

General: How do I upgrade to Bright 8.2?

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Upgrades to Bright 8.2 are now supported for the following Linux distributions and Bright versions.

Supported Linux distributions and Bright versions

An upgrade to **Bright 8.2** from Bright **8.0** and **8.1** is supported for the following Linux distributions:

- RedHat Enterprise Linux 7.5 (RHEL7u5)
- RedHat Enterprise Linux 7.6 (RHEL7u6)
- CentOS Linux 7.5 (CENTOS7u5)
- CentOS Linux 7.6 (CENTOS7u6)
- SUSE Linux Enterprise Server 12 Service Pack 3 (SLES12sp3)
- RedHat Enterprise Linux 6.10 (RHEL6u10)
- CentOS Linux 6.10 (CENTOS6u10)
- Ubuntu 16.04 (UBUNTU1604)

An upgrade to **Bright 8.2** from Bright **7.0** is supported for the following Linux distributions:

- RedHat Enterprise Linux 6.10 (RHEL6u10)
- CentOS Linux 6.10 (CENTOS6u10)

Prerequisites

- Extra base distribution RPMs will be installed by yum/zypper in order to resolve dependencies that might arise as a result of the upgrade. Hence the base distribution repositories must be reachable. This means that the clusters that run the Enterprise Linux distributions (RHEL and SLES) must be subscribed to the appropriate software channels.
- Packages in /cm/shared are upgraded, but the administrator should be aware of the following:

- If /cm/shared is installed in the local partition, then the packages are upgraded. This may not be desirable for users that wish to retain the old behavior.
- If /cm/shared is mounted from a separate partition, then unmounting it will prevent upgrades to the mounted partition, but will allow new packages to be installed in /cm/shared within the local partition. This may be desirable for the administrator, who can later copy over updates from the local /cm/shared to the remote /cm/shared manually according to site-specific requirements.

Since unmounting of mounted /cm/shared is carried out by default, a local /cm/shared will have files from any packages installed there upgraded. According to the yum database, the system is then upgraded even though the files are misplaced in the local partition. However, the newer packages can only be expected to work properly if their associated files are copied over from the local partition to the remote partition

- If /cm/shared will be unmounted during the upgrade (i.e. if an in-place upgrade is not being performed), then please make sure that the contents of the local /cm/shared are in sync with the remote copy.

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• IMPORTANT:

- Hadoop deployments must be removed (using `cm-hadoop-setup`), before proceeding with the upgrade. Please contact [Bright Support](http://www.brightcomputing.com/support) (<http://www.brightcomputing.com/support>) for further assistance.
- Bright OpenStack deployments must be removed (using `cm-openstack-setup`). All older Bright OpenStack packages and dependencies must be removed prior to starting the upgrade. Please contact [Bright Support](#) for further assistance.
 - Kubernetes deployments from older Bright versions must be removed before upgrading and re-deployed after upgrade.
- Configurations of cluster extension to the cloud must be removed before upgrading and re-deployed after upgrade.
- Integration with the Torque workload manager is not supported in Bright 8.2. It is recommended to switch to a supported workload manager. If a cluster running Torque is upgraded, then Bright integration will stop working.

Important note about package upgrades

The upgrade process will not only upgrade CMDaemon and its dependencies, but it will also upgrade other packages. This means that old packages from the 8.0 or earlier will not be available from the repositories of the latest version of Bright (in this case 8.2 repositories). In some cases, this will require recompiling the user applications to use the upgraded versions of the compilers and the libraries. Also, the configurations of the old packages will not be copied automatically to the new packages, which means that the administrator will have to adjust the configuration from the old packages to suit the new packages manually.

Important note about monitoring *data* and *configuration*

The monitoring backend has changed considerably starting from Bright 8.0. Hence it is not possible to migrate the older monitoring configuration and data to the new monitoring system. **Upgrades from 8.0/8.1, over to 8.2, are not affected.**

The following are to be expected after upgrading a cluster that is running Bright versions **7.3 and lower**:

Monitoring data: All monitoring data from prior to the upgrade are lost after the upgrade to Bright 8.2

Monitoring configuration: The monitoring configuration is reset to a default Bright 8.2 configuration. That is, similar to what is configured on a freshly-installed Bright 8.2 cluster. This means that all old custom monitoring configurations are lost.

Important note about GPU integration

Starting from Bright 8.0, **Nvidia DCGM** is used for managing and monitoring Nvidia GPUs. Only **Tesla** GPUs (**K80** and later) are supported by DCGM. After upgrading to Bright 8.1, it is still possible to use Bright to obtain metrics from older GPUs by following the article [How to collect metrics from older GPUs using NVML](#), however configuring these GPUs from Bright is no longer possible.

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Enable the upgrade repo and install the cm-upgrade package

Install the Bright Cluster Manager upgrade RPM/DEB package on the Bright head node(s) as shown below:

1. Add and enable the upgrade repo

On RHEL/SLES: Create a repo file with the following contents:

```
[cm-upgrade-82]

name=Bright 8.2 Upgrade Repository

baseurl=http://support.brightcomputing.com/upgrade/8.2/<DIST>/updates

enabled=1

gpgcheck=1

gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-cm
```

Note: Please replace <DIST> with one of : rhel/7 , sles/12, rhel/6

On RHEL-based distributions, save the repo file to `/etc/yum.repos.d/`

On SLES-based distributions, save the repo file to `/etc/zypp/repos.d/`

On Ubuntu: Create a repo file with the following contents:

```
deb [trusted=yes]
http://support.brightcomputing.com/upgrade/8.2/ubuntu/1604 ./
```

