Events

Overview

When a job enters the production schedule, it begins a life cycle consisting of five general phases:

Step 1 The job waits in the schedule for its dependencies to be met.

Step 2 The job enters a queue and waits for an execution slot to be available.

Step 3 The job is launched on an agent.

Step 4 The job runs.

Step 5 The job completes and enters history.

Throughout the life cycle of a job, it goes through a variety of conditions that affect it. Some of these conditions arise from factors that occur within the job process and other conditions arise from factors outside of the job's life cycle. Some conditions are recognized as key occurrences within the process of job scheduling by designating them as event triggers.

Once the event condition is defined, a predefined action must be associated with it. In effect, an event defines a cause and effect–when this condition occurs, do this. Defining events allows you to create automatic responses to conditions within your system.

Some of these event triggers are predefined by TES as internal events and some events are defined externally by users as conditions to be monitored by event monitors during designated times periods.

These event triggers are grouped into different categories according to the type of conditions that create the events.

Events Pane Interface

From the **Navigator** pane, select **Definitions>Events** to display the **Events** pane.

Buttons

- **Add Event** – Displays the **Event Definition** dialog to define a new event.
- **Edit Event** – Displays the **Event Definition** dialog to edit an existing event.
- **Copy Event** – Creates a copy of the selected event with the same information as the selected event, except for the name.

- **Delete Event** – Removes the selected event definition from the TES database.

- **Refresh** – Updates the data in the current pane.

- **Print** – Displays the **Reports** pane to view and print your event definitions. For more information, see Monitoring Production.

Search Field

Enter text that you want to search for within the columns displayed into this field.

Note This field at the top right of the grids will only search text columns that are not grayed out and are string-based. See <Jumps>"Searchable Columns" on page 35.

Columns

- **Name** – The name of the event.

- **Owner** – The owner of the event.

- **Enabled** – Whether or not the event is enabled for use.

- **Public** – Whether or not the event is public, that is, available to all TES users.

- **Trigger** – The event condition that triggers the job event.

- **Modified** – The last time the event definition was modified.

- **Agent** (Available only with variable, file and email events) – Denotes the connection that is being monitored for the defined event conditions.

Event Types

- **Job Events** – Job events are caused by conditions that affect specific jobs. These conditions are often associated with the various statuses and changes that jobs go through during their life cycle.

- **System Events** – System events are caused by conditions that affect multiple jobs. Unlike job events that are limited in their influence to specific jobs, system events have more global ramifications throughout your system. Examples are connection failures and problems with masters, queues and schedule compilations.

- **Variable Events** – Variable events are user-defined variable conditions. A defined event condition will monitor a designated master during certain time periods for a predefined variable to match a specified value.

- **File Events** – File events are user-defined conditions that affect specified files during designated time periods.

  Job and system events are defined as conditions that occur within TES while variable, file and email are defined as conditions that occur outside of the system that TES will monitor for.

- **MSSql Events** – MSSql events are defined as events that are triggered on Windows SQL Server for table, index, and row creation, modification and deletion.

- **OracleDB Events** – OracleDB events are defined as the detection of a change within a monitored Oracle datatable. This change can be the addition, modification or deletion of rows, indexes and tables.

- **Sap** – An SAP monitor is defined from the **SAP Event Definition** dialog. This dialog displays whenever you add or edit an SAP event.

- **Email Events** – Email events are user-defined conditions for monitoring for defined conditions within email. The condition is a specified text string in an email originating from a designated email server.

- **JMS Events** – You can define events acting as a "consumer" that can be used for monitoring selected topics or queues in the JMS systems.

Windows Event Log IDs

Every job or system event log action generates a entry to the TES log. If you are running TES on Windows, you can also choose to write to the Windows application log. Each Windows log message generated by a TES event has a unique event ID number. The unique IDs make it possible to interact with other third party software. (These event IDs do not apply to the Unix platform.)

A complete list of both job and system event triggers and their event ID numbers is provided in Chapter 12, "Event ID Tables".

Events Preferences Dialog

If you select **Preferences** from the **View** main menu while viewing the **Events** pane, the **Events Preferences** dialog displays.

From the **Events Preferences** dialog, you can select which columns are displayed in the **Events** pane and in what order they appear.

- A checkmark to the left of a column title indicates that it will be displayed in the pane. No checkmark indicates that it will not be displayed.

- To rearrange the order in which the columns are displayed, select the column and click the up or down arrow.

