

Altair®

PBS Professional™

9.1

Quick Start Guide

for UNIX®, Linux®, and Windows®

PBS Professional™ Quick Start Guide

Altair® PBS Professional™ 9.0, Updated: October 23, 2007

Edited by: Anne Urban

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PBS Professional™ Quick Install for UNIX and Linux

This section describes how to install The Altair FLEXlm license server and PBS Professional for the first time.

This process covers installation on both stand-alone machines and clusters. For more information on software and license installation, pre-installation planning, and example configurations, consult the **PBS Professional Administrator Guide**.

General Information

You must download, install and configure the Altair FLEXlm license manager **before** installing PBS Professional. If you will use a trial license, contact Altair Support for the license. For more information, see sections 4.1, 4.2 and 4.3 of the PBS Professional Administrator's Guide.

For **stand-alone** machines, perform a full installation of PBS Professional. Further configuration is optional.

For cluster systems, first install on the **PBS server host**, then install on each **execution host**.

Client machines (those from which jobs will be submitted, but which will not execute jobs) may be installed at any time *after* the other PBS installations have been completed.

Step 1 — Downloading, Installing and Starting the FLEXlm License Server

1.1 Download the package that is appropriate for the license server host. See Downloading Software on page 11. Go to:
<http://www.pbspro.com/UserArea/Software/>

1.2 Create the directory, <install loc>, where the license server will reside.

1.3 Copy the license server tarball to <install loc>.

1.4 Uncompress and extract the files:
gunzip altair_flexlm.\$(ARCH).tar.gz
tar -xf altair_flexlm.\$(ARCH).tar.gz

1.5 Run the lmhostid script on the license server host:

```
<install loc>/altair/scripts/lmhostid
```

1.6 Get and install the Altair license file. See page 13 for screenshots. Go to <http://www.pbspro.com/UserArea/>

a. Click on the License Manager link.

b. Click "Create New License".

c. Choose 1 server or 3 servers.

d. Enter your host type(s), lmhostid(s), and host name(s). If you are using the three-server redundant setup, enter this information for all three servers.

e. Enter the number of CPUs.

f. Click "Generate License" button.

g. Download the license file.

1.7 Copy the license file to

```
<install loc>/altair/security/altair_lic.dat
```

1.8 Install the startup script: Become root, then run <install loc>/altair/scripts/install_altairlm.sh

1.9 Modify the startup script according to section 4.3.2.7 of the PBS Professional Administrator's Guide.

1.10 Start the license server. Become root, and run <path to startup script>/altairlmgrd start.

Step 2 — Preparing to Install PBS Professional

(See also *Administrator's Guide* Chapter 4.)

- Log in as Administrator (root). You must have administrator privileges to install PBS Professional.
- Download the appropriate package from the PBS Professional website. See Downloading Software on page 11. Alternatively, mount the CD-ROM drive containing the PBS Professional CD to a directory on your machine. Extract the file to a directory of your choice.

Step 3 — Starting the installation program

(See also *Administrator's Guide* Chapter 4.)

- Change to the directory where you extracted the file, or mounted the CD-ROM.
- To start the installation process enter this command at the UNIX prompt:

```
./INSTALL
```

Step 4 — Follow the Installation Program

(See also *Administrator's Guide* Chapter 4.)

- Execution directory
This step identifies the directory into which the executable programs and libraries will be installed. To change the default destination, enter a new pathname.
- Home directory (PBS_HOME)
This step identifies the directory into which the PBS Professional daemon configuration files and logfiles will be installed. To change the default destination, enter a new pathname.
- PBS installation type
This step asks you to select the type of installation you wish to perform (see below).
- If this is a **stand-alone** system, select option 1.
- If this is a cluster **server host** (front-end), select option 1.
- If this is a cluster **execution host**, select option 2.

- If this is a **client machine**, select option 3.

Installation Begins

Approximate load time varies by the option selected and whether the installation is being done across the network.

Entering the License File Location

(See also the the *Administrator's Guide* Chapter 4.)

