

Altair®

PBS Professional™

7

Quick Start Guide

for UNIX®, Linux®, and Windows®

Portable Batch System™ Quick Start Guide

Altair® PBS Professional™ 7 Service Pack 1, Updated: August 30, 2005

Edited by: Anne Urban

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Contents:

Quick Installation Instructions for Unix and Linux	2
Quick Installation Instructions for Windows	4
Downloading Software and Updates from Website	7
Downloading Documentation from Website	8
License Key Generation via Website	9

For sales and support, contact Altair (web site: www.altair.com):

Location	Telephone	e-mail
North America	+1 248 614 2425	pbssupport@altair.com
China	+86 (0)21 5393 0011	support@altair.com.cn
France	+33 (0)1 4133 0990	francesupport@altair.com
Germany	+49 (0)7031 6208 22	support@altair.de
India	+91 80 658 8540 +91 80 658 8542	pbs-support@india.altair.com
Italy	+39 832 315573 +39 800 905595	support@altairtorino.it
Japan	+81 3 5396 1341	support@altairjp.co.jp
Korea	+82 31 728 8600	support@altair.co.kr
Scandinavia	+46 (0)46 286 2050	support@altair.se
United Kingdom	+44 (0)1327 810 700	support@uk.altair.com

PBS Professional™ Quick Install for UNIX and Linux

This section describes how to install PBS Professional and the license for the first time to enable you to use the PBS Professional workload management system.

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

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

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

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 — Preparing to Install PBS Professional

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

- Login as Administrator (root). You must have administrator privileges to install PBS Professional.
- Mount the CD-ROM drive containing the PBS Professional CD to a directory on your machine. If instead you downloaded the installation file from the PBS Professional website, then extract the file to a directory of your choice. Use the extracted directory rather than the mounted CD-ROM directory in Step 2.

Step 2 — Starting the installation program

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

- Change to the mounted CD-ROM directory.
- To start the installation process enter this command at the UNIX prompt:

```
./INSTALL
```

Step 3 — 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 **front-end machine** (Server node), select option 1.
- If this is a cluster **execution machine** (Compute node), 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.

Installing the License Key

(See also the “Generating the PBS License key” section on page 9 of this document, and the *Administrator’s Guide* Chapter 4.)

If this is a **stand-alone** or **front-end machine**, you will be prompted to enter the PBS Professional license key. Type it at the prompt when requested. If you have multiple keys, enter them on separate lines.

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 “y” (for “yes”).

At this time, you may repeat the install process for other **execution** or **client machines**. Or you may start using PBS Professional immediately (Step 5).

Step 4 — Cluster Configuration

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

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

- Create the list of machines PBS will manage. Edit the file `PBS_HOME/server_priv/nodes`, adding one machine name per line for each **execution machine** in your cluster. (See also *Administrator’s Guide*.)
- If you do *not* intend to execute jobs on this **front-end machine**, then edit the 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* Chapter 10.)

- Lastly, start the PBS software by running the following command. (See also *Administrator’s Guide* Chapter 10.)

```
/etc/init.d/pbs start
```

Step 5 — 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 *) and the **PBS Professional User’s Guide**.

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 PBS Professional and the license to enable you to use the PBS Professional workload management system.

This process covers both 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 Guide**.

General Information

(See also *Administrator's Guide* Chapter 3.)

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 node), then install on each **execution machine** (Compute node).

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.

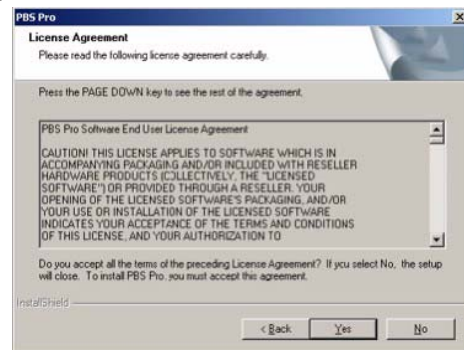
Step 1 — Preparing to Install PBS Professional