Navigator Context Menu

When you right-click in the **Navigator** pane while viewing the **Events** pane, the **Navigator** context menu displays.

The **Events Navigator** context menu contains the following elements:

- **Add Event** – Displays the **Event Definition** dialog for the selected type of event to add a new event. Has the same function as the **Add Event** button on the TES toolbar.

- **Refresh** – Updates the data in the current pane.

- **Print** – Displays the **Reports** pane to view and print the selected type of event definitions. Has the same function as the **Print** button on the TES toolbar. For more information, see Chapter 11, "Monitoring Production".

- **Export** – Saves the data in the current pane in HTML format.

- **Preferences** – Displays the **Preferences** dialog for the **Events** pane.

• **New Root Folder** – Allows you to create a new root folder for the **Navigator** pane.

Events Context Menu

When you right-click in the **Events** pane, a context menu displays.

The **Events** pane context menu contains the following elements:

• **Add Event** – Adds a new event by displaying the **Event Definition** dialog for the type of event selected.

• **Edit Event** – Edits the selected event by displaying its **Event Definition** dialog.

• **Delete Event** – Deletes the selected event.

• **Copy** – Creates a copy of the selected event with the same information as the selected event, except for the name.

• **Refresh** – Updates the data in the current pane.

• **Print** – Prints the event data.

• **Print Selected** – Prints the selected event's data.

• **Disable** – Deactivates the selected event making it unavailable for use.

• **Enable** – Activates the selected event making it available for use.

Job Events

A *job event* connects job event triggers to actions. For example, you can create a job event that sends you an email message (an email action) if any of your jobs complete with a **Completed Abnormally** status. Each job event that you create is associated with a particular event trigger, and can result in one or more actions that you select. You can make job events generic for assignment to multiple jobs. Job events can also be made public for all users of TES to use. You can only view job events that belong to you and any workgroups you belong to.

The job event is created in the **Job Event Definition** dialog by linking predefined actions to the job event triggers that TES provides.

TES monitors every point of a job's life cycle to trigger job events. These job event triggers are associated with a job event from the **Job Event Definition** dialog.

The three general categories of *job event triggers* are:

• **Status Change** – The status of a job changes as it is processed.

• **Schedule Irregularity** – A job runs outside of its expected runtime, possibly affecting the schedule of other jobs

• **Job Control** – An operator performs manual control of a job, such as starting or stopping the job.

Job Event Definition Dialog

The **Job Event Definition** dialog displays when you add or edit a job event.

Common To All Tabs

• **Event Name** – The name of the job event (up to 30 characters).

• **Event Trigger** – The condition that triggers the associated action(s).

- **Owner** – The user with full control over the event. By default, the owner is the creator of the event.

- **Apply this event to all jobs** – When this option is selected, the **Associated Job(s)** tab disappears and the actions are associated with all jobs. For example, if you want to always notify users if their agent is not available for their job, you can set up a job event with the **Agent for Job Unavailable** event trigger, an email action and then enable the **Apply this event to all jobs** option. If the agent goes down, all users with jobs scheduled to run on that agent will be notified.

- **Public** – Makes the event available to all users of TES.

- **Enabled** – Makes the event active and available for use. When this option is disabled, you can still assign the event but it will not be triggered when the job runs.

Associated Action(s) Tab

This tab associates action(s) to the job event. An event must have at least one associated action before it can be enabled. The actions that are available are the actions that are predefined in the **Actions** pane. If you are defining a job event, then job control actions are also available. The associated actions will occur in sequence that they are listed.

- **Selected Action(s)** – The action(s) to issue when the event occurs. You can specify one or more actions for each event. The actions will occur in the order they are listed. You can rearrange the sequence of multiple actions by selecting an action and clicking the up or down arrow.

- **Available Action(s)** – The actions that you can assign to the job event. To assign an action, select the action and click the right arrow button. To select more than one action at the same time, hold down the **SHIFT** key or the **CTRL** key on your keyboard while clicking your selections.

  You cannot add the same action more than once. Although you can assign multiple actions to a job event, you can apply only one job control action to an event. Adding a second job control action will replace the original job control action displayed in the **Selected Actions** field. The actions available to use may be limited by your security policy.

  You can choose from the following types of job control actions that TES provides (for Job event only):

  – Cancel/Abort

    Abort – Terminates the job if it is active, resulting in the job completing abnormally.

    Cancel – Cancels the job occurrence if it has not started yet.