If this is a **stand-alone** or **front-end machine**, you will be prompted to enter the location of the FLEXlm server or license file. Type the location(s) at the prompt when requested.

Installation Complete

If this is a cluster **front-end machine**, enter “n” (for “no”) when the installation program offers to start PBS. Then proceed directly to Step 4 for further configuration.

However, if this is a **client machine**, then the installation is complete.

If this is a **stand-alone** or an **execution machine**, the installation program will offer to start PBS. Enter “n” (for “no”).

At this time, you may repeat the install process for other **execution** or **client machines**.

Step 5 — Front-end Configuration

See also *Administrator's Guide* Chapter 4.)

After the **front-end machine** has been installed, further configuration is required.

- If you do *not* intend to execute jobs on this **front-end machine**, then edit its global configuration file `/etc/pbs.conf`, setting the entry for `PBS_START_MOM=0`. This will tell PBS not to start the MOM daemon on this machine. (See also *Administrator's Guide* section 4.8.6.)

Step 6 — Start PBS Professional

Run the PBS start script:

```
<path to script>/pbs start
```

This is often in /etc/init.d.

Step 7 — Cluster Configuration

- Create the list of machines PBS will manage. Use `qmgr` to add one host name for each **execution host** in your cluster. (See also *Administrator's Guide*.)

Step 8 — Testing PBS Professional

The following commands are useful in testing that PBS Professional is up and running:

Command	Purpose
* <code>pbsnodes -a</code>	Show status of nodes in cluster
* <code>tracejob</code>	Extracts job info from log files
<code>qsub</code>	Command to submit a job
<code>qdel</code>	Command to delete a job
<code>qstat</code>	Show job, queue, & Server status
<code>qstat -B</code>	Briefly show PBS Server status
<code>qstat -Bf</code>	Show detailed PBS Server status
<code>qstat -Q</code>	Briefly list all queues
<code>qstat -Qf</code>	Show detailed queue information
<code>xpbs</code>	PBS graphical user interface
<code>xpbsmon</code>	PBS graphical monitoring tool

The above commands are discussed, along with detailed information on using PBS Professional, in the **PBS Professional Administrator's Guide** (marked with *), the **PBS Professional User's Guide**, and their manual pages, e.g. `qsub(1B)`.

Other Considerations

The following situations are *not* covered by this **PBS Professional Quick Start Guide**. We recommend you review the **PBS Professional Administrator Guide** for details regarding:

- Performing an upgrade rather than a new install
- Installing MOM with SGI® cpuset Support
- Interfacing with Globus

PBS Professional™ Quick Install for Windows®

This section describes how to install the Altair FLEXlm license server and PBS Professional on Windows.

This process covers installation on stand-alone machines and clusters. For more information on the software and license installation, pre-installation planning, and example configurations, consult the **PBS Professional Administrator's Guide**.

General Information

(See also *Administrator's Guide* Chapter 4.) You must download, install and configure the Altair FLEXlm license manager **before** installing PBS Professional. If you will use a trial license, contact Altair Support for the license. For more information, see sections 4.1, 4.2 and 4.3 of the PBS Professional Administrator's Guide.

For **stand-alone** machines, perform a full install of PBS Professional. Further configuration is optional.

For **cluster** systems, first install on the **front-end machine** (Server host), then install on each **execution host**.

Client machines (those from which jobs will be submitted, but which will not execute jobs), may be installed at any time *after* the other PBS installations have been completed.

Step 1 — Downloading, Installing and Starting the FLEXlm License Server

1.1 Download the package that is appropriate for the license server host. See Downloading Software on page 11. Go to:

<http://www.pbspro.com/UserArea/Software/>
You will get an executable named fs8.0sr1_WIN32.exe.

