
Upgrading Platform LSF on UNIX and Linux

Platform LSF
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Upgrade the Platform LSF Cluster

Important:

This document describes how to upgrade a cluster running LSF Version 6.x or earlier, and LSF Version 7 Update 2 or later. If you have LSF 7 or LSF 7 Update 1, and you do not have the Platform Management Console installed, follow the steps in the document “*Migrating to LSF Version 8 on UNIX and Linux*”. If you have LSF with the Platform Management Console installed for a version earlier than LSF Version 7 Update 4, contact Platform Support for additional information.

Complete the following steps to upgrade to LSF Version 8 on UNIX and Linux.

- Download LSF distribution tar files
- Get ready to upgrade
- Use `lsfinstall` to upgrade LSF
- Use `hostsetup` to set up LSF hosts
- Restart your cluster

Download Platform LSF distribution tar files

1. Log on to the LSF file server host as root.
2. FTP to `ftp.platform.com` and get the following files from the `/distrib/8.0/platform_lsf/` directory on `ftp.platform.com`:
 - LSF installation script tar file `lsf8.0_lsfinstall.tar.Z`
 - LSF distribution tar files for all host types you need
3. Download and read LSF Version 8 Release Notes for detailed steps for downloading LSF distribution tar files. Release Notes also describe compatibility issues.
4. Put the distribution tar files in the same directory that contains the `lsf8.0_lsfinstall.tar.Z` file.
5. Uncompress and extract `lsf8.0_lsfinstall.tar.Z`: `# zcat lsf8.0_lsfinstall.tar.Z | tar xvf -`

Important:

DO NOT extract the distribution tar files.

Get ready to upgrade

1. Deactivate all queues to make sure that no new jobs can be dispatched during the upgrade. After upgrading, remember to activate the queues again so pending jobs can be dispatched.
 - Deactivate all LSF queues: `badm qinact all`
 - Reactivate all LSF queues after upgrading: `badm qact all`
2. If you have the Platform Management Console (PMC)/ Platform Application Center (PAC) installed, shut it down.

If the PMC/PAC is controlled by EGO, run:

```
egosh service stop plc
egosh service stop purger
egosh service stop jobdt
egosh service stop derbydb
egosh service stop WEBGUI
```

If the PMC/PAC is not controlled by EGO, run:

```
perfadmin stop all
pmcadmin stop
```

3. Back up your existing LSF_CONFDIR, LSB_CONFDIR, and LSB_SHAREDIRE according to the procedures at your site.
4. Get an LSF Version 8 license and create a license file (`license.dat`).

Use `lsfinstall` to upgrade Platform LSF

1. Change to `lsf8.0/lsfinstall/`.
2. Read `lsf8.0/lsfinstall/install.config` and decide which installation variables you need to set.
3. Edit `lsf8.0/lsfinstall/install.config` to set the installation variables you need.
4. Follow the instructions in `lsf_unix_install.pdf` to run:

```
./lsfinstall -f install.config
```

Important:

You must run `lsfinstall` as root.

`lsfinstall` backs up the following configuration files for your current installation in LSF_CONFDIR:

- `cshrc.lsf`
- `lsf.cluster.cluster_name`
- `lsf.conf`
- `lsf.shared`
- `profile.lsf`

Use `hostsetup` to set up Platform LSF hosts

1. Follow the steps in `lsf8.0/lsfinstall/lsf_getting_started.html` to set up your LSF hosts (`hostsetup`).
 - a) Log on to each LSF server host as root. Start with the LSF master host.
 - b) Run `hostsetup` on each LSF server host.

For example:

```
cd /usr/share/lsf/8.0/install
./hostsetup --top="/usr/share/lsf/"
```

2. Set your LSF environment:
 - For `csh` or `tcsh`: **source LSF_TOP/conf/cshrc.lsf**
 - For `sh`, `ksh`, or `bash`: **. LSF_TOP/conf/profile.lsf**
3. Follow the steps in `lsf8.0_1sfinstall/lsf_quick_admin.html` to update your license.