  – **Cancel Pending** – Cancels the job occurrence but passes the job's dependencies to any successor jobs. In essence, the job goes into a **Waiting on Dependencies** state as the dependencies run. Once all of the job's dependencies are satisfied, the job ends with a **Cancelled Normally** status that is equivalent to a **Completed Normally** status.

  – Hold/Stop

    Hold – Prevents your job from running when its dependencies are met. The job changes its status to **Held**. You can release the job at a future time. (Not available for jobs running on Windows agents).

    Stop – Stops the execution of an active job. You can restart the job at a future time using the **Resume** job control. (Not available for jobs running on Windows agents).

  – **Override** – Overrides any dependencies for which your job is waiting. It is recommended to use this option only with the **Job not ready by end of its time window** and **Job might not be ready by end of time window** event triggers.

  – Release/Resume

    Release – Releases a job that has the **Waiting On Operator** status.

Resume – Resumes a job that has either a **Held** or **Stopped** status.

– **Rerun** – Sets the maximum number of job reruns. To set the number of reruns, double-click **Rerun** in the **Available Action(s)** pane in the **Job Event Definition** dialog to display the **Event Parameter** dialog. See the following figure.

Maximum Reruns – Use to set the number of reruns. The default is 0. The maximum number the field can accommodate is 9999.

– **Set To Completed Abnormally** – Sets the job's completion status to **Completed Abnormally**.

– **Completed Normally** – Sets the job's completion status to **Completed Normally**. For example, when your process completes with a non-zero exit code, TES assumes the job has completed abnormally. Using this action, with a **Job Completed Abnormally** job event trigger, the job will be reset with a final status of **Completed Normally**.

> **Note** Although job status can be changed using the **Set Status** action, the actual exit code of a job (0 for **Completed Normally**, non-zero for **Completed Abnormally**) is not changed.

– **Set To Error Status** – Sets the job's completion status to **Error Occurred**.

– **Set To External Status** – Sets the job's completion status to **Externally Defined.**

– **Set To Orphaned Status** – Sets the job's completion status to **Orphaned**.

– **Set To Skipped Status** – Sets the job's completion status to **Skipped**.

Available Actions Context Menu

When you right-click in the **Available Action(s)** field on the **Associated Action(s)** tab of the **Job Event Definition** dialog, the **Available Actions** context menu displays.

The **Available Action(s)** context menu contains the following elements:

• **Add Mail Action** – Displays the **Action Definition: Email Message** dialog to send email to specified users when the event occurs. The action will be added to the **Actions** pane and to the **Available Action(s)** field. For more information about email actions, see "Action Definition: SNMP Dialog" section on page 6-221.

> **Note** When creating an email message for a system event about losing your database connection, do not use variables that will not work without a connection to the database, i.e., **<JobName>** or **<JobStatus>**.

• **Add Console Alert** – Displays the **Action Definition: Alert** dialog to send an alert to the **Job Activity** pane. The action will be added to the **Actions** pane and to the **Available Action (s)** field. For more information about console alert actions, see "Action Definition: Alert Dialog" section on page 6-220.

> **Note** Fundamental master and agent connection information is automatically logged by TES, so you do not have to create a separate alert action for master or agent start or stop.

• **Add SNMP Action** – Displays the **Action Definition: SNMP** dialog to send an SNMP trap (or message) to an SNMP manager such as HP OpenView NNM. The action will be added to the **Actions** pane and to the **Available Action (s)** field. For more information about SNMP trap actions, see "Action Definition: SNMP Dialog" section on page 6-221.

Note   **Add Job Action** – Displays the **Action Definition: Job** dialog to submit unscheduled jobs in response to the event. The action will be added to the **Actions** pane and to the **Available Action(s)** field. For more information about job actions, see "Action Definition: SNMP Dialog" section on page 6-221.It is possible to create an infinite loop that continually submits jobs if a job inserted with a new job action is also listed in the **Associated job(s)** tab.

- **Add Log Action** – Displays the **Action Definition: Log** dialog to post user defined log messages to the TES log or the Windows Event Viewer. The action will be added to the **Actions** pane and to the **Available Action (s)** field. For more information about log actions, see "Action Definition: SNMP Dialog" section on page 6-221.

- **Add Variable Action** – Displays the **Action Definition: Variable** dialog to update a variable whenever a designated job action occurs. The action will be added to the **Actions** pane and to the **Available Action(s)** field. For more information about variable actions, see "Action Definition: Variable Dialog" section on page 6-227.

