Creating Variable Dependencies

Overview

In the previous chapter, we created an alert message that used system variables. In this chapter, we will create a job that depends on the value of a user-defined variable. A user-defined variable is a variable you create manually. A job can change the value of a variable you have assigned to it by using a variable update action. A job can be dependent upon the value of a variable. Using user-defined variables, you are given unlimited control over the conditional structuring of jobs.

For example, a job can run, and set a variable to a specific date. Another job can be triggered to run based on that variable’s date. When the specific date arises, the second job runs.

In this chapter, you will increment a variable with the action of “Job A” and make “Job B” dependent on that variable reaching a specific value. The variable will start with a value of 0 and increment by 1 each time Job A runs. Job B will depend on the variable equalling 3. After Job A repeats 3 times, Job B will start. You could set up a job to start after any defined number of previous dependency jobs complete.

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

Creating a Variable

To create a variable:

1. In the Navigator pane, select Definitions>Variables to display the Variables pane.
2. Display the Variable Definition dialog by either clicking the Add Variable button or by right-clicking in the Variable pane and selecting Add Variable from the context menu.
3. In the Name field, enter Gather Orders Var.
4. From the Type list, select Number.
5. In the Value field, enter the number 0.
6. In the Description field, enter The value will be incremented by 1 for each successful run of the Gather Job.

7. Select the Public field, if it is not already selected.

8. Click OK.

The newly-created variable now appears in the Variables pane.

Creating the Variable Update Action

To create the variable update action:

1. From the Navigator pane select Definitions>Actions>Variable to display the Variable Actions pane.

2. Select the Add Action button or right-click the Variable Actions pane and select Add Action from the context menu to display the Action Definition: Variable dialog.

3. In the Action Name field, enter Set Gather Var.

4. From the Variable Name list, select Gather Orders Var: Number.

5. In the Type of Update list, select Increment variable value by.

6. In the Value field, enter 1 if it is not already set at 1 by default.

7. Click OK.

The Set Gather Var action now displays in the Variable Actions pane.

Creating a Job Event for the Gather Report Job

To create a job event for the Gather Report job:

1. From the Navigator pane select Definitions>Events>Job Events to display the Job Events pane.

2. Select the Add Event button or right-click the Job Events pane and select Add Event from the context menu to display the Job Event Definition dialog.

3. In the Job Event Name field, type Event Action Gather.

4. In the Event Trigger list, select Job completed normally.

5. Highlight Set Gather Var and click the left arrow button or drag-and-drop the Set Gather Var variable to the Selected Action(s) field.

6. Click OK.

Creating the Gather Orders Job Group

To create the Gather Orders job group:

1. From the Navigator pane select Definitions>Jobs to display the Jobs pane.

2. Right-click the Jobs pane and select Add Job Group from the context menu to display the Job Group Definition dialog.

3. In the Job Group Name field, enter Gather Orders.
4. In the Calendar Name list, select the work day calendar.
5. Click OK.
6. Click OK at the Effective Date dialog.

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**Note**

When you click OK at this dialog, the job group enters the production schedule, but nothing will run because there are no jobs associated with the job group yet. Since you can manually add the job group to the schedule later, clicking Cancel at this dialog is also acceptable.

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### Creating a Repeating Job and Associating a Job Event

To create a repeating job and associate a job event:

1. In the Jobs pane, select the job group Gather Orders and click the Add Job button or right-click in the Jobs pane and choose Add Job from the context menu to display the Job Definition dialog.
2. In the Job Name field, enter Gather_Report.
3. In the Command field, enter the full path to the Gather batch file.
4. Click the Schedule tab.
5. In the Repeats section, select the Run new occurrence every option. Click in the minutes field and enter 2 (or use the up and down arrows) and click in the up to ___ times field and enter 5.
6. Click OK.
7. Click OK in the Effective Date dialog.
8. If the Gather Report job is not visible in the Jobs pane, expand the Gather Orders job group by clicking the expand icon to its left.

   The Gather Report job will run every two minutes for a total of five times, activating the Event Action Gather job event each time. Set Gather Var is tied to Event Action Gather and will increment by 1 each time Gather Report runs. When Set Gather Var reaches 3, it will have fulfilled the conditions necessary to set off the next job, which we will define as Order Reports in “Creating a Job Dependent on the Gather Orders Variable” on page 48.

   The “Overview” on page 45 explains in general terms the interdependence of Gather Report (Job A), Set Gather Var (a user-defined variable), and Order Reports (Job B).
9. Right-click Gather Report and from the context menu select Edit Job/Group.
10. Click the Job Events tab.
11. Click Insert to display the Select Job Event dialog.
12. Select the Event Action Gather event.
13. Click OK. The job event displays in the Events field.
14. Click OK to close the Job Definition dialog.
15. Click OK to confirm the Effective Date dialog.

   Every time the Gather Report job completes normally, the variable Gather Orders will be incremented by 1.
Creating a Job Dependent on the Gather Orders Variable

To create a job dependent on the Gather Orders variable:

1. Select the job group **Gather Orders** and click the **Add Job** button or right-click and select **Add Job** from the context menu to display the **Job Definition** dialog.
2. In the **Job Name** field, enter **Order Reports**.
3. In the **Command** field, enter the full path to the **Ordr_rpt** batch file.
4. Click the **Dependencies** tab.
5. Click the **Add** button and select **Add Variable Dependency**.
6. Select **Gather Orders Var: Number** from the **Variable Name** list.
7. In the **Operator** list, if **Equals (=)** is not already displayed, select it.
8. In the **Variable Value** field, type the number 3.
9. Click **OK** to accept the variable dependency.

The **Job Definition** dialog now displays the new dependency.

10. Click **OK**.
11. Click **OK** in the **Effective Date** dialog.

Scheduling and Monitoring the Gather Orders Jobs

Now that all the components are defined and configured, we will run the jobs and monitor them in the **Job Activity** pane.

To schedule and monitor the Gather Orders jobs:

1. In the **Jobs** pane, double-click the **Gather_Report** job to display the **Job Definition** dialog.
2. Click **OK** to display the **Effective Date** dialog.
3. Select the **Start today’s repeating job(s) now** option at the bottom of the **Effective Date** dialog; otherwise, Enterprise Scheduler will start repeating the job at the beginning of its time window, which is 12:00 AM for this job.

![Figure 9-1 Setting Jobs to Repeat Immediately in the Effective Date Dialog](image)

4. Click **OK**. The job enters the production schedule.
5. Right-click the **Order Reports** job and select **Insert Job into Schedule** from the context menu and click **OK**.
6. Click OK in the Information dialog.
7. From the Navigator pane, select Operations>Job Activity to display the Job Activity pane.
8. Double-click the Order Reports job occurrence.
9. Click the Dependencies tab.
   The variable dependency appears showing the present value of the variable and the value it needs for the dependency to be met.
10. Click Cancel and look at the jobs in the Job Activity pane.
    The three occurrences of the Gather Report job run before the Order Reports job runs.