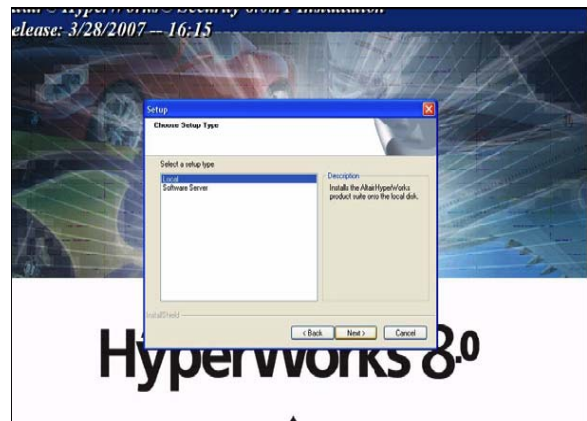
1.2 Log in as Administrator.

1.3 Double-click on the executable fs8.0sr1_WIN32.exe. The installation wizard should launch automatically. If the installation wizard does not start up, go to My Computer or

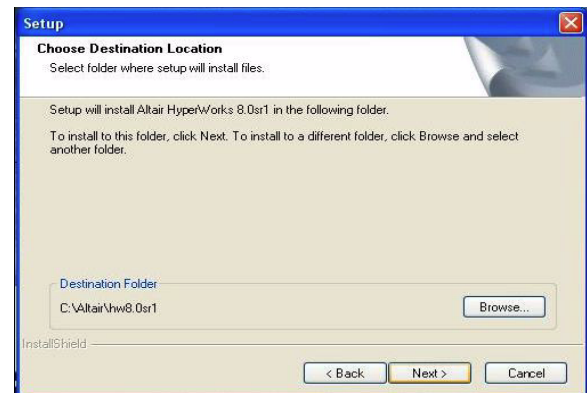
Windows Explorer and run: <drive letter>\<path to executable>\fs8.0sr1_WIN32.exe

1.4 Follow the installation wizard.

a. On the Welcome window, click Next.



b. On the Choose Setup Type panel, select Local to install the license server.



c. On the Choose Destination Location dialog, select <install location> where the license server will be installed.

Click Next.

d. Wait for the Setup Status panel to indicate that the installation is complete.

e. In the next two panels, click OK. The first mentions the FLEXid driver, which is not supported by Altair and is not used for PBS Professional. The second panel is a short README.

f. On the InstallShield Wizard Complete dialog, click Finish to close the installation wizard.

1.5 If you have redundant license servers, install the license server on each server using the above instructions.

1.6 Run the lmhostid script on the license server host (Type this all on one line):

```
<install_location>\security\  
WIN32\lmutil lmhostid
```

Use the first entry in the resulting list.

1.7 Get and install the Altair license file. See page 13 for screenshots.

a. Go to <http://www.pbspro.com/UserArea/>

b. Click on the License Manager link.

c. Click “Create New License”.

d. Choose 1 server or 3 servers.

e. Enter your host type(s), lmhostid(s), and host name(s). If you are using the three-server redundant setup, enter this information for all three servers.

f. Enter the number of CPUs.

g. Click “Generate License” button.

h. Download the license file.

1.8 Copy the license file to
<install location>\security\altair_lic.dat.

1.9 Activate the FLEX license:

a. Save the license file you received via e-mail as a text file. Make sure that the extension remains “.dat”.

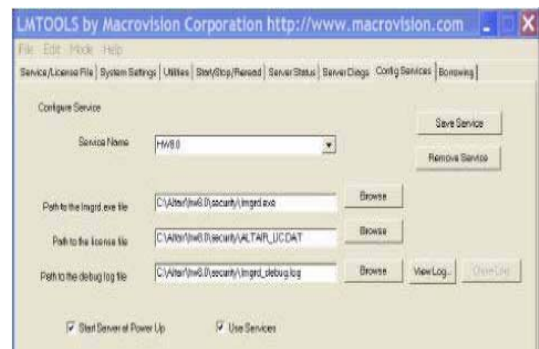
b. If this is a three-server license setup, copy this license file to the same location on all the servers listed in the license file.

c. Double click
<install_location>\security\win32\lmtools.exe.

d. Click the Service/License File tab.

e. Click the Configuration using Services option.

f. Click the Config Services tab.



g. Verify that all path names specified are correct. If necessary, use the respective Browse buttons to specify the path names. The path names should be similar to the following:

- Path to the lmgrd.exe file:
<install_location>\security\WIN32\lmgrd.exe
- Path to the license file:
<install_location>\security\altair_lic.dat
- Path to the debug log file:
<install_location>\security\WIN32\lmgrd_debug.log

h. Check the Use Services option.

i. Click the options Use Server and Start Server at Power Up.

j. Click Save Service.

k. Go to the Start/Stop/Reread tab.

l. Click Start Server.