- **Add SAP Event Action** – Displays the **Action Definition: SAP Event** dialog to send an SAP Event notification to a designated SAP instance when the action occurs in TES. The action is added to the **Actions** pane and to the **Available Action(s)** field. For more information about SAP event notification actions, see "Action Definition: Variable Dialog" section on page 6-227.

- **Edit/View Action** – Displays the **Action Definition** dialog for a user-defined action. This option is available from the context menu only if the action was selected as you right-click to open the context menu.

Associated Job(s) Tab

This tab is used to link the job event to any number of jobs. This tab does not appear if you selected the **Apply this event to all jobs** option. You can also assign job events in the **Job** and **Job Group Definition** dialogs. The specified event trigger is monitored for all jobs that are listed in this tab.

This tab contains the following elements:

- **Browse** – Displays the **Job Search** dialog where you can find and select a collection of jobs or job groups. You can also use the **Job Search** dialog to create a filter to restrict which jobs are listed in the drop-down menu.

- **Down-arrow** – Displays all jobs and job groups belonging to you and your workgroups in a drop-down menu. To narrow the number of jobs displayed, use the **Browse** button to display the **Job Search** dialog. When the **Job Search** dialog is closed, whatever jobs were found in the **Job Search Results** list are displayed in the drop-down menu. To select a job, you can select it and click **Add**.

- **Add** – Links a job(s) or job group(s) to the event trigger. The job(s) and/or group(s) that are linked are the ones you select from the drop-down menu, or **Job Search** dialog.

  The jobs that are added are displayed in the field below but they are not added (or associated with the job event) until the **Add** button is clicked.

- **Remove** – Removes a job or job group from the **Associated Job(s)** field when the job or job group is selected.

Description Tab

This is a free text field where you can provide a description and notes about this particular event, up to 255 characters.

Trigger History Tab

The **Trigger History** tab lists all of the instances when the event was triggered during the trigger history retention period. This retention period is configured on the **Default** tab of the **System Configuration** dialog.

There are usually only four columns of basic information about each time that the event occurred but a job event has two additional columns to identify the job that was triggered by the event.

This tab contains the following elements:

- **Trigger Time** – The date and time (in 24 hour format) when the event occurred.

- **Run Date** – The date and time (in 24 hour format) when the triggered action actually occurs. Normally this time will be the same as the Trigger Time but if there is some lag time built into the associated action, the Run Date will be later.

- **Job No.** – The instance number of the job that was triggered by the event. (job event only)

- **Job Name** – The name of the job triggered by the event. (job event only)

- **Connection** – The connection that the event monitor is watching. This could be the connection to a master, to a database or to an agent.

- **Status** – The current status of the event trigger. There are several statuses used.

    - **Scheduled** – The event trigger is scheduled for the current day

    - **Suspended** – The event trigger is scheduled for the current day but has been suspended using the **Suspend Monitoring** option in the **Monitor Control** context menu in the **Event Activity** pane.

    - **Outside time window** – The event trigger is scheduled for the current day but is currently outside of the event monitor's specified time windows and is thus inactive.

You can drill down to get additional information about each event instance listed in this **Trigger History** tab. Right-click any of the listed event triggers to either update the information with the **Refresh** option or you can display details about the trigger with the **Trigger Details** option.

Trigger Details Dialog

The **Trigger Details** dialog displays more information about an event instance that occurred. The **Trigger Details** dialog displays by selecting an event trigger listed in an **Event Details** dialog and right-clicking and selecting the **Trigger Details** option.

Details Tab

The **Details** tab displays basic run information about the event trigger.

This tab contains the following elements:

- **Trigger Date** – The date and time when the conditions that triggered the event occurred.

- **Run Date** – The date and time that the event actually occurred. Most of the time this date and time will match the information in the **Trigger Date** field. Sometimes though there is a lag time between when the conditions defined as the event occur and when the actual event occurs. An example would be an event such as compiling a production day schedule. The event condition might be the start of a new production day at the designated time yet there might still be some period of time pass before the actual compilation of a new schedule occurs as the master takes care of prerequisite maintenance tasks.

- **Status** – The current status of the event.

Triggered Actions Tab

The **Triggered Actions** tab () provides information about the action(s) that the event initiated.

The **Triggered Actions** tab displays the following columns of information about its associated actions:

- **Trigger Time** – The date and time when the action was triggered.
- **Run Date** – The date and time that the action actually ran. Most of the time this date and time will match the information in the **Trigger Time** field. Sometimes though there is a lag time between when the action is triggered and when the action actual runs.
- **Action Type** – The type of action that ran.
- **Action Name** – The name of the action.

