Apple Qmaster 2
User Manual

Using Apple Qmaster 2

The Apple Qmaster system provides automated work distribution and processing for high-volume projects created with Shake and other digital visual effects software packages.

This document describes the Apple Qmaster application, one of several applications in the Apple Qmaster distributed processing system. The complete system includes controls for configuring clusters of processing computers and to monitor, stop, or cancel work that has been submitted. Users who submit batches can also monitor, stop, or cancel their own batches.

The Apple Qmaster application described in this document is the "client interface" that you use to submit jobs for distributed processing. Apple Qmaster can accept jobs from Shake, Alias Maya, and any UNIX command-line program. For information on how to create a complete network for Apple Qmaster processing, and on how the Apple Qmaster application works with the rest of the Apple Qmaster system, see *Distributed Processing Setup*.

This document describes:

The Apple Qmaster Distributed Processing System

Computers that submit batches to Apple Qmaster are called *clients*. An *Apple Qmaster job* is a processing task in the form of a Shake file, or other file or commands, that uses UNIX commands to specify settings such as rendering instructions and file locations and destinations.

Batch of render jobs	**Apple Qmaster cluster**	**Rendered files**
Client computer	**Apple Qmaster cluster**	**Destination folder**
Shake jobs are submitted.	Rendering is performed by cluster.	Files are placed at specified destination.
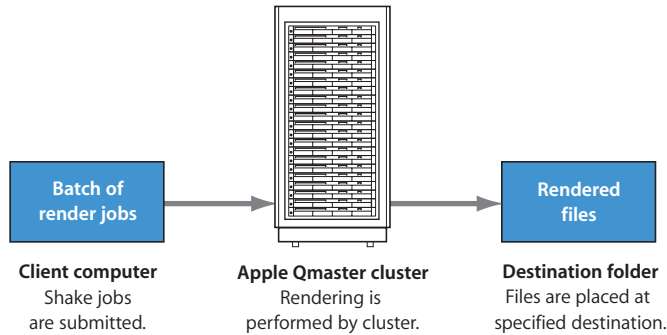
Although a batch can include just one job, you will typically want to submit several jobs at once for processing. Similarly, several people can use the same Apple Qmaster system at the same time, with several client computers sending batches in the same time frame. Batches are managed and distributed by the computer that is designated as the Apple Qmaster *cluster controller*. For more information, see the *Distributed Processing Setup* guide.

Clients

Batches are submitted for processing from the *client computers*. A client computer can be any computer that has Apple Qmaster installed and is on the same network as the cluster controller. Multiple client computers can be on the same network, using the same cluster to do the processing for various applications. See "Submitting Batches With The Apple Qmaster Application" on page 8 for details.

Clusters

When a client sends batches to the Apple Qmaster system, all the processing and subsequent moving of any output files is performed by a group of Apple Qmaster–configured computers called a *cluster*. To set up Apple Qmaster services, you use the Apple Qadministrator application to create one or more clusters of service nodes, with one cluster controller included in each cluster. Each computer in the cluster is connected to the other computers in the cluster through a network connection. See *Distributed Processing Setup* for more information on cluster setup. In particular, see "Preparing a Network for Distributed Processing."

Note: See the Shake Support web site (http://www.apple.com/support/shake) for an online guide to setting up a full-time render farm, incorporating an Xserve computer and cluster nodes.

Service Nodes

When you combine multiple nodes into a cluster, they function as one very powerful computer because all their resources are shared. You make a computer available as a service node by configuring it in the Apple Qmaster pane in System Preferences. The steps involved in using System Preferences to configure a service node are described in "Creating and Administering Clusters" in the *Distributed Processing Setup* guide.

Cluster Controllers

The cluster controller software acts as the manager of a cluster. The cluster controller directs the distribution of batches within the cluster. It has the ability to determine the best use of the cluster resources based on work and availability variables. (See the *Distributed Processing Setup* guide for more details.) You make a computer available as a cluster controller by turning on the cluster controlling service in the Apple Qmaster pane in System Preferences. (See "Configuring Service Nodes and Cluster Controllers," in the *Distributed Processing Setup* manual.)

The Apple Qmaster Interface

The Apple Qmaster application described in this document is one part of the larger distributed processing system described above. The Apple Qmaster application is the client software you use to submit jobs and batches to the system. Both this application and the larger system are known by the same name (Apple Qmaster).
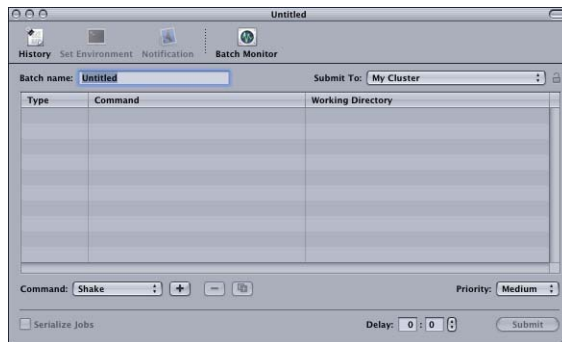
The Apple Qmaster window contains a toolbar, a Batch Name field; a Submit To field; the Batch table; buttons to add, remove, and submit jobs (dimmed until at least one job is in the Batch table); and pop-up menus to choose job types and batch priority.

