

Installing Platform Product Suite™ for SAS® (Windows)

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Your comments should pertain only to Platform LSF documentation. For product support, contact support@platform.com.

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Introduction

This document describes how to install the software required to run the **Platform Product Suite for SAS™** software (“Product Suite for SAS”) with the SAS Management Console® software on Windows 2000®, Windows XP®, and Windows 2003® machines. The Product Suite for SAS software includes the **Process Manager Server** and Client, and the **Platform LSF®** software (“LSF”). Each of these components is required to run jobs using Product Suite for SAS. A separate document describes how to install **Platform Grid Management Services™**.

The Process Manager Server controls the submission of jobs to LSF, managing any dependencies between the jobs.

LSF dispatches all jobs submitted to it by the Process Manager Server, and returns the status of each jobs to the Process Manager Server. LSF also manages any resource requirements and performs load balancing within the compute cluster.

The Process Manager Client allows you to monitor your workload as it runs.

You can install all of the components on a single host, or you can install the Process Manager Server and LSF on separate hosts. This document describes how to install all components on a single host.

For an overview of the Process Manager components, see the introductory chapter in *Administering Process Manager*.

Assumptions

This document assumes the following:

- ◆ You will install LSF and the Process Manager Server and Client on a single Windows host. This host will act as the central point of control for a cluster of LSF hosts that actually run the jobs.
- ◆ Your cluster will be composed of only Windows hosts. There will be no UNIX hosts in the cluster.

Technical Support

Should you encounter problems or have questions regarding the use of LSF and scheduling jobs from SAS Management Console, please contact SAS directly. You can use one of the following methods to contact the SAS Technical Support staff.

- 1 Online problem/question submission:
http://support.sas.com/techsup/contact/track_intro.html
 Choose SAS Management Console as the 'Product' value.
- 2 E-mail problem/question submission via EMITS facility:
<http://support.sas.com/techsup/contact/emits.html>
 Choose SAS Management Console as the 'Product' value.
- 3 Telephone Support Information for North America:
http://support.sas.com/techsup/contact/telephone_support.html

- 4 If you are not based in North America, use the links in the following URL for information on how to contact other SAS Technical Support offices around the world:

<http://support.sas.com/techsup/contact/index.html>

While any SAS software user may contact Technical Support, priority is given to designated SAS support personnel at your site. (Note, you can use web-based forms to find out who the SAS support personnel are at your site or re-designate SAS support personnel at your site using links from this URL:

<http://support.sas.com/techsup/contact/index.html>

Supported Systems

SAS Management Console version

SAS 9.1 Service Pack 3

LSF version and platforms

LSF version 6.0 on the following Windows platforms:

- ◆ Windows NT 4.0 Server (Service Pack 4 or later)
- ◆ Windows NT 4.0 Workstation (Service Pack 4 or later)
- ◆ Windows 2000 Advanced Server
- ◆ Windows 2000 Server
- ◆ Windows 2000 Professional
- ◆ Windows XP Professional (Service Pack 1 or later)
- ◆ Windows 2003 Enterprise Edition Itanium 64-bit

Process Manager Server 3.0 requirements

The Process Manager software must be installed on an LSF server host, but it is recommended that it not be an LSF master host.

The Process Manager software runs on Windows NT, Windows 2000, Windows XP, and Windows 2003.

J2RE (Java Runtime Environment) 1.4 is installed with the Process Manager.

The Process Manager Server requires:

- ◆ Approximately 135 MB free disk space for installation, and an additional 2 KB per job to handle jobs running simultaneously
- ◆ 256 MB RAM for processing purposes
- ◆ Pentium III or equivalent processor

Prerequisites

Installation account The user account used to install Process Manager and LSF is called the installation account. It does not need to be an LSF user. It must be a local administrator on all the hosts you are installing (a Windows domain administrator account is normally a local administrator on every host in the domain).

The installation account must be able to read and write to the installation directory (also called the LSF top directory) on the network share where the LSF configuration files are located.

By default, the installation account is created as a cluster administrator when you create a new cluster.