If an action triggered is a job action, you can display additional details about the job that was triggered.

Right-click the job to display a context menu. You can update the details about the job by clicking the **Refresh** option.

Exit Codes Tab

This tab displays in the **Job Event Definition** dialog only if the **Job completed with specified exit code(s)** option is selected in the **Event Trigger** field. If you are creating a job event that is triggered by a specific exit code or a range of exit codes, type the exit code(s) on this tab. You can create several actions using different job event triggers keyed to different exit code ranges to denote various job statuses. The exit code you use is determined by the script you are using. The exit code value can range from 0 to 30,000.

Use the operator field to select an operator for comparing the exit code(s) specified in the adjacent fields.

- **=** – The exit code must match the specified value or within the range of values. This operator enables both value fields and is the *only* operator that can specify a range of values.
- **< >** – The exit code must be anything but the specified value. Essentially greater than or less than the specified value.
- **<** – The exit code must be less than the specified value.
- **<=** – The exit code must be less than or equal to the specified value.
- **>** – The exit code must be greater than the specified value.
- **>=** – The exit code must be greater than or equal to the specified value.

System Events

System events assign actions to events generated by the TES master. For example, if the master is shutdown, you can notify users via email that jobs will not run until the master has started again. System events are useful for notifying interested users of conditions with system-wide effects.

You create system events much like job events, except that they are not associated with particular jobs, since they are applicable to all jobs. Each includes a system event trigger, and one or more actions to take when the event occurs. The system event is created in the **System Event** dialog by linking predefined actions to the system event triggers that TES provides.

The TES master is constantly monitoring for the conditions that trigger system events. The four categories of *system event triggers* monitored by TES are:

- **Agent** – Agent connection and job execution information

- **Queue** – System and individual queue limit adjustments and job execution information
- **Production Schedule** – Compiling start and finish times and new production day information
- **Master** – Master start, stop, pause, resume and information

System Events Dialog

The **System Events** dialog displays when you add or edit a system event.

Common To All Tabs

- **Event Name** – The name of the system event (up to 30 characters).
- **Event Trigger** – The condition that causes TES to trigger the assigned (associated) action(s).
- **Owner** – The owner of the system event. By default, the creator is the owner.
- **Public** – Makes this event available to all users of TES as allowed by their security policy. You can create a default for this option on the **Defaults** tab in the **System Configuration** dialog.
- **Enabled flag** – Makes the system event available for use. When this option is cleared, the event cannot be triggered by the master. If the system event is inactive, the system event cannot be monitored by the master. Note that there are some major events that are always reported, with or without specifically defined system events.

Associated Action(s) Tab

This tab associates action(s) with the system event. An event must have an associated action before it can be enabled. For information about the fields on this tab, refer to "Associated Action(s) Tab" section on page 7-245

Description Tab

This is a free text field where you can provide a description and notes about the system event (up to 255 characters).

Trigger History Tab

The **Trigger History** tab lists all of the instances when the event was triggered during the trigger history retention period. This retention period is configured on the **Default** tab of the **System Configuration** dialog. For information about the fields and options on this tab, refer to the "Trigger History Tab" section on page 7-248.

Variable Events

An event monitor can be defined to watch a designated variable on a master. Whenever the variable matches a specified value it becomes an event that triggers an assigned action.

Variable Event Definition Dialog

A variable monitor is defined from the **Variable Event Definition** dialog. The **Variable Event Definition** dialog displays whenever you add or edit a variable event.

In the **Navigator** pane, select **Definitions>Events>Variable Events** to display the **Variable Events** pane. To display the **Variable Event Definition** dialog, either right-click in the pane in the **Variable Events** pane and select **Add Event** from the context menu or click the **Add Event** button.

Common To All Tabs

- **Event Name** – The name of the system event (up to 30 characters).

- **Owner** – The owner of the system event. By default, the creator is the owner.

- **Public** – Makes this event available to all users of TES as allowed by their security policy. You can create a default for this option on the **Defaults** tab in the **System Configuration** dialog.

- **Enabled** – Makes the event available for use. When this option is cleared, the event cannot be triggered by the master. If the event is inactive, the event cannot be monitored by the master.

Variable Tab

The **Variable** tab () designates a variable to be monitored and defines the characteristics of the variable that will trigger an action.