Toolbar Buttons

The Apple Qmaster toolbar contains the following buttons:

- *History:* Opens the History drawer, where you can view a full log of all batches submitted from your computer, check the current status of all processing batches, and resubmit any batches listed in the log.
- *Set Environment:* Opens a sheet where you can add environment variables and preflight scripts.
- *Notification:* Opens a sheet where you can set (or reset) an email address to which the status of a Batch completion or failure can be sent.
- *Batch Monitor:* Opens the Batch Monitor, which allows you to view the status of all batches being processed.

Apple Qmaster Text Fields and Pop-up Menus

The Apple Qmaster window has other important interface elements for creating and submitting jobs and batches.
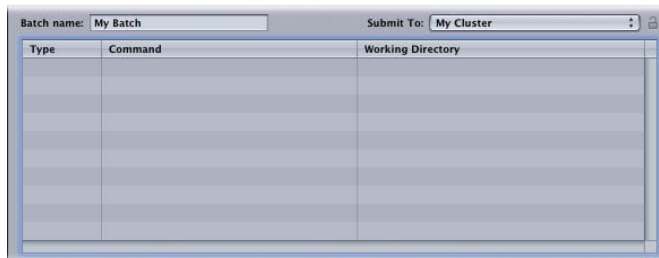
- *Batch name:* This is where you can enter the name of a particular batch. (This is the name that appears in the Batch Monitor.)
- *Submit To:* Use this pop-up menu to choose an available cluster to process the current batch.

- *Batch table:* This is the middle area of the Apple Qmaster window which lists the individual jobs in a batch. It includes the following columns:
  - *Type:* One of four job types: Shake, Maya, Generic Render, Shell (UNIX).
  - *Command:* The actual command for the job.
  - *Working Directory:* If relevant, the directory from which you want the command to be executed.

- *Command menu:* Use this pop-up menu to create commands. You can choose one of the following types of jobs:
  - Generic Render Command
  - Maya Command
  - Shake Command
  - Shell Command

Use the Add (+) button to enter a job (with the selected job type) into the Batch table. Use the Remove (–) button to delete the selected job from the Batch table.

Use the Duplicate button to duplicate the selected job in the Batch table.

Duplicate button

- *Serialize Jobs:* Select this checkbox to execute jobs in exactly the order in which they appear in the batch list. For example, if you have a Shake script that requires the output of a Maya script, you can ensure that the Shake script does not execute until the Maya script is done.
- *Priority:* Use this pop-up menu to set the relative priority (urgency) for a batch. This pop-up menu allows you set the priority level (High, Medium, or Low) of a batch, relative to other batches. It defaults to Medium. High-priority batches get processed before medium-priority and low-priority batches.

- *Delay:* Use these text fields to set a delay in hours or minutes for any job in the batch. Click on either text field (left field = hours, right field = minutes) to enter the corresponding value. Click the stepper to step through minutes in increments of 5 at a time, or, if the Hour text field is selected, in increments of 1 hour at a time.
- *Submit:* Click the Submit button to process the batch using the parameters set in the Apple Qmaster window.

Submitting Batches for Apple Qmaster Processing

Jobs are submitted in the form of a batch, and a batch can include one or more jobs. Batches can be submitted from any computer that:

- Has Apple Qmaster Applications installed
- Is on the same network as the cluster to which you are submitting the batch

Note: Certain bundled versions of Compressor 2 can also submit batches to the Apple Qmaster distributed processing system. See the *Distributed Processing Setup* guide or the *Compressor 2 User Manual* for more information.

Submitting Batches With The Apple Qmaster Application

Apple Qmaster includes a plug-in for Shake, which automates and customizes the process by which Shake batches are submitted with Apple Qmaster. Because of this, the process for submitting Shake batches is more automated than is the process for submitting batches for other applications that don't have such plug-ins. A plug-in is included for Alias Maya, as well as a generic Render Command plug-in for other frame-based rendering applications, and a Shell Command plug-in that works with any application that can be executed from the UNIX command line.

The plug-ins automatically set some default parameters for the job. They also provide a dialog for you to adjust these parameters to your needs, and to add more command-line options to each job.

- To submit batches for Shake, see "Submitting Shake Batches," below.
- To submit batches for Maya, see "Submitting Maya Batches" on page 12.
- To submit batches for other frame-based rendering applications, see "Submitting Batches With the Generic Render Command" on page 13.
- To submit batches for any application that can be executed from the UNIX command line, see "Using Apple Qmaster to Submit UNIX Commands" on page 15.