1. **10** If this installation is part of a redundant license server setup, activate the license on all of the license server machines.

Step 2 — Preparing to Install PBS Professional

(See also *Administrator's Guide* Chapter 4.)

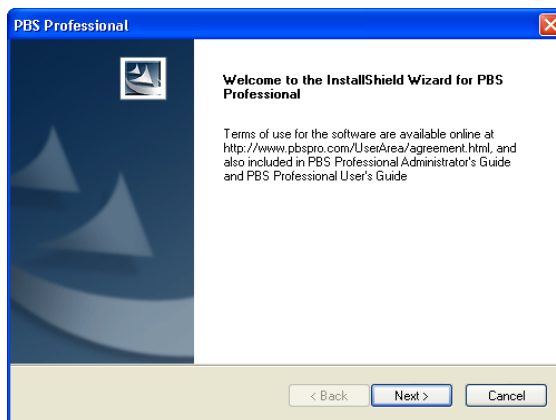
- Log in under a local account that is a member of the local Administrators group on the local computer.
- Create the “pbsadmin” account:
For domained environments, the service account must:
 1. be a domain account
 2. be a member of the "Domain Users" group
 3. have "domain read" privilege to all users and groups.
 4. You must delegate “read access to all users and groups information” to the pbsadmin account.

For standalone environments, the pbsadmin account must be a local account that is a member of the local Administrators group on the local computer.

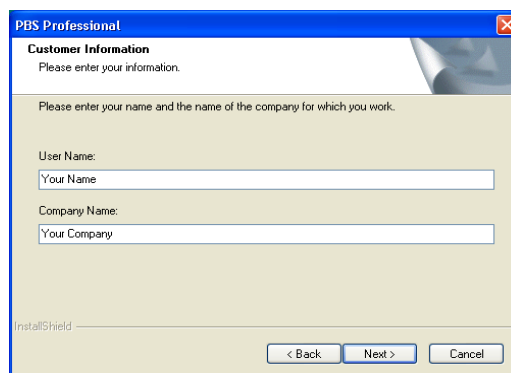
- Insert the PBS Professional CD into your PC's CD-ROM drive. Browse to the CD-ROM drive and double-click the *PBS_Pro_9_0* icon. This will launch the InstallShield Wizard.
- If you downloaded the installation file from the PBS Professional website (see Software Download on page 11), browse to the location where you saved the installation file, and double-click the *PBS_Pro_9_0* icon. This will launch the InstallShield Wizard.

Step 3 — Follow the InstallShield Wizard

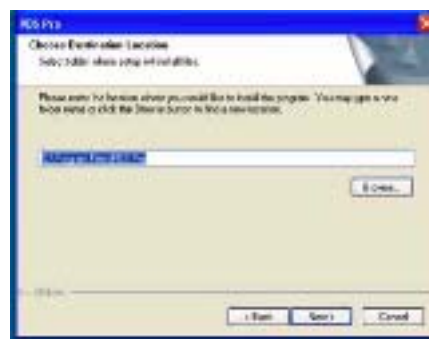
- On the welcome screen, read Terms of Use, and if you accept it, click **Next**.



- **Next, “Customer Information”.** Enter the “User Name” and “Company Name”, and **ignore** the “Serial Number”. Click **Next**.