Shared configuration You have set up a network share for storing the configuration and state files. This share can be one of the hosts in the cluster, or a centralized storage server that is not part of the cluster.

IP addresses of hosts The hosts on which you install LSF must all have fixed IP addresses. (Hosts that use Dynamic Host Configuration Protocol (DHCP) can have a different IP address assigned each time they connect to the network. These hosts cannot be used as LSF hosts.)

License file You need the license file provided to you by SAS which licenses both LSF and the Process Manager.

Install the Software

Get the software

Place a copy of `pm3.0_pinstall_sas_win.exe` where it is accessible from the setup host.

Run the installer

Step	Procedure	What to choose...	Notes
1	Log on to the setup host using the user ID created as the installation account		You must have local administrative privileges on this host.
2	Run the installation program	From the SAS Software Navigator, start the Process Manager installer, or double-click pm3.0_pinstall_sas_win.exe	You can find the self-extracting executable provided by SAS.
3	Welcome	Click Next .	You do not need to enter any information.
4	Software License Notice	Click Agree	The software license agreement will be displayed. Please read this carefully before proceeding.
5	Choose the destination location	Unless you need to change the installation location, click Next .	
6	Select the LSF and Process Manager components to install	Select the Platform Process Manager Server, Platform LSF, and the Platform Process Manager Client to install. Click Next to continue.	By default, the Platform Process Manager Server and Client and the Platform LSF master are selected to install on this machine.
7	Configure the Process Manager Server	<ol style="list-style-type: none"> 1 The name you specify in the Administrators field is the primary administrator, usually the installation account user ID. 2 Unless there is a conflict, leave the port number in the Port field at the default, 1966. 3 For License file, specify the full path to the license file from SAS, including the file name. 4 Click Next. 	Make sure the user name displayed has local administrator privileges.

Step	Procedure	What to choose...	Notes
8	Configure the Process Manager service	<ol style="list-style-type: none"> 1 Specify the domain and user ID under which the Process Manager service will run. 2 Specify the password for that user ID. 	If you are not installing LSF (using an existing LSF installation), the user you specify must have read access to the LSF password file. Ideally, use a user name and password that does not change.
9	Allow sending mail	<ol style="list-style-type: none"> 1 If you want users to receive email notifications about their jobs, check Allow sending mail 2 Specify the type of mail server. 3 Specify the name of the mail server host. 4 Click Next. 	Files install.
10	Start copying files	Click Next .	
11	Specify cluster name	Specify sas_cluster or Specify a cluster name. It can be up to 39 alphanumeric characters, containing no spaces. Click Next .	Never use a valid host name as the cluster name. You cannot change the cluster name after installation.
12	Host Selection	In addition to the host you are currently installing on, you can install LSF on additional hosts to create your cluster. Type or select the hosts on which you want to install LSF. Click -> to move the host to the Install LSF on hosts column. Click Next	In a domain environment, the list of available hosts includes all of the hosts in your current domain.
13	Location of LSF Binary Files	C : \LSF_6 . 0 Click Next .	By default, LSF binary files are copied to each LSF host selected, and stored in C : \LSF_6 . 0 .

Step	Procedure	What to choose...	Notes
14	LSF Installation Directory	<p>\\<i>hostname</i>\LSF_6.0 where <i>hostname</i> is the name of your LSF file server.</p> <p>Click Next.</p>	<p>LSF binaries are installed on every LSF host. The directory you specify is created if it does not already exist.</p> <p>LSF hosts in the cluster need to access files on this host. If you use per server licensing, make sure you have enough connections. Windows NT Workstation and Windows 2000 Professional are not recommended because they only support a limited number of shared connections.</p>
15	Information Summary	Click Next .	
16	Summary	Click Next .	
17	LSF Setup	Deselect the check box for "I would like to view the "LSF Get Started" File" and click Finish .	The procedures described in the Getting Started document are also described later in this document.
18	LSF Setup	Click OK .	Do not restart your machine at this time. Complete the post-installation steps first on " Post-Installation Steps " on page 10.
19	Process Manager setup	Click Finish .	