Submitting Shake Batches

Using Apple Qmaster, you can quickly create and submit a batch of Shake jobs.

Note: You can also submit Shake batches as described in "Using Apple Qmaster to Submit UNIX Commands" on page 15, but the following method is the easiest way to submit Shake batches with Apple Qmaster.

To submit Shake batches with Apple Qmaster:

1 Open Apple Qmaster.

2 Enter a name for the batch in the Batch Name field. (This is the name that appears in the Batch Monitor after you submit the batch.)

3 Do one of the following:
  • Drag the Shake (.shk) file to the Batch Table (the middle area) of the Apple Qmaster window.
  • Choose Shake Command from the pop-up menu, then click the Add (+) button to add a job.

4 In the dialog that appears:
  a In the Script field, enter the location of the Shake file if it isn't already shown. (If you dragged the file to the window, the file location is already there.)

  Note: The Shake field shows the default location of Shake on your computer. If it is not correct, be sure to update it.

  b If you want to, edit the available values and settings to customize the command.
    • See the Shake documentation for more information about the Shake settings in this dialog. Each setting corresponds to a commonly used Shake command, with the exception of the Minimum setting, which is described below. The Monitor pop-up menu is also described below.
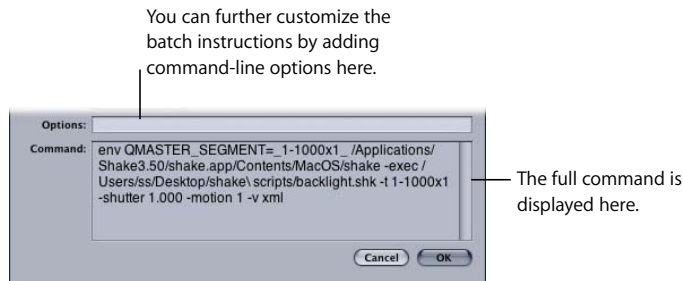

With the exception of the Minimum setting, each setting in the dialog corresponds to a commonly used Shake command or option. Refer to the Shake documentation for more information.

- You can change the value in the Minimum field to change the minimum number of frames in each Apple Qmaster segment. For example, with a minimum value of 10 (the default), Apple Qmaster would divide a 100-frame job into at least 10 segments of 10 frames each. If you changed the minimum value to 5, Apple Qmaster would divide a 100-frame job into at least 20 segments of 5 frames each. (When you set a minimum, keep in mind that while smaller segments allow a job to be distributed to more nodes at once, smaller segments can also mean that more processing effort is spent on opening and closing Shake on each node.)
- Though the Monitor pop-up menu corresponds to a Shake command option, it requires some explanation in the context of this dialog. The pop-up menu lets you choose whether or not to display each frame as it renders. If you don't want to see the frames as they render, choose None. To see the frames as they render, choose a display from the Monitor pop-up menu, then specify the FileOut node in the Options field. For example: –node *nodename*. (If the script has only one FileOut node, there is no need to specify it.)

c If you want to, add other command-line options to the Options field.

You can further customize the batch instructions by adding command-line options here.

Options:

Command: env QMASTER_SEGMENT=_1-1000x1_ /Applications/
Shake3.50/shake.app/Contents/MacOS/shake -exec /
Users/ss/Desktop/shake\ scripts/backlight.shk -t 1-1000x1
-shutter 1.000 -motion 1 -v xml

The full command is displayed here.

Cancel   OK

d Click OK when you have finished with this dialog. The Shake job appears in the window.

The job appears in the window.
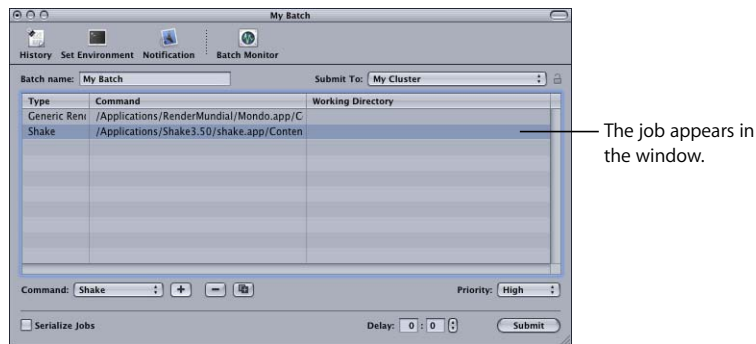
5   To add more jobs to this batch, repeat steps 3 and 4.

  • To edit a command in the list, double-click the job. The command dialog in step 4 appears.

  • To delete a job from this batch (before you submit the batch), select the job you want to delete and click the Remove (–) button.