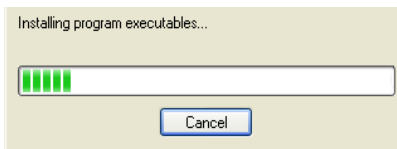
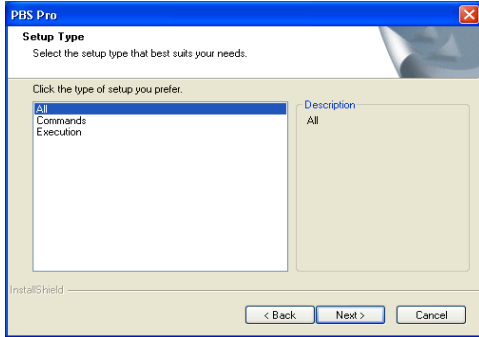


- **Next, “Choose Destination Location”.** This step identifies the folder where you want PBS Professional installed. Specify your choice, then click **Next**.



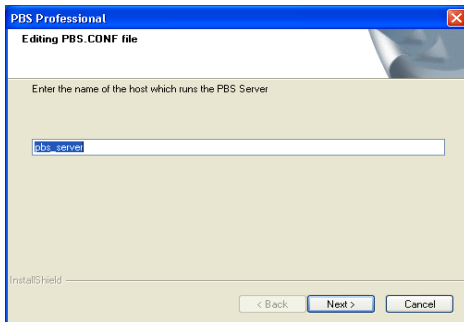
- **Next, “Setup Type”.** This step asks you to select the type of installation you wish to perform.

- If this is a **stand-alone** system, select **All**.
- If this is a cluster **front-end machine** (Server node), select **All**.
- If this is a cluster **execution machine** (Compute node), select **Execution**.
- If this is a **client machine**, select **Commands**.
- Then click **Next**.



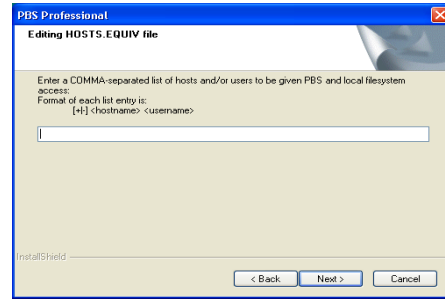
- **Next, "PBSADMIN Password"**. Enter the password for the pbsadmin account; verify by entering it twice, then click **Next**.
- Two informational screens will be shown; read the text, then click **Next**.

- **Next, "Editing PBS.CONF File"**. This panel will appear for an execution-only install. Enter the name of the host that will be running the PBS Server, then click **Next**.

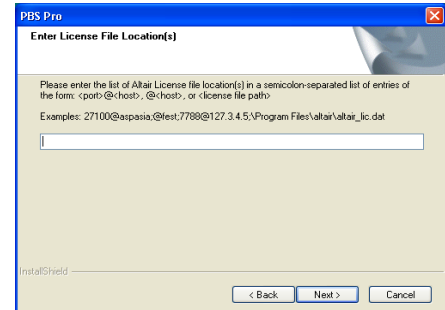


- **Next, "Editing HOSTS.EQUIV File"**. Specify any host(s) or user(s) who will need local filesystem access, then click **Next**.

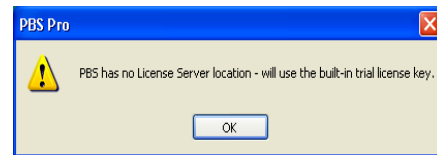
(See also the *Administrator's Guide* .)
If this is a **stand-alone** or **front-end machine**, you will see two PBS Server specific screens.



- **Next, "Enter License File Location"**. Type your license file or server location, and click **Next**.



If you enter an invalid location, you will see:



- **Next, "Editing PBS Server Nodes file"**. Enter the names of the nodes in your cluster, separated by commas, then click **Next**.

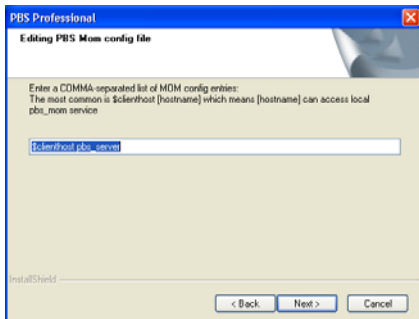


Step 5 — Node-Specific Configuration

If this is an **execution machine**, you will see the following screen.