Post-Installation Steps

- 1 “Set file permissions: LSF” on page 10.
- 2 “Set file permissions: Process Manager” on page 10.
- 3 “Set ports in `lsf.conf`” on page 10.
- 4 “Define Server in SAS Management Console” on page 11.
- 5 “Define `LSF_USER_DOMAIN` in `lsf.conf`” on page 12
- 6 “Start the Cluster” on page 13.
- 7 Add additional clients as required. See *Administering Process Manager* for instructions.

Set file permissions: LSF

Set the permissions for LSF files as shown on your directory structure:

- work, logs**
 - ◆ LSF service accounts: full control (All) (All)
 - ◆ LSF administrators: full control (All) (All)
 - ◆ Everyone: special access (R) (R)
- bin, lib, etc**
 - ◆ LSF service accounts: full control (All) (All)
 - ◆ LSF administrators: full control (All) (All)
 - ◆ Everyone: special access (RX) (RX)
- conf**
 - ◆ LSF service accounts: full control (All) (All)
 - ◆ LSF administrators: full control (All) (All)
 - ◆ Everyone: special access (R) (R)
- passwd.lsfuser**

If you have multiple service accounts, the `passwd.lsfuser` file is owned by the first one, and you must give any additional service accounts permission to modify the file.

 - ◆ LSF service accounts: full control (All) (All)

Set file permissions: Process Manager

Set the permissions for Process Manager files as shown on your directory structure:

- work, log**
 - ◆ Process Manager service accounts: full control (All) (All)
 - ◆ Process Manager administrators: full control (All) (All)
 - ◆ Everyone: special access (R) (R)
- lib, etc**
 - ◆ Process Manager service accounts: full control (All) (All)
 - ◆ Process Manager administrators: full control (All) (All)
 - ◆ Everyone: special access (RX) (RX)
- conf**
 - ◆ Process Manager service accounts: full control (All) (All)
 - ◆ Process Manager administrators: full control (All) (All)
 - ◆ Everyone: special access (R) (R)

Set ports in `lsf.conf`

If you have conflicts with the default ports used by LSF services and daemons, you will have to edit the settings manually. Different clusters should use different ports.

To make a change, edit the following parameters in
\\fileservers\LSF_6.0\etc\lsf.conf:

- ◆ LSB_MBD_PORT
- ◆ LSB_SBD_PORT
- ◆ LSF_RES_PORT
- ◆ LSF_LIM_PORT

Make sure the port you specify is not already in use.

Define Server in SAS Management Console

To define Process Manager Server as your server in the SAS Management Console:

- 1 Highlight Server Manager.
- 2 Right click and select **New Server**
- 3 Under **Scheduling Servers**, select **Platform** Process Manager Server **Server**.
- 4 Accept default values for version and vendor.
- 5 Enter connection properties as follows:
 - Authentication Domain: DefaultAuth**
 - Host Name: stc6650d.na.sas.com**
 - Port: 1966**
- 6 Review settings and click **Finish**.

Define LSF_USER_DOMAIN in lsf.conf

Edit the file `c:\LSF_6.0\etc\lsf.conf` and define the following parameter:

`LSF_USER_DOMAIN=domainname`

- ◆ where *domainname* is the name of the Windows domain to which your LSF users belong

For example, if the domain to which your LSF users belong is `mydomain`, set:

`LSF_USER_DOMAIN=mydomain`

Start the Cluster

After installing LSF on Windows, restart each machine.

This is required so that system environment variables LSF_ENVDIR and PATH become effective for all users, and LSF services LSF LIM, LSF RES, and LSF SBD are started.

LSF services are set to start automatically when the machine is restarted.