6   As needed, set the following options for this batch:

  • *Submit To:* Choose a cluster to process this batch.

  • *Working Directory:* If relevant, enter the working directory (from which you want the command to be executed).

  • *Priority:* Choose the priority level from the pop-up menu. The higher the priority, the sooner and faster this batch will be processed relative to other batches.

  • *Delay:* Specify how long you would like the system to wait before processing this batch.

7   Click Submit to send the batch out for processing.

Any output files for the batch are placed in the destination specified in the script file or command.

Saving Time With Apple Qmaster
The Apple Qmaster interface includes some additional features that you may find convenient.

  • *Duplicating jobs:* To duplicate a job, select it and click the Duplicate button, which is next to the Remove (–) button. This is especially useful if you want to submit similar jobs. You can make copies of the same job and then edit values in Apple Qmaster as needed.

  • *History:* By clicking the History button, you can view the dates and names of batches that have been sent previously from Apple Qmaster, and you can drag them to the batch list in the Apple Qmaster window to add a copy of them to a batch you are creating. To drag a job or batch from the History table in Apple Qmaster, select the first column of the job or batch, then drag. The History drawer also has a Progress column that indicates the current status of all processing batches. It is updated every 5 seconds.

  • *Saving a batch:* To save a copy of a batch you have created with Apple Qmaster, in case you may need to resubmit it, choose File > Save As.

Submitting Maya Batches

There is a special dialog within Apple Qmaster for specifying commands for the distributed processing of Maya files. Apple Qmaster can utilize separate clusters for Shake and Maya, or draw from a single pool of processing resources for both applications.

To submit a batch of Maya files for processing:

1 In the Apple Qmaster window, choose Maya Command from the pop-up menu, then click the Add (+) button to add a job.

2 In the dialog that appears, enter the relevant information in the required and optional fields.

The full command is displayed here.

Some fields and settings in this dialog are optional, but the following are required:

- The Maya field displays the default location for the Maya application—make sure it is correct.
- Use the Choose buttons to navigate to and choose the location of the Maya project and scene files for this job.
- In the Frames region, enter a Start and End frame for the job.

The available settings correspond to commonly used Maya command options. You can also type additional command options in the Options field. See the Maya documentation for more information about all the Maya command settings.

3 Click OK when you have finished creating the full command.

4 To add more jobs to this batch, repeat steps 1 through 3.

5 As needed, set the following options for the batch in the Apple Qmaster window:

- *Submit To:* Choose a cluster to process this batch.
- *Working Directory:* If relevant, enter the working directory (from which you want the command to be executed) in the Working Directory column.
- *Priority:* Choose the priority level from the pop-up menu. The higher the priority, the sooner and faster this batch will be processed relative to other batches.

6 Click Submit to send the batch out for processing.

Submitting Batches With the Generic Render Command

You can use the Generic Render command in Apple Qmaster for the distributed processing of projects from other frame-based rendering applications (such as After Effects and LightWave). The plug-in dialog allows you to adjust parameters, and to add more command-line options to each job.

To submit a batch of files for processing using the Generic Render command:

1 In the Apple Qmaster window, choose Generic Render from the pop-up menu, then click the Add (+) button to add a job.

2 In the dialog that appears, enter the relevant information in the required and optional fields.

The full command is displayed here.

Some fields and settings in this dialog are optional, but the following are required:

- The Executable field requires the location of the frame-based rendering application—make sure it is correct.
- Use the Choose buttons to navigate to and choose the location of the project and scene files for this job.
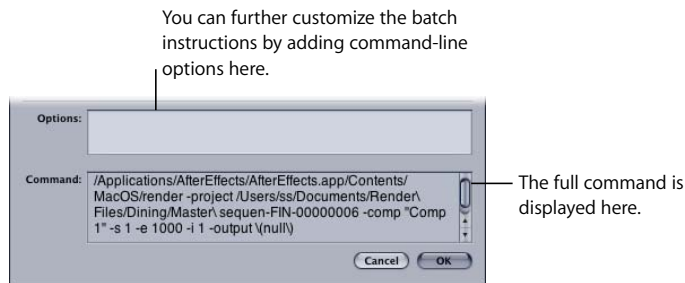- In the Frames region, enter a Start and End frame for the job.

3 In the Command Template section, do one of the following:

- Use the Default Template as is, or adjust it by adding additional command elements from the pop-up menu.
- Click the Add (+) button to create an additional template, and adjust it by adding additional command elements from the pop-up menu.

Note: You can change the order of the command elements by dragging them left or right.

4 If necessary, add command-line instructions into the Options field. Any text entered here will be appended at the end of the command.

5 Verify the full command in the Command text box and click OK.

You can further customize the batch instructions by adding command-line options here.

The full command is displayed here.

