



# Setting Up Queues

## Overview

This chapter explains how to set up queues so that your jobs run efficiently on your network. Jobs enter queues when their dependencies are met and are released from a queue by the master. In the previous chapters, the jobs you created ran from the default queues.

Queues are most effective when more jobs are scheduled than you have resources to handle them. Each queue has a job limit and a priority that helps to determine from which queue jobs are launched. When a queue's limit is reached, Enterprise Scheduler selects the next queue to run jobs on according to queue priorities. Within a queue, a job's individual priority determines which job in the queue is launched first.

Queues are defined in a hierarchy, with the **System Queue** at the top.

To view TES's predefined job queues, select **Scheduling>Queues** in the **Navigator** pane.

**Figure 11-1**      **Queues Pane**

TES 6.0 Console							
<span>File View Activities Reports Help</span> <span>hostname 139 0 32% qatest</span> <span>database wait active overall</span> <span>Saturday, September 19, 2009 1:07 AM</span> <span>ENTERPRISE SCHEDULER</span>							
7 Records Search Grid							
Name	Priority	Limit	Active	Waiting	Enabled	Modified	
System Queue	0	50	0	0	Yes	09/17/2009 3:44 PM	
Scheduled	50	100	0	0	Yes		
Long Scheduled Jobs	50	100	0	0	Yes		
Short Scheduled Jobs	50	100	0	0	Yes		
Unscheduled	50	100	0	0	Yes		
Long Unscheduled Jobs	50	100	0	0	Yes		
Short Unscheduled Jobs	50	100	0	0	Yes		

Each queue contains a set of queue filters. Queue filters are designed to accept or reject jobs based on their properties.

In order for a job to match a queue, all categories defined in a queue must be met, and each one must be met at least once. All parent queue categories will also have to be met, and no queue with a higher priority must match the job at all.

For example, a queue defined as jobs starting with *TEST\** on agent *Example Agent* will match a job named *TEST JOB* run on *Example Agent*, but will not match job *TEST JOB 1* run on *Example Agent 2*. Also, all parent queues must also be matched before this queue can be considered for a match.

Besides prioritizing the execution of large quantities of jobs, queues can be used for a number of other purposes:

- To limit the number of jobs of a particular type or group running concurrently
- To control the flow of jobs executed, overall or by an individual queue, so that system resources are used more evenly and peak demands are reduced
- To single-thread jobs requiring a particular resource, such as exclusive access to a database
- To restrict the hours when jobs run to a time window defined by the queue, for example, to allow batch processing to occur overnight
- To launch jobs immediately for special cases where it is required

This chapter covers:

- Setting up the **Inventory Weekly** job group
- Creating three jobs for the **Inventory Weekly** job group
- Setting up a queue
- Adding the **Inventory Weekly** job group to production
- Monitoring the job group in production
- Changing the queue limit
- Re-submitting the **Inventory Weekly** job group

**Note**

To complete the exercises in this tutorial, you need to:

Install Enterprise Scheduler in the default directory Scheduler (or the examples in this tutorial will not work properly)

- Select the Super User option in your User definition
- Configure a default agent
- Create and have available the work day calendar

## Setting Up the Inventory Weekly Job Group

In this example, we will design a queue to accept jobs of a particular job group. Otherwise, there will be no job group to choose from when the queue is created.

To set up the Inventory Weekly job group:

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- Step 1** From the **Navigator** pane, select **Definitions>Jobs** to display the **Jobs** pane.
- Step 2** Right-click in the **Jobs** pane and select **Add Job Group** from the context menu.

- Step 3** In the **Job Group Name** field, enter **Inventory Weekly**. Make sure the **Parent Group** field is empty.
  - Step 4** Click the **Schedule** tab, if not selected.
  - Step 5** In the **Calendar Name** list, select the **work day** calendar.
  - Step 6** Click the **Options** tab.
  - Step 7** Select the **Require operator release** option.
  - Step 8** Click **OK**.
  - Step 9** Click **Cancel** at the **Effective Date** dialog. (The job group should not enter the schedule yet.)
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## Creating Jobs for the Inventory Weekly Job Group

Now, we will create three jobs (**Inventory\_10**, **Inventory\_11** and **Inventory\_12**) that belong to the **Inventory Weekly** job group, with no dependencies.

To create jobs for the Inventory Weekly job group:

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- Step 1** In the **Jobs** pane, select the **Inventory Weekly** job group.
  - Step 2** Click the **Add Job** button or right-click and select **Add Job** from the context menu to display the **Job Definition** dialog.
  - Step 3** In the **Job Name** field, enter **Inventory\_10**.
  - Step 4** Verify that **Inventory Weekly** is displayed in the **Parent Group** list. If not, select it.
  - Step 5** In the **Command** field, enter the full path to the file:
  - Step 6** `/UNIX_TEST_5.sh`
  - Step 7** Click the **Notes** tab. We will use the **Notes** tab to enter a short description of the job.
  - Step 8** The **Notes** tab is a good place to add special instructions or explanatory comments without affecting the job's execution.
  - Step 9** In the **Other Notes** field, enter **Inventory Processing Program**.
  - Step 10** Click **OK**.
  - Step 11** Click **Cancel** at the **Effective Date** dialog.
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## Duplicating a Job Definition

To duplicate a job definition:

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- Step 1** Select the **Inventory\_10** job in the **Jobs** pane if not already selected, and either click the **Copy Job/Group** button or right-click and select **Copy Job/Group** from the context menu.  
A job displays in the **Jobs** pane named **Copy of Inventory\_10**.
  - Step 2** Double-click **Copy of Inventory\_10** and rename it to **Inventory\_11**.
  - Step 3** In the **Command** field, change `/UNIX_TEST_5.sh` to `/UNIX_TEST_4.sh`.