Save the file to `/etc/apt/sources.list.d/cm-upgrade.list`

2. Install package

On RHEL/SLES:

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```
yum install cm-upgrade-8.2
```

On Ubuntu:

```
apt update  
apt install apt-transport-https  
apt install cm-upgrade
```

3. Make the `cm-upgrade` command available in the default PATH

```
module load cm-upgrade/8.2
```

Upgrade procedure

The recommended order for upgrade is:

1. Power off the regular nodes.
Terminate the cloud nodes and the cloud directors
2. Apply existing updates to Bright on the head node and in the software images.
 - Update the head node as follows:
For RHEL derivatives:

```
yum update
```


For SLES derivatives:

```
zypper up
```
 - Update software images. For each software image run the following:
For RHEL derivatives:

```
yum --installroot /cm/images/<software image> update
```


For SLES derivatives:

```
zypper --root /cm/images/<software image> up
```

Note: If the software image repositories differ from the repositories that the head node uses, then you should chroot into the software image first before attempting to run "yum update" or "zypper up". This is because using the `--installroot` or `--root` switch will not allow yum/zypper to use the repositories defined in the software images.

3. Upgrade head nodes to Bright 8.2:

```
cm-upgrade
```

*Important: this must be run on **both head nodes** in a high-availability setup*

*Recommended: Upgrade **active head node** first, and then the **passive head node***

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4. Reboot head nodes

5. Post upgrade actions

Note: On Ubuntu head nodes, the following is required before running post-upgrade actions.

This requirement will be removed in a future update.

```
module load python2
pip install mysqlclient
module unload python2
```

Run post upgrade actions on both the **active** and **passive** head nodes:

```
module load cm-upgrade/8.2
cm-post-upgrade -m
```

6. In a HA setup, after upgrading both the head nodes, resync the databases. Run the following from the **active** head node (it is very important to complete this step before moving to the next one):

```
cmha dbreclone <passive>
```

7. Upgrade the software image(s) to Bright 8.2

```
cm-upgrade -i all
```

*Important: this must be run only on the **active head node**. If the software images are not under the standard location, which is **/cm/images/** on the head node, then the option **"-a"** should be used **"cm-upgrade -a /apps/images -i <name of software image>"***

8. Run post upgrade actions for software images (*must be run only on the **active head node***):

```
cm-post-upgrade -i all
```

9. Power on the regular nodes, cloud nodes and cloud directors

Usage and help

For more detailed information on usage, examples, and a full description:

- `cm-upgrade --help`
- `cm-post-upgrade --help`

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Upgrading using a Bright DVD/ISO

Note: Upgrading Ubuntu clusters using a Bright DVD/ISO is not supported at the moment, but support will be added in a future update.

On RHEL/SLES:

When using a Bright DVD/ISO to perform the upgrade, it is important to use a DVD/ISO that is not older than **8.2-7**. The DVD/ISO version can be found (assuming that the DVD/ISO is mounted under `/mnt/cdrom`) with a find command such as:

```
# find /mnt/cdrom -type d -name '8.2-*
```

```
/mnt/cdrom/data/packages/8.2-6
```

FAQs and Troubleshooting

Q: Why are my SGE jobs not running after upgrading to Bright 8.2 ?

A: This is mostly because there is an obsolete broken prolog symlink

```
/cm/local/apps/sge/var/prologs/10-prolog-healthchecker
```

or

```
/cm/local/apps/torque/var/prologs/10-prolog-healthchecker
```

Solution: Remove the broken symlink on the nodes and re-submit job.

Q: Why did `cm-upgrade` fail at the stage: 'Installing distribution packages' or 'Upgrading packages to Bright 8.2' ?

A: This will happen when some distribution package dependencies could not be met. Please look in

`/var/log/cm-upgrade.log` for detailed information about what packages are missing.

Solution: Enable required additional base distribution repositories and re-run `cm-upgrade` with the `-f` option.

Example: `cm-upgrade -f`

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Q: After upgrading from Bright 6.0 to Bright 8.2, why is the MySQL healthcheck failing because the cmdaemon monitoring database engine is not MyISAM ?

A: This is because Bright versions before 6.1 use InnoDB as the MySQL engine. Starting with Bright 6.1, MyISAM is the default monitoring database engine.

Solution: Change the engine type for the cmdaemon_mon database to MyISAM.

Q: Why are LDAP users sometimes not accessible on SLES compute node after upgrading to Bright 8.2 ?

A: This is most likely because the 'sssd' service failed to start. This can happen when `/var/lib/sss` is in the exclude lists of the node or category.

Solution: Remove `/var/lib/sss` from the exclude lists and then reboot the nodes.

Q: Why is the mvapich package not upgraded to the Bright 8.2 version ?

A: This is because support for the mvapich package has been dropped starting Bright 8.0. The package is not obsoleted or removed automatically, because there might be user applications that are still using them.

Solution: If there are no user applications that use mvapich, then the package must be manually removed by the administrator.

Q: Why are slurm upgrades disabled in certain cases (e.g when the version of slurm is < 17.x) ?

A: Upgrade of slurm versions < 17.x causes loss of *statesave* information. This is useful when there are pending jobs during the upgrade. Slurm upgrades must be done separately after the main upgrade has completed. After upgrading the slurm packages, the *statesave* directory `/cm/shared/apps/slurm/var/cm/statesave` must be removed and the slurm services restarted.

Q: What versions of LSF are supported in Bright 8.2 ?

A: Only LSF versions $\geq 10.x$ are supported. The LSF integration in Bright will stop working after the upgrade if unsupported versions are installed. The LSF packages are not upgraded automatically because they are not distributed by Bright. LSF upgrades must be done separately after the main upgrade has completed.

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