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

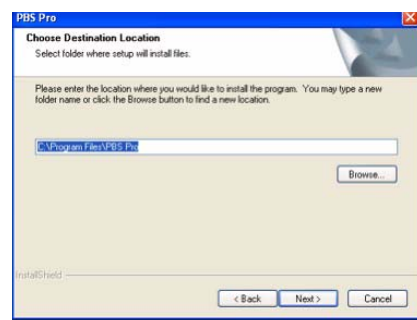
- If you're installing PBS in a domain environment, login under an account who is a member of "Domain Admins" group. If you're installing PBS in a standalone environment, then login under an account who is a member of the local "Administrators" group (e.g. Administrator).
- Insert the PBS Professional CD into your PC's CD-ROM drive. Browse to the CD-ROM drive and double-click the *PBS_Pro_5_4* icon. This will launch the InstallShield Wizard.
- If instead you downloaded the installation file from the PBS Professional website (see Software Download on page 7), browse to the location where you saved the installation file, and double-click the *PBS_Pro_5_4* icon. This will launch the InstallShield Wizard.

Step 2 — Follow the InstallShield Wizard

- On the welcome screen, click **Next**.
- **Next, "License Agreement"**.
Read the PBS Professional End User Software License Agreement. If you accept the license terms, click **Yes**.

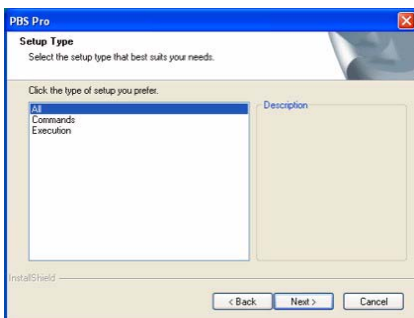


- **Next, "Customer Information"**.
Enter the requested customer information, then click **Next**.
- **Next, "Choose Destination Location"**.
This step identifies the folder where you want PBS Professional installed. Specify your choice, then click **Next**.



- **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**.

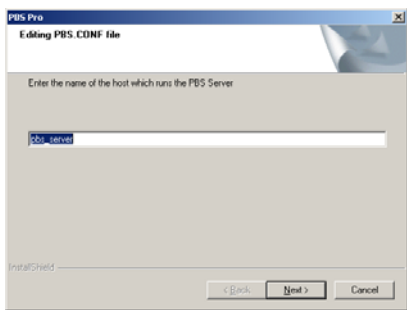


• **Next, “PBSADMIN Password”.**

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**.

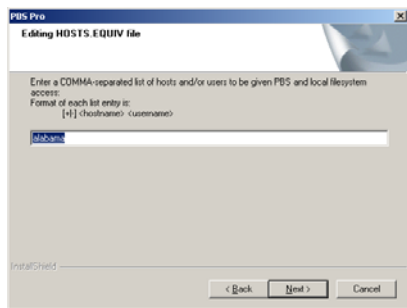
• **Next, “Editing PBS.CONF File”.**

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**.



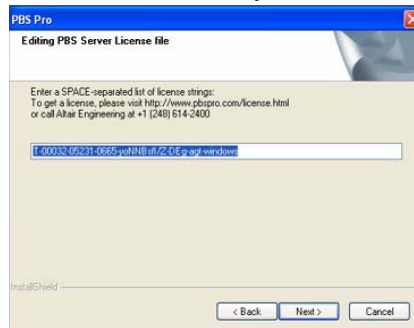
Step 3 — Server-Specific Configuration

(See also the “License Generation” section on page 9, and the *Administrator’s Guide* .)

If this is a **stand-alone** or **front-end machine**, you will see two PBS Server specific screens.

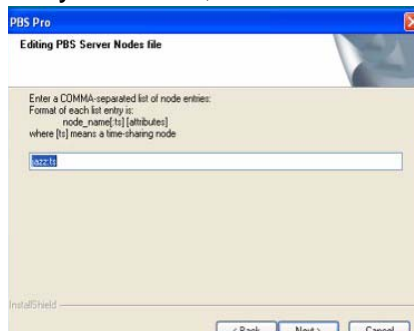
• **Next, “Editing PBS Professional License file”.**

Type your PBS license key, and click **Next**.



