Migrate Platform LSF to Version 7 on Windows

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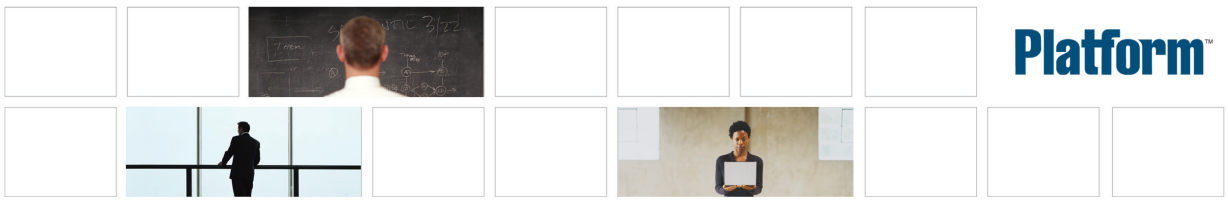

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Migrate Your Windows Cluster to LSF 7

This document describes how to migrate a Windows cluster to LSF 7 from LSF 6.x or earlier version of LSF. If you already have LSF version 7 and need to upgrade to LSF Version 7 Update 6, check the knowledge center for the appropriate guide.

Document conventions

This document uses the following conventions to describe directory locations.

pre7.0 and *cluster_name*

This is the top-level installation directory of your original cluster, and the cluster name of your original cluster.

shared_dir and *new_cluster_name*

This is the shared directory for the new LSF 7 cluster, and the cluster name of the new cluster.

What is migration?

A direct upgrade of a cluster to LSF 7 is not supported. Migration lets you transfer both workload and configuration from the original cluster after you have installed a new LSF 7 cluster.

It is important to follow the procedure exactly, or the new cluster may not work properly afterwards. Do not remove or rename any files or directories from the original cluster.

How to migrate your cluster

The original (pre-LSF 7) cluster is working properly.

1. Create the new cluster.

   Even if you already have an LSF 7 cluster, that existing cluster might not be suitable. Read the procedure to make sure your existing cluster meets the special requirements for the new cluster. Remember that the migration might overwrite any configuration you have already performed on the new cluster.
2. Shut down the original cluster.
3. Migrate configuration files manually.
   a) lsf.task
   b) passwd.lsfuser
4. Migrate cluster directories manually.
   a) configdir
   b) Work directory
5. (Optional) Enable reporting.
   - lsb.params and lsbstream.tmp
6. Start the new cluster.

Create the new cluster

1. Plan the installation of a new LSF 7 cluster.
   - Install on all the same hosts as the original cluster.
   - Your new cluster cannot use any of the same ports as the existing cluster. You may not be able to use the default ports during installation.
   - The cluster administrator account (`lsfadmin`) of the new cluster must be the same as the existing cluster.
   - You will need to set up an empty, shared directory for the new cluster.

   For details, see *Installing Platform LSF on Windows*.
2. Install the new LSF 7 cluster.

   For details, see *Installing Platform LSF on Windows*.
   a) You must run `egoconfig mghost` to set up all the management hosts after you run the installer. The manual steps you do later in this procedure are not enough to set up a management host properly.
   b) If any hosts fail to start, start them locally using the following commands:

   ```
   lsadmin limstartup
   lsadmin resstartup
   badmin hstartup
   ```
3. Install LSF 7 Slave on all slave hosts and start them.
4. Test the new cluster and make sure jobs can run.
   a) Check: make sure `bhosts` shows all hosts OK.
   b) Check: run `lshosts` and make sure all management hosts have the resource entry `mg`.

   ```
   lshosts
   HOST_NAME      type    model  cpuf ncpus maxmem maxswp server RESOURCES
   vmw0303       NTX64 Intel_EM  60.0     1   383M   929M    Yes (nt mg)
   vmw0301       NTX86    PC450  13.2     1   767M  1309M    Yes (nt mg)
   vmwxp03       NTX64 Intel_EM  60.0     1   511M  1241M    Dyn ()
   vmw2k01       NTX86    PC450  13.2     1   383M   921M    Dyn ()
   ```
5. Shut down the new cluster after testing. You must update configuration files manually.