Restart your cluster

1. Use the following commands to shut down the original LSF daemons:
 - badadmin hshutdown all**
 - lsadmin resshutdown all**
 - lsadmin limshutdown all**
2. Set your LSF environment:
 - For `csh` or `tcsh`: **source LSF_TOP/conf/cshrc.lsf**
 - For `sh`, `ksh`, or `bash`: **. LSF_TOP/conf/profile.lsf**
3. Use the following commands to start LSF using the newer daemons:
 - lsadmin limstartup all**
 - lsadmin resstartup all**
 - badadmin hstartup all**
4. Use the following command to reactivate all LSF queues after upgrading: **badadmin qact all**
5. Follow the steps in `lsf8.0_1sfinstall/lsf_quick_admin.html` to verify that your upgraded cluster is operating correctly.

Upgrading Platform LSF HPC to Platform LSF 8

Before upgrading

Caution:

If your cluster was installed or upgraded with `lsfsetup`, DO NOT use these steps. Before upgrading Platform LSF HPC, upgrade your cluster to at least Platform LSF Version 6.0.

1. Back up your existing `LSF_CONFDIR`, `LSB_CONFDIR`, and `LSB_SHAREDIR` according to the procedures at your site.
2. Get an LSF Version 8 license and create a license file (`license.dat`).
3. Deactivate all queues to make sure that no new jobs can be dispatched during the upgrad:

- `badmi n qi nact all`

For SGI `cpuset` hosts, make sure all running jobs are done (all queues are drained of running jobs).

Note:

After upgrading, remember to activate the queues again so pending jobs can be dispatched: `badmi n qact all`.

What happens automatically when you upgrade

Configuration file backup

`lsfinstall` backs up the following configuration files for your current installation in `LSF_CONFDIR`:

- `cshrc.lsf`
- `lsf.cluster.cluster_name`
- `lsf.conf`
- `lsf.shared`
- `profile.lsf`

lsb.queues

- Configures `hpc_ibm` queue for IBM POE jobs and the `hpc_ibm_tv` queue for debugging IBM POE jobs through Etnus TotalView.
- Configures `hpc_linux` queue for LAM/MPI and MPICH-GM jobs and `hpc_linux_tv` queue for debugging LAM/MPI and MPICH-GM jobs through Etnus TotalView.
- Configures `rms` queue for RMS jobs running in LSF for Linux QsNet.

LSB_SUB_COMMANDNAME (lsf.conf)

If `LSB_SUB_COMMANDNAME=N` is already defined in `lsf.conf`, `lsfinstall` does not change this parameter; you must manually set it to `LSB_SUB_COMMANDNAME=Y` to enable the `LSF_SUB_COMMANDLINE` environment variable required by `esub`.

SGI cpuset host upgrade

For SGI cpuset hosts, `lsinstall` updates the following files:

- `lsb.modules`: Adds the `schmod_cpuset` external scheduler plugin module name to the `PluginModule` section and comments out the `schmod_topology` module line.
- `lsf.conf`
 - Sets the following parameters in `lsf.conf`:
 - `LSF_ENABLE_EXTSCHEDULER=Y`
LSF uses an external scheduler for cpuset allocation.
 - `LSB_CPUSET_BESTCPUS=Y`
LSF schedules jobs based on the shortest CPU radius in the processor topology using a best-fit algorithm for cpuset allocation.

Note:

`LSF_IX_BESTCPUS` is obsolete.

- Comments out the following obsolete parameters in `lsf.conf`, and sets the corresponding RLA configuration:
 - `LSF_TOPD_PORT=port_number`, replaced by `LSB_RLA_PORT=port_number`, using the same value as `LSF_TOPD_PORT`.

Where `port_number` is the TCP port used for communication between the Platform LSF topology adapter (RLA) and `sbatchd`.

The default port number is 6883.

- `LSF_TOPD_WORKDIR=directory` parameter, replaced by `LSB_RLA_WORKDIR=directory` parameter, using the same value as `LSF_TOPD_WORKDIR`

Where `directory` is the location of the status files for RLA. Allows RLA to recover its original state when it restarts. When RLA first starts, it creates the directory defined by `LSB_RLA_WORKDIR` if it does not exist, then creates subdirectories for each host.