• **Next, “Editing PBS Server Nodes file”.**

Enter the names of the nodes in your cluster, separated by commas, then click **Next**.

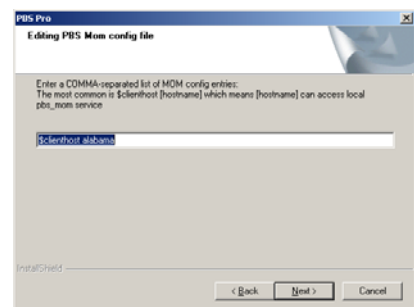


Step 4 — Node-Specific Configuration

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**.

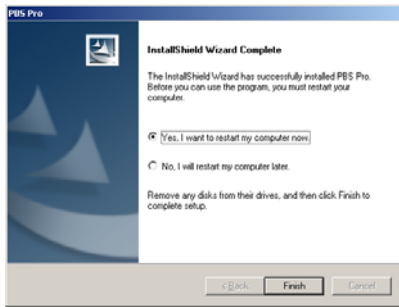


Installation Begins

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 (see Step 5).

Or you may start using PBS Professional immediately, as discussed in Step 6.

Step 5 — Verify Nodes File

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

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

- Verify the list of machines PBS will manage. Open the file `PBS_HOME/server_priv/nodes` in a text editor, and check whether changes are necessary. You may add one machine name per line for each **execution machine** in your cluster.
- If you do *not* intend to execute jobs on this **front-end machine**, then delete the front-end machine's name from the nodes file, 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* Chapter 12.)

- 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* Chapter 10.)

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

Step 6 — 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 Professional™ Software Download from Website

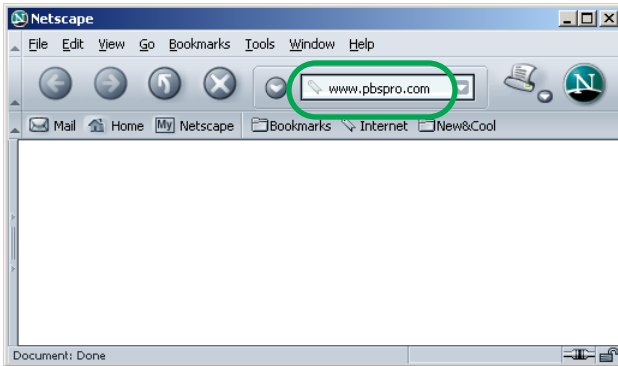
This section describes how to download the PBS Professional software from the PBS Professional website (www.pbspro.com).

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>

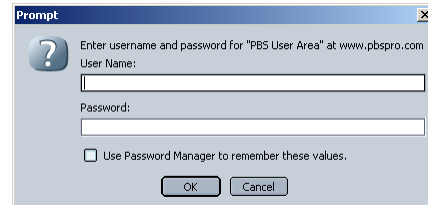


Step 2 — Login to the Customer Area

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

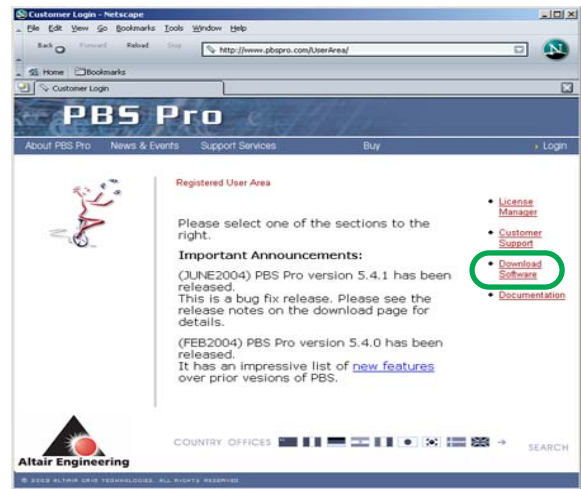


- When prompted, enter your Site ID and Password. This information is provided by your Altair PBS Professional sales representative.



