Upgrading Platform LSF on UNIX and Linux

Platform LSF
Version 8.0
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Platform Computing

Contents

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: **badmin qinact all**
   - Reactivate all LSF queues after upgrading: **badmin 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_SHAREDIR 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_lsfinstall/lsf_quick_admin.html` to update your license.

Restart your cluster

1. Use the following commands to shut down the original LSF daemons:

   badmin 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

   badmin hstartup all
4. Use the following command to reactivate all LSF queues after upgrading: **badmin qact all**
5. Follow the steps in `lsf8.0_lsfinstall/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:

   - `badmin qinact 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: `badmin 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, lsfinstall 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_IRIX_BESTCPUS` is obsolete.
  - Comments out the following obsolete parameters in `lsf.conf`, and sets the corresponding RLA configuration:
    - LSF_TOPD_PORT=*port_number*, replaced byLSB_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 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`*e 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_lsfinstall.tar.Z` to the distribution directory where you downloaded the LSF product distribution tar files.
3. Change to the directory `lsf8.0_lsfinstall/`.
4. Edit `lsf8.0_lsfinstall/install.config` or `lsf8.0_lsfinstall/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.