Check the Cluster

- ◆ “The `lsadmin` command” on page 14
- ◆ “The `lsid` command” on page 14
- ◆ “The `lsload` command” on page 15
- ◆ “The `badmin` command” on page 15
- ◆ “The `bhosts` command” on page 15

The `lsadmin` command The `lsadmin` command controls the operation of an LSF cluster and administers the LSF services, LIM and RES. Use the `lsadmin ckconfig` command to check the LSF configuration files. The `-v` option displays detailed information about the LSF configuration:

```
C:\LSF_6.0\bin>lsadmin ckconfig -v

LSF 6.0, May 31 2004
Copyright 1992-2004 Platform Computing Corporation
Reading configuration from \\hostA\lsf\etc\lsf.conf
Jul 10 10:54:14 2004 24854 5 6.0 C:\lsf\etc\lim.exe -C
Jul 10 10:54:14 2004 24854 7 6.0 setMyClusterName: searching cluster files ...
Jul 10 10:54:14 2004 24854 7 6.0 setMyClusterName: local host hostA belongs to cluster
sas_cluster
Jul 10 10:54:14 2004 24854 3 6.0 domanager():
\\hostA\lsf\conf\lsf.cluster.sas_cluster(13): The cluster manager is the invoker
<lsfadmin> in debug mode
Jul 10 10:54:14 2004 24854 6 6.0 Checking Done.
-----
No errors found.
```

You may see the message "License file not specified". You can ignore this message. It is displayed because a SAS license is used instead of regular LSF licenses.

The `lsid` command The `lsid` command displays the cluster name and master host name.

The master name displayed by `lsid` may vary, but it is usually the first host configured in the `Hosts` section of the `LSF_CONFDIR\lsf.cluster.cluster_name` file.

```
C:\LSF_6.0\bin>lsid
LSF 6.0, May 31 2004
Copyright 1992-2004 Platform Computing Corporation
My cluster name is sas_cluster
My master name is hostA.platform.com
Cluster in ISV mode: SAS
```

The lsload command The `lsload` command displays the current load levels of the cluster. The output contains one line for each host in the cluster. The status should be `ok` for all hosts in your cluster.

```
C:\LSF_6.0\bin>lsload
HOST_NAME      status  r15s  r1m  r15m  ut   pg  ls   it   tmp   swp   mem
HostA          ok     0.0  0.0  0.0  6%  0.2  2  1365  97M  65M  29M
HostB          ok     0.1  0.1  0.2  9%  0.0  4   1  130M 319M  12M
HostC          ok     2.5  2.2  1.9 64% 56.7 50   0  929M 931M 4000M
```

The badmin command The `badmin` command controls and monitors the operation of the LSF Batch system. Use the `badmin ckconfig` command to check the LSF Batch configuration files. The `-v` option displays detailed information about the configuration:

```
C:\LSF_6.0\bin>badmin ckconfig -v

Checking configuration files ...

Jul 10 17:39:57 2004 20246 6 6.0 minit: Trying to call LIM to get cluster name ...
Jul 10 17:39:58 2004 20246 6 6.0 Batch is enabled
Jul 10 17:39:58 2004 20246 6 6.0 Process Manager Server is enabled
Jul 10 17:39:58 2004 20246 6 6.0 autoAdjustInit: Auto-adjustment is disabled
Jul 10 17:39:58 2004 4433 6 6.0 Checking Done
-----
No errors found.
```

The messages shown above are the normal output from `badmin ckconfig -v`. Other messages may indicate problems with the Platform LSF Batch configuration. Refer to the *LSF Reference Guide* for help with some common configuration errors.

The bhosts command The `bhosts` command displays the status of batch server hosts in the cluster. The status should be `ok` for all hosts in your cluster.

```
C:\LSF_51\bin>bhosts
HOST_NAME      STATUS      JL/U   MAX  NJOBS   RUN  SSUSP  USUSP   RSV
hostA          ok          -     -     0       0     0     0     0
hostB          ok          -     -     0       0     0     0     0
hostC          ok          -     -     0       0     0     0     0
```

For more information

For more information about LSF commands, refer to the *LSF Administrator's Guide* and the *LSF Reference Guide*.

For more information about Process Manager, refer to *Administering Process Manager*.

Where to go next To install **Platform Grid Management Service**, see *README for Platform LSF Grid Management Services - Version 6.0 (README.gms)*.

Uninstalling the Software

You can uninstall the Process Manager and LSF software by running the installation software (`pm3.0_pinstall_sas_win.exe`) again.