Note:

`LSB_IRIX_NODESIZE` is obsolete. If set in `lsf.conf`, it is ignored by the scheduler.

- `lsf.shared`: Defines the `cpuset` Boolean resource.

Reusing `install.config` from your existing installation

You can reuse the `install.config` file from your existing installation to specify your installation options. The `install.config` file containing the options you specified for your original installation is located in `LSF_TOP/lsf_version/install/`.

If you change `install.config` to add new hosts in `LSF_ADD_SERVERS` and `LSF_ADD_CLIENTS`, or new LSF administrators in `LSF_ADMINS`, `lsfinstall` creates a new `lsf.cluster.cluster_name` file.

Run `lsfinstall` to upgrade

Make sure the following `install.config` variables are set for upgrade:

- `ENABLE_HPC_CONFIG=Y` enables configuration of Platform LSF HPC features
- `LSF_TARDIR` specifies the location of distribution packages for upgrade. For example:
`LSF_TARDIR=/tmp`

To run `lsfinstall`

1. Log on to the file server host as root.
2. Download, uncompress, and extract `lsf8.0_1sfinstall.tar.Z` to the distribution directory where you downloaded the LSF product distribution tar files.
3. Change to the directory `lsf8.0_1sfinstall/`.
4. Edit `lsf8.0_1sfinstall/install.config` or `lsf8.0_1sfinstall/slave.config` and set the installation variables you need.
5. Run `lsfinstall` as root:

```
# ./lsfinstall -f install.config
```

Run `hostsetup`

Running `hostsetup` is optional on AIX and Linux. You must run `hostsetup` on SGI hosts (such as IRIX, TRIX, and Altix) and on HP-UX hosts.

What hostsetup does

- For SGI cpuset hosts, `hostsetup` adds the cpuset Boolean resource to the HOSTS section of `lsf.cluster.cluster_name` for each cpuset host.
- For HP-UX pset hosts, `hostsetup` adds the pset Boolean resource to the HOSTS section of `lsf.cluster.cluster_name` for each pset host.
- For Linux QsNet hosts, `hostsetup`:
 - Configures `lsf.cluster.cluster_name` to assign the Boolean resource `rms` defined in `lsf.shared` to all LSF hosts that run on an RMS partition
 - Creates a table named `lsfrids` in the RMS database. This table is used internally by LSF for RMS jobs

--boot option

Use the `--boot="y"` option on `hostsetup` to configure system scripts to automatically start and stop LSF daemons at system startup or shutdown. You must run `hostsetup` as root to use this option to modify the system scripts. The default is `--boot="n"`.

For complete `hostsetup` usage, enter `hostsetup -h`.

To run hostsetup

1. Log on to each LSF server host as root. Start with the LSF master host.
2. Run `hostsetup` on each LSF server host. For example:

```
# cd /usr/share/lsf/8.0/install
# ./hostsetup --top="/usr/share/lsf" --boot="y"
```

After upgrading

1. Log on to the LSF master host as root.
2. Set your environment:
 - For `csh` or `tcsh`:

```
% source /LSF_TOP/conf/cshrc.lsf
```
 - For `sh`, `ksh`, or `bash`:

```
# . /LSF_TOP/conf/profile.lsf
```
3. Follow the steps in `lsf8.0_lsfinstall/lsf_quick_admin.html` to update your license.
4. Use the following commands to shut down the old LSF daemons:

```
# badmin hshutdown all
# lsadmin resshutdown all
# lsadmin limshutdown all
```

5. Use the following commands to start Platform LSF using the upgraded daemons:

```
# lsadmin limstartup all
# lsadmin resstartup all
# badmin hstartup all
```

6. Follow the steps in `lsf8.0_lsfinstall/lsf_quick_admin.html` to verify that your upgraded cluster is operating correctly.

7. Use the following command to reactivate all LSF queues after upgrading:
badmin qact all
8. Have users run one of the shell environment files to switch their environment to the new cluster.

After your cluster is up and running, users can start submitting jobs to it.