6 To add more jobs to this batch, repeat steps 1 through 4.

7 As needed, set the following options for the batch in the Apple Qmaster window:

- *Submit To:* Choose a cluster to process this batch.
- *Working Directory:* If relevant, enter the working directory (from which you want the command to be executed) in the Working Directory column.
- *Priority:* Choose the priority level from the pop-up menu. The higher the priority, the sooner and faster this batch will be processed relative to other batches.

8 Click Submit to send the batch out for processing.

Note: If you output from the Generic Render plug-in to single files containing all the frames, such as a QuickTime movie, all the nodes of a cluster may try to write to the same file at the same time. To avoid this problem, choose a different output file format or use a different render command.

Using Apple Qmaster to Submit UNIX Commands

You can use Apple Qmaster for distributed processing of any UNIX commands, including any application that can be operated from the command line. Apple Qmaster provides a convenient way to issue commands, shortening the amount of typing you need to do by providing an interface for the global parts of the command.

To distribute UNIX command batches with Apple Qmaster:

1 Open Apple Qmaster.

2 Enter a name for the batch in the Batch Name field. (This is the name that appears in the Batch Monitor.)

3 Choose Shell Command from the Command type pop-up menu.

Choose Shell Command from this pop-up menu.
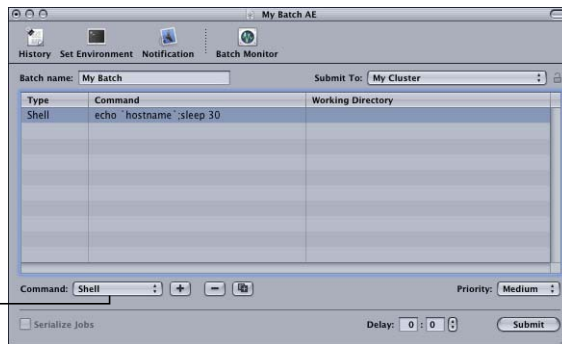
4 For each job you want to add to the batch, click the Add (+) button, then type the UNIX command in the Command column.

The UNIX command might specify, for example, the application, an output destination, and a couple of command-line options.

Type the command in the Command column.
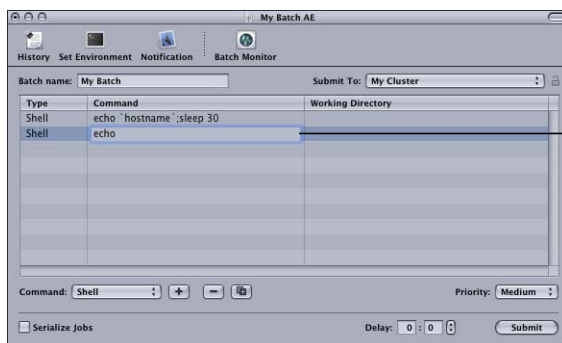
Note: If you need to delete a job from this batch (before you submit the batch), select the job you want to delete and click the Remove (–) button.

5   As needed, set the following options for this batch:

- *Submit To:* Choose a cluster to process this batch.
- *Working Directory:* If relevant, enter the working directory (from which you want the command to be executed).
- *Priority:* Choose the priority level from the pop-up menu. The higher the priority, the sooner and faster this batch will be processed relative to other batches.
- *Delay:* Specify how long you would like the system to wait before processing this batch.

6   Click Submit to submit the batch for processing.

Creating an Extended Node Cluster (Using Nodes Without Apple Qmaster Installed)

You can create a cluster containing one or more computers that do not have Apple Qmaster installed. To do this, you configure an intermediary service node that executes Apple Qmaster commands on other computers, called *extended nodes.* The intermediary service node runs UNIX Apple Qmaster commands on the extended nodes via the SSH (secure shell) UNIX program, so that the extended nodes can process Apple Qmaster batches without having Apple Qmaster installed. This type of cluster is called an *extended node cluster.*

Will Your Cluster Include Only Extended Nodes or Be Mixed?

If all the nodes in the cluster will be extended nodes (nodes that do not have Apple Qmaster installed), the cluster needs one intermediary node that also acts as the cluster controller. There is no need to use the Apple Qadministrator application at all if you are creating a cluster that contains only an intermediary node and extended nodes. All the configuration can be done in the Apple Qmaster pane in System Preferences, as described in "Configuring an Intermediary Node for an Extended Node Cluster," next.

However, if you want a cluster that contains both regular service nodes and extended nodes, configure an intermediary node (as described next), and then add it to a regular cluster that already has a cluster controller. (There can be only one cluster controller per cluster.)

### Configuring an Intermediary Node for an Extended Node Cluster

Before you begin, make sure that:

- The computer that will be the intermediary service node has Apple Qmaster installed.
- The computers that will be the extended nodes are running a UNIX-based operating system and have SSH enabled.