- Step 4** Click **OK**.
- Step 5** Click **Cancel** to prevent the job from being scheduled.
- Step 6** Repeat the steps above to create a third job called **Inventory 12** and enter **/UNIX\_TEST\_3.sh** in the **Command** field.

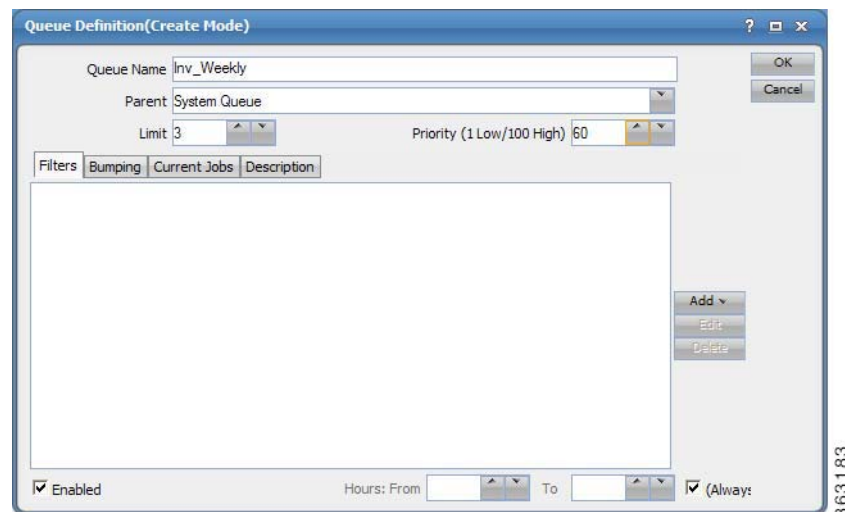
## Setting Up a Queue

We will set up a queue named **Inv\_Weekly** and give it a queue limit of three. The jobs in the **Inventory Weekly** group will run in this queue. The queue configuration parameters will single-thread (run one at a time) the jobs in the group.

To set up a queue:

- Step 1** From the **Navigator** pane, select **Scheduling>Queues** to display the **Queues** pane.
- Step 2** Right-click the **System Queue** and select **Add Queue** from the context menu to display the **Queue Definition** dialog.

**Figure 11-2** Queue Definition Dialog



- Step 3** In the **Queue Name** field, enter the name **Inv\_Weekly**.
- Step 4** Leave **System Queue** in the **Parent** field.  
We defined **Inv\_Weekly** as a direct sub-queue of the system queue in the queue hierarchy. This means there are no intermediate queues to impose their own restrictions and affect job execution.
- Step 5** Change the **Limit** value to **3**. This allows a maximum of three jobs from this queue to run concurrently.
- Step 6** Change the **Priority** value to **60**.  
Default queues have a priority setting of **50**. Since default queues *can* accept the jobs that you created, this higher priority value will ensure that the jobs enter this queue. When the queue manager sees two or more queues that can accept a job, it always assigns the job to the queue with the highest priority.
- Step 7** On the **Filters** tab, click the **Add** button to display a list and select **Job Group**.

The **Queue Filter Condition** dialog displays.

**Step 8** Select the **Inventory Weekly** job group.

**Step 9** Click **OK**. The filter is entered into the **Filters** tab.

The **Always** option in the **Hours Available** section should be selected by default. This means that the **Inv\_Weekly** queue can run at any time. If you de-select the **Always** option, you can restrict the queue to operate within a specific time window. Jobs assigned to the queue would then run only if the current time were within that time window.

**Step 10** Click **OK**. **Inv\_Weekly** is added to the list of queues on your system.

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## Adding the Inventory Weekly Job Group to Production

Now, submit the group **Inventory Weekly** into the production schedule.

To submit the group into the production schedule:

**Step 1** In the **Jobs** pane, right-click the **Inventory Weekly** job group and select **Insert into Schedule** from the context menu.

**Step 2** Click **OK** in the **Insert Job Into Schedule** dialog.

**Step 3** Click **OK** in the **Information** dialog.

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## Monitoring the Job Group in Production

To monitor the job group in production:

**Step 1** From the **Navigator** pane, select **Operations>Job Activity** to display the **Job Activity** pane.

Your job group is listed in bold showing the **Waiting On Operator** status.

**Step 2** Right-click the **Inventory Weekly** job group and from the **Job Control** submenu select **Release/Resume** to start the job group.

**Step 3** Click **Yes** in the **Confirm** dialog.

**Step 4** Click **OK** in the **Information** dialog.

The **Inventory Weekly** job group goes active, along with the three jobs: **Inventory\_10**, **Inventory\_11**, and **Inventory\_12**. Because the limit on the **Inv\_Weekly** queue is set to **3**, all three jobs in the group **Inventory Weekly** are launched at once, and now run to completion.

**Step 5** Scroll to the right in the **Jobs** pane to view the **Queue** column.

Note that the **Inventory\_10**, **Inventory\_11** and **Inventory\_12** jobs are running from the **Inv\_Weekly** queue.

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## Changing the Queue Limit

Changing the queue limit from any number to **1** changes the queue from multiple to single-threaded processing.

To change the queue limit:

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**Step 1** From the **Navigator** pane, select **Definitions>Queues** to display the **Queues** pane.

**Step 2** Double-click the **Inv\_Weekly** queue to display its definition dialog.

**Step 3** Lower the **Limit** from **3** to **1**.

**Step 4** Click **OK** to save the changes.

The limit change is displayed in the **Queues** pane.

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