- **Next, “Editing PBS MOM config file”.**

Enter any MOM configuration parameters you wish to set for this computer, then click **Next**.

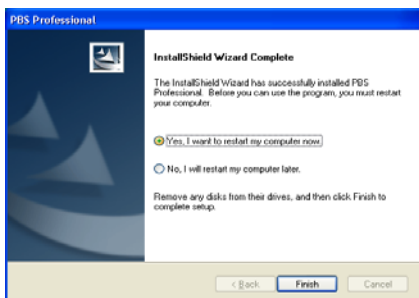


Installation Begins

Approximate load time varies by the option selected and whether the installation is being done across the network.

Installation Complete

Select **Yes** to reboot this computer, then click **Finish**.



At this time, you may repeat the install process for other **execution** or **client machines**. If this system is part of a cluster, further configuration may be required.

Step 6 — Verify List of Hosts

(See also *Administrator’s Guide* Chapter 12.)

After the **front-end machine** has been installed, further configuration of it is required.

- Use the `pbsnodes` command to verify the list of machines PBS will manage. Use `qmgr` to add any missing **execution hosts** in your cluster.

- If you do *not* intend to execute jobs on this **front-end machine**, then use `qmgr` to delete the front-end machine’s name from the list of nodes, and run the following command to prevent MOM from running on this node:

```
pbs-config-add PBS_START_MOM=0.
```

This will set the parameter that tells PBS *not* to start the MOM service on this machine. (See also *Administrator’s Guide*.)

- Lastly, start the PBS software by running the following commands as Administrator (Windows 2000) or as a user with Administrator privilege (Windows XP). (See also *Administrator’s Guide*.)

```
net start pbs_server
net start pbs_mom (execution nodes only)
net start pbs_sched
net start pbs_rshd
```

Step 7 — Testing PBS Professional

The following commands are useful in testing that PBS Professional is up and running:

Command	Purpose
<code>pbsnodes -a</code>	Show status of nodes in cluster
<code>qsub</code>	Command to submit a job
<code>qdel</code>	Command to delete a job
<code>qstat</code>	Show job, queue, & Server status
<code>qstat -B</code>	Briefly show PBS Server status
<code>qstat -Bf</code>	Show detailed PBS Server status
<code>qstat -Q</code>	Briefly list all queues
<code>qstat -Qf</code>	Show detailed queue information
<code>tracejob</code>	Extracts job info from log files
<code>xpbs</code>	PBS graphical user interface
<code>xpbsmon</code>	PBS graphical monitoring tool

The above commands are discussed, along with detailed information on using PBS Professional, in the **PBS Professional User's Guide**.

PBS Software and License Server Website Download

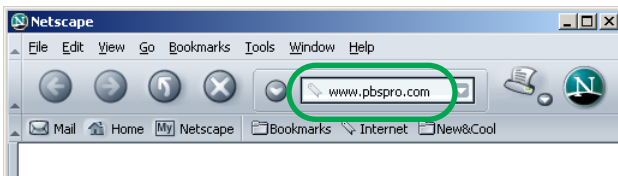
This section describes how to download PBS Professional software and the Altair FLEXlm license server from the PBS Professional website (www.pbspro.com).

General Information

Any web browser may be used to access the PBS Professional website. Both the PBS software and the license server are available here.

Step 1 — Access PBS Professional Website

Using your web browser, access the PBS Professional website at <http://www.pbspro.com>

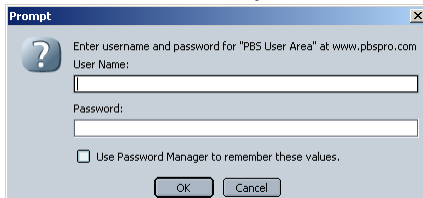


Step 2 — Log in to the Customer Area

- Click on the **LOGIN** button in the upper right corner of the website window.



- When prompted, enter your Site ID and Password. This information is provided by your Altair PBS Professional sales representative.



