version. In Cisco UCS Director Express for Big Data, you cannot install additional 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 mention a list of RPMs in the `userrpmlist.txt` file, which can be located at `/var/www/html/<hadoop_distribution_version>/userrpmlist.txt` in the Baremetal Agent server. For example, `/var/www/html/Cloudera_5.0.1/userrpmlist.txt`.

## Adding a New Red Hat Version for Hadoop Cluster

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- Step 1** Create a new directory RHEL x.x to contain the new Red Hat version operating system software under `/opt/cnsaroot/images`.
  - Step 2** Create a symbolic link to the newly created directory `/opt/cnsaroot/images/RHELx.x` at `/var/www/html` (`ln -s /opt/cnsaroot/images/RHELx.x /var/www/html`).
  - Step 3** Copy Red Hat ISO contents into `/opt/cnsaroot/images/RHELx.x`.
  - Step 4** Copy Red Hat specific image files such as `TRANS.TBL`, `boot.msg`, `initrd.img`, `isolinux.cfg`, `splash.jpg`, `vmlinuz`, `boot.cat`, `grub.conf`, `isolinux.bin`, `memtest`, `vesamenu.c32` that can be located in the Red Hat ISO directory `/opt/cnsaroot/images/RHELx.x/isolinux/` into `/opt/cnsaroot/RHELx.x`.
  - Step 5** Copy boot templates from `/opt/cnsaroot/templates/RHEL6.4/*` to your required Red Hat version `/opt/cnsaroot/templates/RHELx.x/..`. Modify `ks.cfg` template of RHEL 6.4 to point to RHELx.x.
  - Step 6** 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.

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## Configuring the Network Interface using Shelladmin

This procedure is optional.

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- Step 1** Log into the Cisco UCS Director Express for Big Data VM console with the following credentials:
- User—shelladmin
  - 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 static IP [y/n]` 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 will be 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.
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## Configuring the DHCP Server for a Baremetal Agent Account



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**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`).

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### Before You Begin

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

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- Step 1** On the menu bar, choose **Administration > Physical Accounts**.
- Step 2** Click the **Bare Metal Agents** tab.
- Step 3** Click the row for the Baremetal Agent account for which you want to configure the DHCP server.
- Step 4** Click **Service Status** to verify that services for the Baremetal Agent account are stopped.
- Step 5** Click **Configure DHCP**.
- Step 6** 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 7** Click the row for the Baremetal Agent account and click **Start Services**.
- Step 8** 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 are up.
    - Network Services status in the Baremetal Agent appliance
    - Database connectivity status from the Baremetal Agent appliance

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### What to Do Next

Set up PXE boot requests.