To configure an intermediary service node to run Apple Qmaster commands on extended nodes:

1 Open the Apple Qmaster pane in System Preferences.

2 If this intermediary node will be part of a mixed cluster, with a different computer acting as the cluster controller, skip this step and go to step 3. If you want this intermediary node to be the cluster controller for this cluster, do the following:

   a In the "Share this computer as" section, select one of the following radio buttons:

     • Services and QuickCluster controller

     • Services and cluster controller

   b Enter a name in the "Identify this QuickCluster as" field. This is the name you will see in the Cluster list in Apple Qadministrator, and in the cluster pop-up menus in the Batch Monitor and Apple Qmaster.
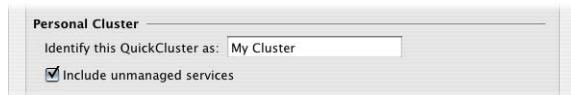
3 Make sure the Rendering service is selected in the Services section, and that its checkbox in the Share column is checked.
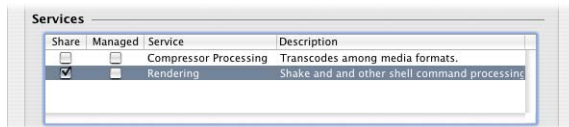
4 Click the "Options for selected service" button in the Services pane.

Note: The Service Options button is not available if the Rendering service is already on. If the service is on, click the Stop Sharing button so that you can access the "Options for selected service" button.

5 In the dialog that appears, add an instance for each extended node you want this intermediary node to send commands to:

a Choose SSH from the Add (+) pop-up menu.

b Edit the Host name, Username, and (if applicable) Password columns so that they describe each computer you want to use as an extended node, then click OK.
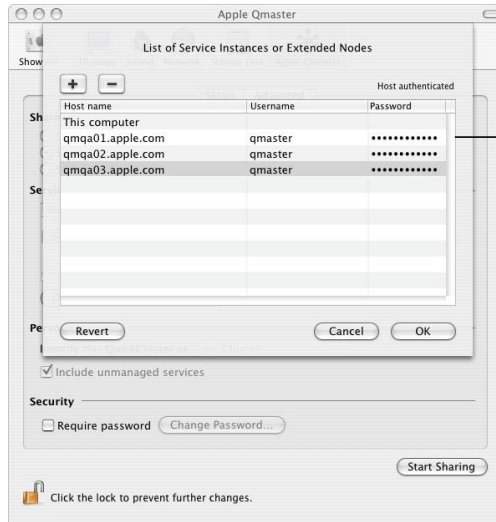
Edit the Host name, Username, and Password columns to specify the extended nodes you are adding.

6 In the Apple Qmaster Preferences Pane, click Start Sharing.

Start Sharing button

If you configured this intermediary node as the cluster controller, your work is done and the extended node cluster is ready to start receiving and processing batches submitted by Apple Qmaster.

If, instead, you want the extended nodes to be part of a cluster that includes regular service nodes, use Apple Qadministrator to add this intermediary node to that cluster. You add an intermediary node in the same way you add other service nodes, as described in the *Distributed Processing Setup* guide.

Setting Environment Variables in Apple Qmaster

You may want to set or change an environment variable for submitting certain jobs. When you set an environment variable within Apple Qmaster, the new setting takes effect immediately. This gives you an easy way to do things like set common directory paths or plugin-specific environment variables for Apple Qmaster jobs.

What's an Environment Variable?

Environment variables are settings within a shell, from which commands are issued that affect the way a program operates. People who regularly execute commands from a Terminal shell, or write shell scripts, are usually familiar with environment variables.

For example, the environment variable called PATH tells the shell where to look for commands that are entered. The PATH that is specified becomes the search path that is used when locating a program. It is set for you automatically, but you will want to add to it. For instance, if your username is jane and there is a directory named groupbin (in your home directory) that contains programs you want to run from a shell, the environment variable name would be PATH and the value of that name would be ~jane/groupbin.

What's a Preflight Script?

A preflight script is a script you can run on each node of a cluster prior to actually processing the batch. These scripts are sent with every distributed segment of a job.

To set environment variables in Apple Qmaster:

1 Select the command for which you want to set an environment variable.

2 Click the Set Environment button.

3 In the dialog that appears, you can add preflight scripts and environment variables or edit or remove an existing one.

Click the Add (+) button, then enter a variable name and value.
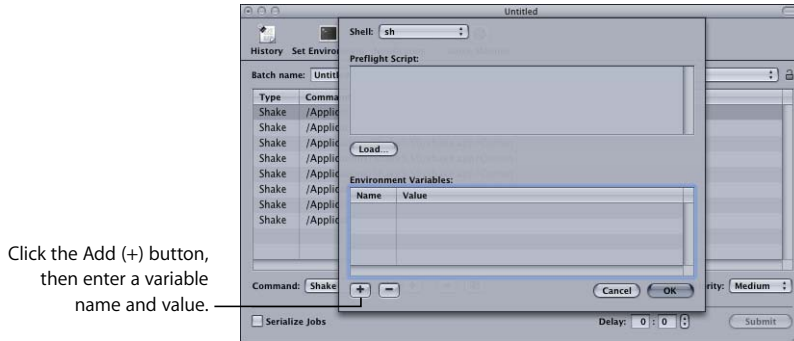
- To add a variable, click the Add (+) button, and then select and edit Untitled Variable in both the Name and Value columns.
- To remove a variable, select it, and then click the Remove (–) button.