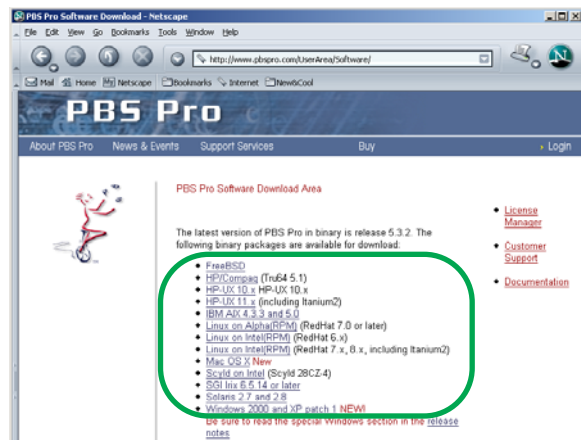
Step 3 — Select Download Software

- Click on **Download Software**.



Step 4 — Select Software to Download

- Click on the version you wish to download.



PBS Professional™ Documentation Download from Website

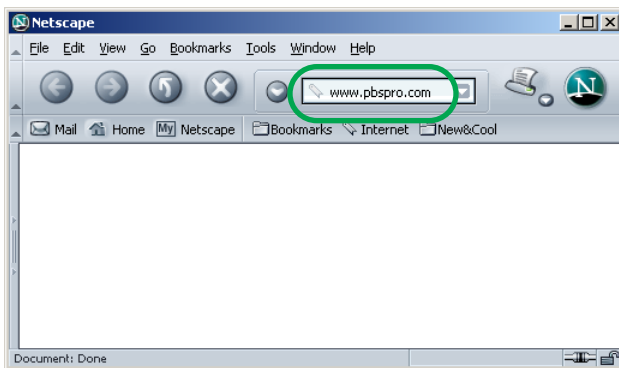
This section describes how to download the PBS Professional documentation from the PBS Professional website (www.pbspro.com).

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>

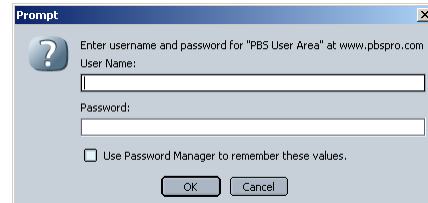


Step 2 — Login to the Customer Area

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

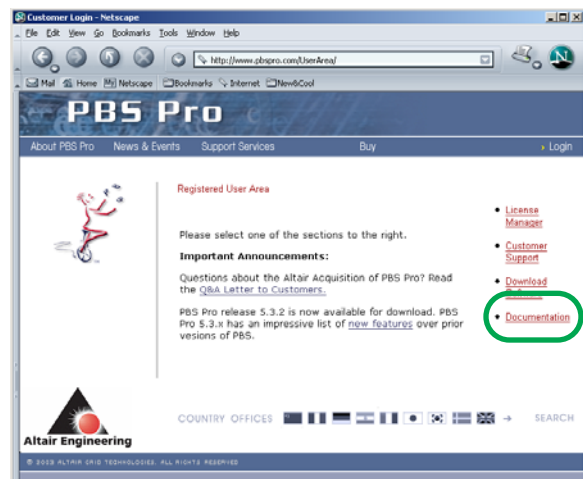


- When prompted, enter your Site ID and Password. This information is provided by your Altair PBS Professional sales representative.