   To shut down the cluster, log on to the master host and run:

   ```
   lsfshutdown
   ```

Shut down the original cluster

1. Prepare the original cluster for shutdown.
   a) Inactivate all queues to stop new jobs starting.

      To inactivate all LSF queues, run:

      ```
      badmin qinact all
      ```
   b) Make sure there are no running jobs in the cluster. You may choose to wait for existing jobs to finish.
2. Shut down all LSF services.

   ```
   lsfshutdown
   ```

Migrate files manually

lsf.task

1. Copy from original cluster to the shared location in the new cluster. Overwrite the file.
   - *Source*:

     pre7.0\conf\lsf.task
   - *Copy to*:

     shared_dir\conf\lsf.task

passwd.lsfuser

1. Copy from original cluster to the shared location in the new cluster. Overwrite the file.
   - *Source*:

     pre7.0\conf\passwd.lsfuser
   - *Copy to*:

     shared_dir\conf\passwd.lsfuser

Migrate directories manually

configdir

1. Copy all files in the original directory to the new directory in the shared location in the new cluster. Overwrite all files.
   - *Source*:

     pre7.0\lsbatch*cluster_name*\configdir\
   - *Copy to*:

     shared_dir\conf\lsbatch*new_cluster_name*\configdir\
2. Add the schmod_ps module name to the `lsb.modules` file to enable EGO-enabled SLA scheduling.

   Add the following line at the end of the modules definition section:

   ```
   schmod_ps                    ()                              ()
   ```

Work directory

1. Copy the original directory to the new directory in the shared location in the new cluster. Overwrite the entire directory to make sure the migration is clean: there must be no workload-related files left over from testing the new cluster.
   - *Source*:

     pre7.0\work*cluster_name*\
   - *Copy to*:

     shared_dir\work*new_cluster_name*\

(Optional) Enable reporting

lsb.params and lsbstream.tmp

1. To enable reporting, edit *shared_dir*\conf\lsbatch\new_cluster_name\configdir\lsb.params and add the following line:

   ```
   ENABLE_EVENT_STREAM = y
   ```

2. Delete *shared_dir*\work*new_cluster_name*\perf\lsbstream.tmp.

Start the new cluster

1. Start the new LSF 7 cluster.

   ```
   lsfstartup
   ```

2. Activate all queues to start jobs remaining from the original cluster.

   To activate all LSF queues, run:

   ```
   badmin qact all
   ```

3. Submit all new work to the new cluster.

How to switch between a pre-7.0 cluster and the Platform LSF Version 7 cluster

After successfully migrating the cluster to Platform LSF Version 7, you may want to switch between the pre-7.0 and LSF 7 clusters.

You can control and work with a pre-7.0 cluster by setting environment variables in a command prompt.

1. Open a command prompt.

   The environment settings are current to Platform LSF Version 7. You must manually change them to access the pre-7.0 cluster.

2. Set LSF_ENVDIR to the path to the pre-7.0 ENVDIR.

   For example:

   ```
   \\mhost\LSF_6.2\etc
   ```

3. Set LSF_BINDIR to the path to the pre-7.0 BINDIR.

   For example:

   ```
   C:\LSF_6.2\bin
   ```

4. Change Path to include the pre-7.0 BINDIR.

   For example:

   ```
   Path=C:\LSF_6.2\bin;%Path%
   ```

You can now work with the pre-7.0 cluster.

Note:

These settings are temporary and only in effect for the current instance of the command prompt. To access the LSF 7 cluster environment, close the command prompt window and open a new command prompt.

How to recover from migration problems

In the event of migration failures, you may want to restore your old cluster environment and start the migration over again.

1. Uninstall the LSF Version 7 cluster.
   a) Uninstall all installed LSF Version 7 management hosts including Master host.
   a) Reboot each host and clean up installation directories.
   a) Delete and empty the shared configuration directory `$SHARE_TOP`.
2. Reset all environment variables modified by LSF Version 7 installer to pre-7.0 values.

   When uninstalling the LSF Version 7 cluster, the installer will remove the system variable LSF_ENVDIR.
   a) Manually restore LSF_ENVDIR to your system variables.

      For example:
      ```
      LSF_ENVDIR=\\masterHost\LSF_6.2\etc
      ```
   b) Edit the Path system variable to add the pre-7.0 cluster LSF_BINDIR to the beginning of PATH.

      For example:
      ```
      PATH=C:\LSF_6.2\bin;%PATH%
      ```
3. Repeat these steps for other management hosts where you have installed LSF Version 7.

You are now ready to do the migration again.