4 Click OK.

Your environment variables take effect immediately, and are retained only for the selected command.

Command-Line Usage in Apple Qmaster

If you are accustomed to doing your work from Terminal shells, and need or prefer to run Apple Qmaster from the command line with minimal use of application interfaces, this section is for you.

Installing Apple Qmaster from the Command Line

Follow these steps to install Apple Qmaster software on each computer you want to use for distributed processing. (All computers must be on the same subnet.)

1 Copy the standalone installer package (AppleQmasterNode.mpkg) to the remote system.

You can either use the Finder, or copy the files using Secure Copy:

```
scp <source file> <user>@<remote host>:<path>
```

Note: Do not alter the file hierarchy of the packages.

2 Log into the remote system.

3　Enter the following command:

```
sudo installer -pkg AppleQmasterNode.mpkg -target /
```

4　Do one of the following to start the Apple Qmaster processes:

- Enter this command:

```
sudo systemstarter start Qmaster\ services
```

- Restart the remote computer.

5　Repeat these steps for each computer in your distributed processing network.

Shell Commands for Configuring Service Nodes and Cluster Controllers

As an alternative to using the Apple Qmaster pane in System Preferences, you can use the command *qmasterprefs,* with command-line options for enabling and disabling service node and cluster controlling services.

In the command-line descriptions below, angle brackets < > indicate a mandatory argument in a command and brackets [ ] indicate an optional argument.

Synopsis

Below is a synopsis of the command for enabling and disabling cluster controlling services on a computer. The *qmasterprefs* command is located in /usr/sbin.

qmasterprefs -cluster <on | off> [*-timeout* <minutes>] [*-servername* <name>] [*-list*] [*-help*]

Below is a synopsis of the command for enabling and disabling service node processing on a computer.

qmasterprefs -service "Unix Processing" <on | off> [*-instances* <n>] [*-timeout* <minutes>] [*-servername* <name>] [*-list*] [*-help*]

Command options

This table provides information about each of the enabling and disabling service-node and cluster-controlling services on a computer.

Preference command option	Description
[*-cluster*] <on | off>	Turns cluster-controlling services on or off.
	[timeout min] [servername name] [quickcluster on | off] [unmanagedservices on | off] [unmanagedmulticapturethreshold sec] [networkinterface allinterfaces | <bsd name>]
[*-service Rendering*] <on | off>	Turns UNIX Rendering services on or off.
	[timeout min] [instances n] [autorestart on | off] [unmanaged on | off]
[*-list*]	Lists the current *qmasterprefs* settings.
[*-help*]	Displays information about supported options for *qmasterprefs*.
[*-restart*]	Restarts Apple Qmaster services.
[*-service name options*]	Sets service options.

Shell Commands for Submitting Apple Qmaster Jobs

You can use the Apple Qmaster command, *Apple Qmaster,* with a number of command-line options for submitting jobs.

In the command-line descriptions below, angle brackets < > indicate a mandatory argument in a command and brackets [ ] indicate an optional argument.

Synopsis

Below is a synopsis of the command for submitting a job to a cluster. The *Apple Qmaster* command is located in /Applications/Apple Qmaster.app/Contents/MacOS.

Apple\ Qmaster [*-clustername* <name>] [*-clusterid* <user name:password@IP address:port number>][*-command* <command type> *-options* <XML command> [*-wd* <working directory>] [*-timeout* <seconds>] [*-show*] [*-batchname* <name>] [*-help*]

Once the job is submitted successfully, this command displays the batch ID (identifier) and job ID (identifier) in the shell.

Command options

This table provides information about each of the command options for submitting jobs.