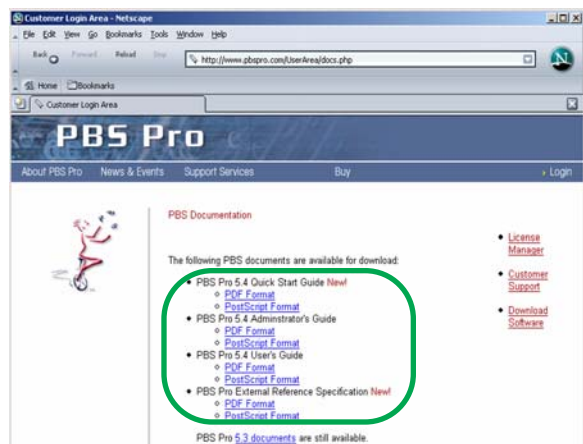
Step 3 — Select Documentation

- Click on **Documentation**.



Step 4 — Select Documents to Download

- Click on the document you wish to download.



PBS Professional™ License Generation via Website

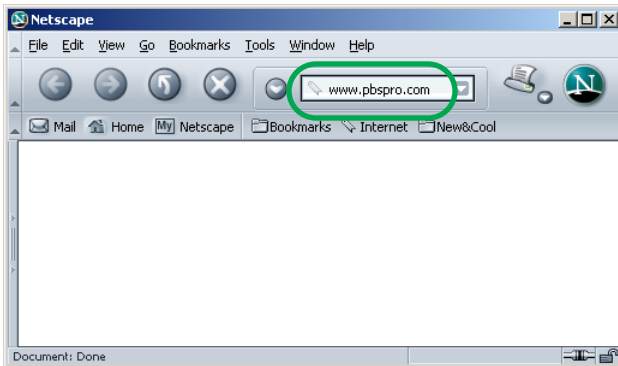
This section describes how to generate a PBS Professional license key via the PBS Professional website (www.pbspro.com).

General Information

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

Step 1 — Access PBS Website

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

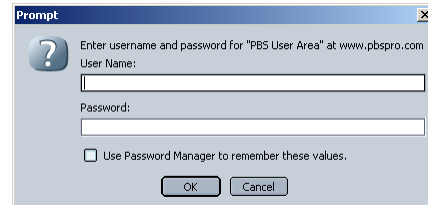


Step 2 — Login to the Customer Area

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

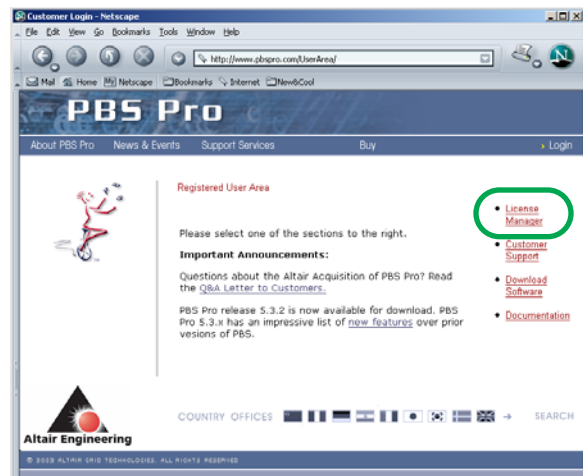


- When prompted, enter your Site ID and Password. This information is provided by your Altair PBS Professional sales representative.



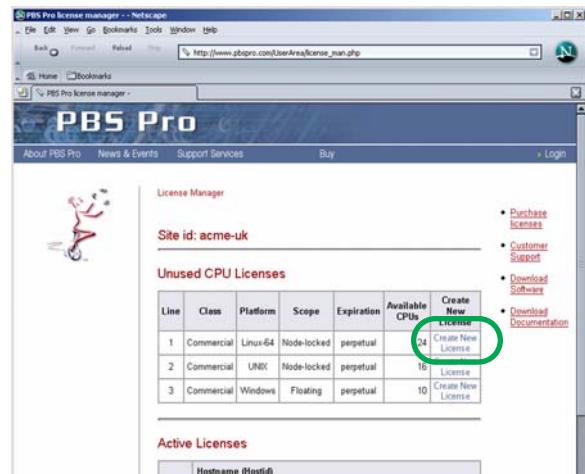
Step 3 — Access the License Manager

- Click on **License Manager**.