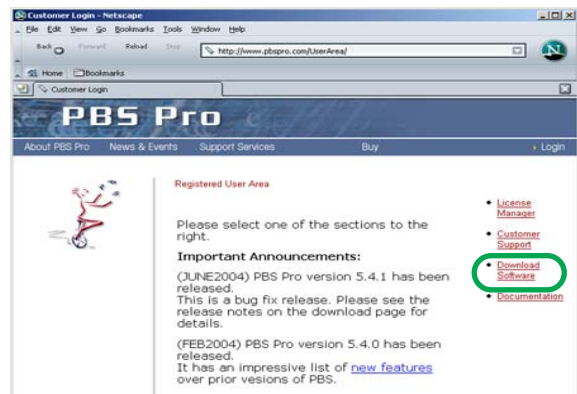
Step 3 — Accept Terms

- You must accept the terms the first time you go to the site. Enter your name, email and phone.

- You will be presented with announcements.

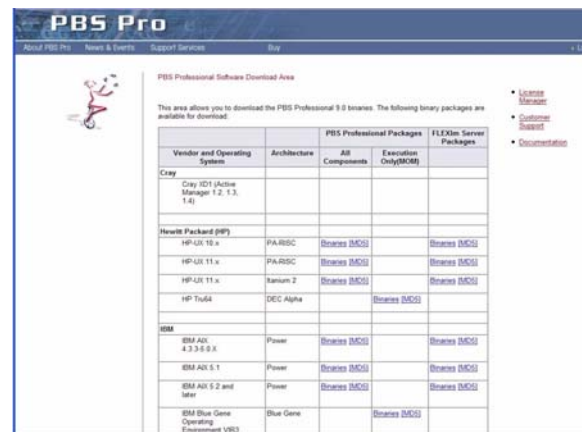
Step 4 — Go to Software Download Page

- Click on **Download Software**.



Step 5 — Select Package to Download

- Click on the package you wish to download. You can download PBS or the license server. You can download a package for all PBS components or for the execution host(s) only.



PBS Professional™ Documentation Download from Website

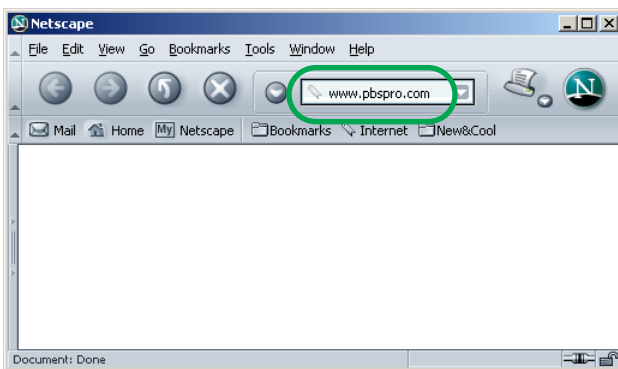
This section describes how to download the PBS Professional documentation from the PBS Professional website (www.pbspro.com).

General Information

Any web browser may be used to access the PBS Professional website.

Step 1 — Access PBS Professional Website

Using your web browser, access the PBS Professional website at <http://www.pbspro.com>

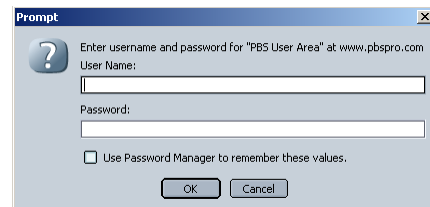


Step 2 — Log in to the Customer Area

- Click on the **LOGIN** button in the upper right corner of the website window.

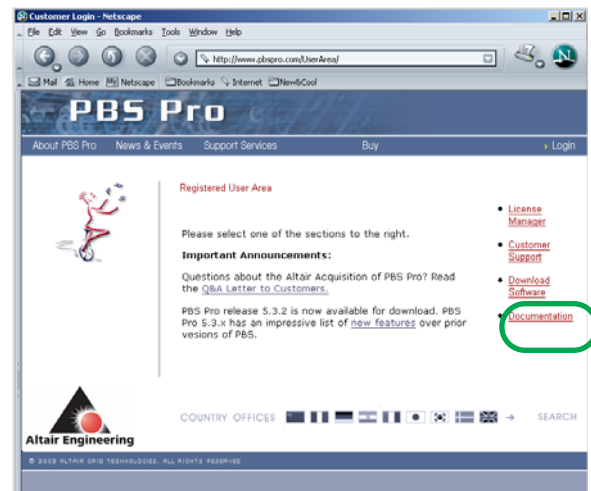


- When prompted, enter your Site ID and Password. This information is provided by your Altair PBS Professional sales representative.