Submission command option	Description
[-*clustername* <name>]	Use to specify the name of the cluster to which you want to send the job. Using the cluster name, Apple Qmaster looks for the cluster on the network in order to use it.
[-*batchname* <name>]	Use to specify a name for the batch so that you can easily recognize it in the Batch Monitor.
[-*clusterid* <user name:password@IP address:port number>]	Optionally, you can use -*clusterid* to enter the cluster ID and port number instead of using -*clustername*. (When you enter the cluster ID and port, less time is required to find the cluster on the network.) Or, if you used -*clustername* and the cluster requires a password, use -*clusterid* to specify the user name and password. (You need to include the IP address: port number as well whenever you use -*clusterid*.) **Tip:** Use *Apple Qmaster -show* to see a cluster's IP address and port number.
[-*command* <command type>]	Specifies the kind of command you are entering: *Shell, Shake, Maya,* or other command, depending on the application you want to use for distributed processing.
[-*options* <XML command>]	Specifies the command with XML code. Enter the XML code after -*options,* with the necessary qualifiers for entering it in a shell. See "Example of Shake Command XML," next, for an example. If no -*option* is entered, the values from the application's preferences file, in ~/Library/Preferences, are used (which are the values of the most recent job submitted).
[-*wd* <working directory>]	Use to specify the working directory path (from which the command should be executed). The default working directory is /Applications/Shake.
[-*timeout* <seconds>]	Use to specify the number of seconds before Apple Qmaster can quit when looking for a cluster. The default value is 0, which puts no limit on the timeout and allows Apple Qmaster to browse the network for as long as it needs to find the cluster.
[-*show*]	Shows the ID information for the cluster specified with -*clustername* or -*clusterid,* or for all clusters if no cluster is specified.
[-*help*]	Displays information about supported options for *Apple \ Qmaster.*

Example of Shake Command XML
The code below is an example of XML code for submitting a Shake command. Notice that because it needs to be entered as one command line, every character after -options that isn't alphanumeric must be preceded with a back slash (\).

/Applications/Apple\ Qmaster.app/Contents/MacOS/Apple\ Qmaster -clustername elvis -command "Shake" -options \<command\ executable\=\"\/Applications\/Shake\/ shake.app\/Contents\/MacOS\/shake\"\ script\=\"\/Volumes\/Jaguar\/scripts\/ applestyle.shk\"\ start\=\"1\"\ end\=\"1000\"\ stepsOf\=\"1\"\ minCount\=\"10\"\ otherOptions\=\"\"\ previewNode\=\"\"\ previewWidth\=\"0\"\ shutterOn\=\"yes\"\ motion\=\"yes\"\ proxyFlags\=\"0\"\ proxyScale\=\"1.000000\"\ proxyRatio\=\"1000.000000\"\ shutter\=\"1.000000\"\>\<\/command\>

Note: Apple Qmaster stores the XML code for the last command you entered in ~Library/Preferences/com.apple.AppleQmaster.plist. You can copy the command in XML form there, and customize it to use for a new job submission. Remember that every character after -options that isn't alphanumeric must be preceded with a backslash (\).

Shell Commands for Monitoring Batches
You can use the Batch Monitor command, *Batch Monitor,* with a number of command-line options for monitoring jobs.

In the command-line descriptions below, angle brackets < > indicate a mandatory argument in a command and brackets [ ] indicate an optional argument.

Synopsis
Below is a synopsis of the command for monitoring batches. The *Batch Monitor* command is located in /Applications/Utilities/Batch\Monitor.app/Contents/MacOS.

Batch Monitor [-*clustername* <name>] [-*clusterid* <user name:password@IP address:port number>] [-*jobid* <identifier> -*batchid* <identifier>] [-*timeout* <seconds>] [-*query* <seconds>] [-*help*]

To cancel a job or batch:
- *Batch Monitor* [-*clustername* <name>] [-*clusterid* <IP address> <port number> <user name> <password>] -*kill* -*jobid* <identifier> -*batchid* <identifier>

Command options

This table provides information about each of the command options for monitoring batches.

Monitoring command option	Description
[-*clustername* <name>]	Use to specify the name of the cluster to which the job was sent.
[-*clusterid* <user name:password@IP address:port number>]	Optionally, you can use -*clusterid* to enter the cluster ID and port number instead of using -*clustername.* Or, if you used -*clustername* and the cluster requires a password, use -*clusterid* to specify the user name and password. (You need to include the IP address: port number as well whenever you use -*clusterid.*) *Tip:* Use *Apple Qmaster -show* or *Compressor -show* to see a cluster's IP address and port number.
[-*jobid* <identifier> -*batchid* <identifier>]	Use to specify the job you want to monitor. When you use the -*jobid* option, you must also specify the -*batchid,* in the form of the name that was given to the batch when it was submitted. (The batchid and jobid are displayed after a batch is submitted.) If you do not use the -*jobid* option, all the jobs submitted to the specified cluster are listed.
[-*timeout* <seconds>]	Use to specify the number of seconds before Batch Monitor can quit when looking for a cluster. The default value is 0, which puts no limit on the timeout and allows Batch Monitor to browse the network for as long as it needs to find the cluster.
[-*query* <seconds>]	Use to specify how frequently, in seconds, the job status should be updated.
[-*kill* -*jobid* <identifier> -*batchid* <identifier>]	Cancels the specified job or batch.
[-*help*]	Displays information about supported options for *Batch \ Monitor.*