Step 4 — Create a New License

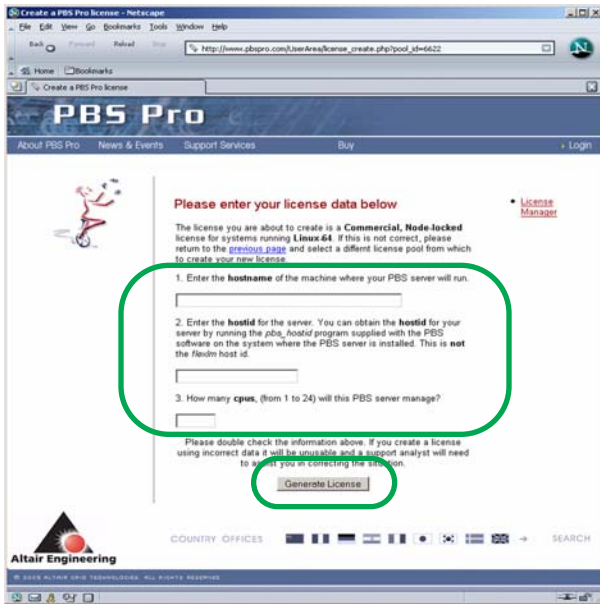
- Click on **Create New License**.



Step 5 — Generate PBS Professional License Key

On this page you need to supply the information needed to generate a PBS Professional license key for the computer on which the PBS Professional Server will be running. All the questions pertain to this host.

- Enter the **hostname**. Specify the primary hostname for this computer, as returned by DNS.
- Enter the **hostid**. You may use either the UNIX hostid or the PBS `pbs_hostid` command.
- Enter the **number of CPUs** of the specified OS to be managed by this PBS Server. You may enter fewer CPUs than you purchased, if you wish. You can repeat this process later if you need additional licenses. Any CPUs you use here will be deducted from your total balance.
- Verify that all the information you have entered is correct.
- Click **Generate License**.

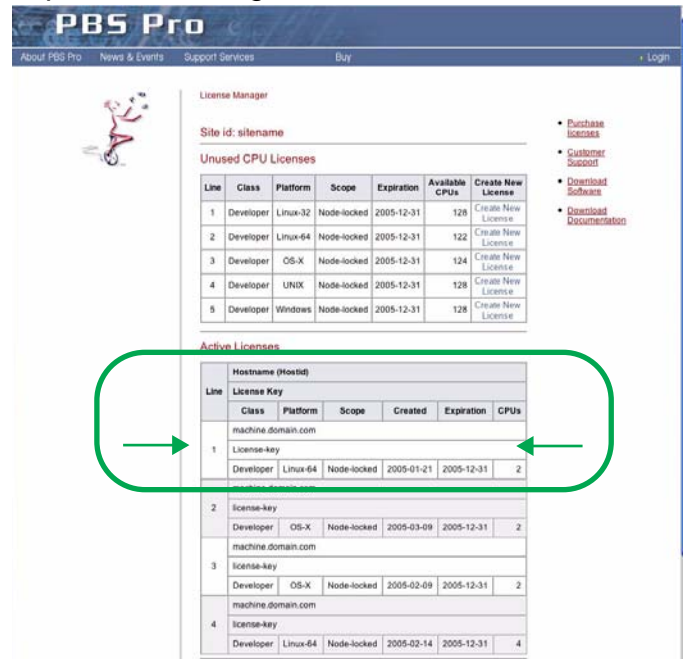


Step 6 — Review License Key

Upon successful generation of the new license key, the license manager will display the new key.

Any time in the future that you need to review your existing license keys, go the License Manager page (select License Manger link as discussed above). The top portion of the page will show you how many, if any, **Unused CPU Licenses** you have remaining.

Below that will be a section showing all of your **Active Licenses**, including the one you just generated. The most recently created license will be at the top of the list. The string of characters after the words "License key" is the key that needs to be provided during software installation.



At the bottom of the page will be any recently expired licenses.

Understanding PBS Professional License Keys

The following diagram explains what the different fields of the key represent.