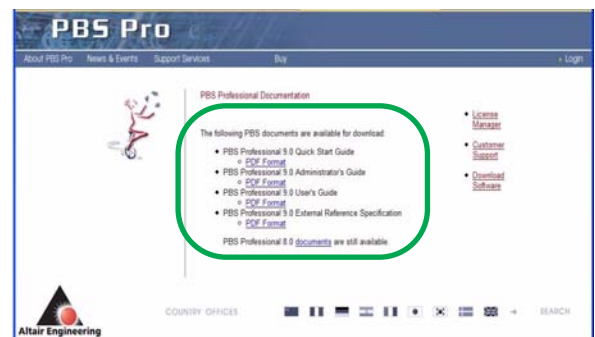
Step 3 — Select Documentation

- Click on **Documentation**.



Step 4 — Select Documents to Download

- Click on the document you wish to download.



PBS Professional™ License Download from Website

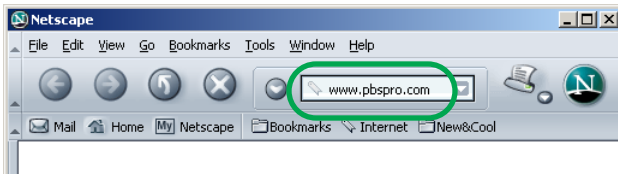
This section describes how to get the Altair FLEXlm license from the website (www.pbspro.com).

General Information

Any web browser may be used to access the PBS Professional website.

Step 1 — Access PBS Professional Website

Using your web browser, access the PBS Professional website at <http://www.pbspro.com>

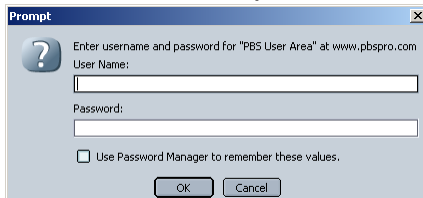


Step 2 — Log in to the Customer Area

- Click on the **LOGIN** button in the upper right corner of the website window.



- When prompted, enter your Site ID and Password. This information is provided by your Altair PBS Professional sales representative.

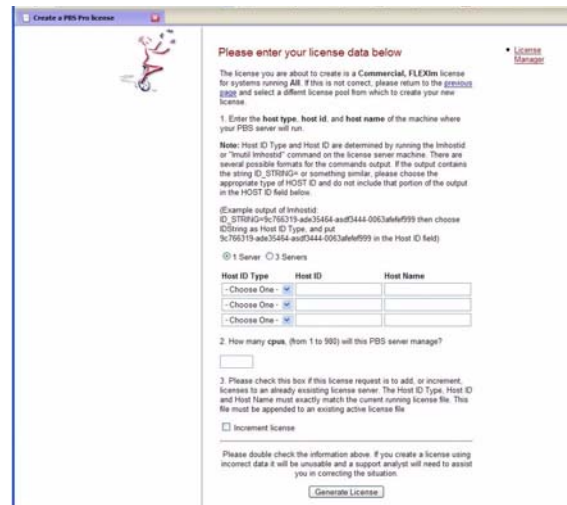


Step 3 — Accept Terms

- You must accept the terms the first time you go to the site. Enter your name, email and phone.

- You will be presented with announcements.
- Click on **License Manager**.
- You will see a page showing the licenses you have.
- Click on **Purchase Licenses**.

Step 4 — Enter License Information



- Enter Host ID type, Host ID and Host Name.
- If this is a three-server license, enter the information for all three servers.
- Your license file will be mailed to you.