

Platform LSF
Version 9 Release 1.2

Upgrading on UNIX and Linux



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Note

Before using this information and the product it supports, read the information in "Notices" on page 7.

First edition

This edition applies to version 9, release 1 of IBM Platform LSF (product number 5725G82) and to all subsequent releases and modifications until otherwise indicated in new editions.

Significant changes or additions to the text and illustrations are indicated by a vertical line (|) to the left of the change.

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Contents

Upgrading your IBM Platform LSF

Cluster	1
Download LSF distribution tar files.	1
Prepare the cluster for upgrading	2
Use lsinstall to upgrade LSF	2
Use hostsetup to set up LSF hosts	2

Restart your cluster	3
Upgrading LSF HPC to LSF 9.1.2	3

Notices **7**

Trademarks.	9
Privacy policy considerations	9

Upgrading your IBM 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 IBM Platform Management Console installed, follow the steps in the document *Migrating IBM Platform LSF Version 7 to IBM Platform LSF Version 9.1.2 on Windows*. If you have LSF with the IBM Platform Management Console installed for a version earlier than LSF Version 7 Update 4, contact Product Support for additional information.

Complete the following steps to upgrade to LSF Version 9.1.2 on UNIX and Linux.

- Download LSF distribution tar files
- Prepare the cluster for upgrading
- Use **lsfinstall** to upgrade LSF
- Use **hostsetup** to set up LSF hosts
- Restart your cluster

Download LSF distribution tar files

1. Log on to the LSF file server host as root.
2. Select the appropriate LSF installer script package:
 - `lsf9.1.2_lsfinstall_linux_x86_64.tar.Z` for Linux x86_64 platforms requiring the Linux JRE. Requires approximately 120 MB.
 - `lsf9.1.2_lsfinstall.tar.Z` for all other platforms requiring the JRE. Requires approximately 1300 MB.
 - `lsf9.1.2_no_jre_lsfinstall.tar.Z` for all platforms not requiring the JRE. JRE version 1.4 or higher must already be installed on the system. Requires approximately 1 MB.
3. Download and read LSF Version 9.1.2 Release Notes for detailed steps for downloading LSF distribution tar files. Release Notes also describe compatibility issues.
4. Get the LSF installer script package that you selected and extract it.
For example,
 - Linux x86_64 platforms: `# zcat lsf9.1.2_lsfinstall_linux_x86_64.tar.Z | tar xvf -`
 - Other platforms: `# zcat lsf9.1.2_lsfinstall.tar.Z | tar xvf -`
 - No JRE required: `# zcat lsf9.1.2_no_jre_lsfinstall.tar.Z | tar xvf -`
5. Get the LSF distribution packages for all host types you need and put them in the same directory as the extracted LSF installer script.
For example, for Linux 2.6 kernel glibc version 2.3, the distribution package is `lsf9.1.2_linux2.6-glibc2.3-x86_64.tar.Z`.

Important: DO NOT extract the distribution tar files.

Prepare the cluster for upgrading

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: `badadmin qinact all`
 - Reactivate all LSF queues after upgrading: `badadmin qact all`
2. If you have the IBM Platform Management Console (PMC) or IBM Platform Application Center (PAC) installed, shut it down.
 - If PMC or 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 PMC or 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.

Use `lsfinstall` to upgrade LSF

1. Change to `$LSF_ENVDIR/9.1/install/`.
2. Read `$LSF_ENVDIR/9.1/install/install.config` and decide which installation variables you need to set.
3. Edit `$LSF_ENVDIR/9.1/install/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 LSF hosts

1. Follow the steps in `$LSF_ENVDIR/9.1/install/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/9.1/install
```


- ```
./hostsetup --top="/usr/share/lsf/"
```
2. Set your LSF environment:  
For **cs**h or **tc**sh: `source LSF_TOP/conf/cshrc.lsf`  
For **sh**, **ksh**, or **ba**sh: `. LSF_TOP/conf/profile.lsf`

---

## 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 **cs**h or **tc**sh: `source LSF_TOP/conf/cshrc.lsf`  
For **sh**, **ksh**, or **ba**sh: `. 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 `$LSF_TOP/9.1/lsf_quick_admin.html` to verify that your upgraded cluster is operating correctly.

---

## Upgrading LSF HPC to LSF 9.1.2

### Before upgrading

1. Back up your existing `LSF_CONFDIR`, `LSB_CONFDIR`, and `LSB_SHARED` according to the procedures at your site.
2. Deactivate all queues to make sure that no new jobs can be dispatched during the upgrade:
  - `badadmin 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: `badadmin 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`

## What the installer changes

The LSF 9.1.2 installer makes the following changes:

- Comments out the PRODUCTS line in `lsf.clusters`.
- Comments out LSF\_LICENSE\_FILE in `lsf.conf`.
- Copies the `lsf.entitlement` file to the LSF\_TOP/conf directory.

### 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.

### 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`.

## 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:

- `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 `lsf9.1.2_lsfinstall.tar.Z` to the distribution directory where you downloaded the LSF product distribution tar files.
3. Change to the directory `$LSF_ENVDIR/9.1/install/`.
4. Edit `$LSF_ENVDIR/9.1/install/install.config` or `$LSF_ENVDIR/9.1/install/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 Linux. You must run `hostsetup` on HP-UX hosts.

### What hostsetup does

- For HP-UX pset hosts, `hostsetup` adds the pset Boolean resource to the HOSTS section of `lsf.cluster.cluster_name` for each pset host.

## --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/9.1/install
./hostsetup --top="/usr/share/lsf" --boot="y"
```

## Setting non-privileged ports

For migration and compatibility for a single cluster:

- If all hosts are upgraded, then they are working with non-privileged ports.
- If all hosts are upgraded, but you want to use privileged ports for communication, then set **LSF\_NON\_PRIVILEGED\_PORTS=N** and set a value for **LSB\_MAX\_JOB\_DISPATCH\_PER\_SESSION**.
- If the master host is upgraded, but some server hosts are still running old versions, then set **LSF\_NON\_PRIVILEGED\_PORTS=N**, shutdown the cluster, then restart it to tell the old **lim** and **sbatchd** to use non-privileged ports for communication.
- When upgrading a mixed cluster that was previously not supported in LSF version 9.1.2 to LSF 9.1.2, install all the new binaries, set the parameter **NON\_PRIVILEGED\_PORTS** to Y, then restart the cluster.

For Platform MultiCluster:

- By default, the LSF 9.1.2 cluster uses privileged ports for communication from **mbatchd** to **mbatchd**. If clusters running older versions use non-privileged ports for communication, then **LSF\_MC\_NON\_PRIVILEGED\_PORTS** must be set to the same value for both clusters.

## 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. Use the following commands to shut down the old LSF daemons:

```
badmin hshutdown all
lsadmin resshutdown all
lsadmin limshutdown all
```
4. Use the following commands to start LSF using the upgraded daemons:

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

5. Follow the steps in `lsf9.1.2_lsfinstall/lsf_quick_admin.html` to verify that your upgraded cluster is operating correctly.
6. Use the following command to reactivate all LSF queues after upgrading:  
`# badmin qact all`
7. 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.

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Printed in USA

SC27-5315-02