Monitor Section

In this section, designate a variable, a master associated with the variable and a value to be monitored for.

- **Master** – The local master where the variable resides.

- **Variable Name** – The name of the variable to update. The displayed variable name includes the type of variable it is, i.e., string, number or date. Choose from the drop-down list of user-defined variables.

- **Operator** – The relative operator used to determine whether the variable's value satisfies the dependency.

    - Equal (=)

    - Not Equal (<>)

    - Less Than (<)

    - Less Than or Equal To (<=)

    - Greater Than (>)

    - Greater Than or Equal To (>=)

    When text strings are used in comparison, higher letters of the alphabet are greater than lower letters. For example, **A** < **Z**. If the first letters of the string match, succeeding letters are used for comparison. For example, **AA < AZ**. The operation works similar to sorting strings.

- **Value** – The value used for the update. When updating a number type, you can use any real number (including negative numbers). When updating a string type, any set of characters (including numbers) are treated as a string. When updating a date type, the format will conform to the same format as set in the operating system of the master.

- **Variable** – Select this option to compare the value of the Variable Name to the value of another variable.

- **Master** – Select the remote master that this variable event will monitor.

- **Variable Name** – Select the variable associated with the remote master to be monitored.

Schedule Tab

The **Schedule** tab displays when the event monitor is scheduled to monitor for the defined event conditions. The fields on these tabs are the same fields that are on their respective tabs in their **Event Definition** dialogs. Refer to the "Configuring the Schedule Tab on an Event Monitor" section on page 7-260 for more information about the fields on this tab.

Associated Action(s) Tab

This tab associates action(s) with the variable event. An event must have an associated action before it can be enabled. For information about the fields on this tab, refer to "Associated Action(s) Tab" section on page 7-245.

Description Tab

This is a free text field where you can provide a description and notes about this particular event, up to 255 characters.

Trigger History Tab

The **Trigger History** tab lists all of the instances when the event was triggered during the trigger history retention period. This retention period is configured on the **Default** tab of the **System Configuration** dialog. For information about the fields and options on this tab, refer to the "Trigger History Tab" section on page 7-248.

File Events

An event monitor can be defined to monitor for a designated file and trigger an associated action whenever that file meets the defined conditions.

File Event Definition Dialog

A file event monitor is defined from the **File Event Definition** dialog. The **File Event Definition** dialog displays whenever you add or edit a file event.

In the **Navigator** pane, select **Definitions>Events>File Events** to display the **File Events** pane. To display the **File Event Definition** dialog, either right-click in the **File Events** pane and select **Add Event** from the context menu or click the **Add Action** button.

Common To All Tabs

- **Event Name** – The name of the system event (up to 30 characters).
- **Owner** – The owner of the system event. By default, the creator is the owner.
- **Public** – Makes this event available to all users of TES as allowed by their security policy. You can create a default for this option on the **Defaults** tab in the **System Configuration** dialog.
- **Enabled** – Makes the event available for use. When this option is cleared, the event cannot be triggered by the master. If the event is inactive, the event cannot be monitored by the master.

File Monitor Tab

The **File Monitor** tab defines the file and the event characteristics that a file monitor will watch for.

This tab contains the following elements:

- **Agent Name** – Enter or select the name of the agent that will process the file.
- **Source** – Designates the directory where the file being monitored is located.
- **File Mask** – A specific file name can be entered or a mask using the asterisk (*) and question mark (?) characters can be created to filter for certain files to be monitored.

Any combination of the following criteria options can be selected to apply to the file.

- **Wait until file is at least this size (bytes):** – The file must reach the size (in bytes) that is specified here.
- **Milliseconds delay before processing:** – The event monitor must wait the number of milliseconds specified here before it can react to the defined event.
- **File size stable for (milliseconds):** – The file size must remain unchanged for the specified number of milliseconds before the event conditions are met.
- **Operation** – There are two options that can be done to the file being monitored when the specified conditions are met:
  - **Move file to target directory** – Moves the monitored file to the directory that is specified in the **Target** field. This does not replace any of the existing files in the target directory.
  - **Delete file from source directory** – Deletes the monitored file from the directory designated in the **Source** field once the specified conditions are met.
- **Target** – Designates the directory location where the monitored file should be moved once the specified conditions are met.
- **Return file contents to master as output** – The contents of the file being monitored will be returned to the master as job output.

Schedule Tab

The **Schedule** tab displays when the event monitor is scheduled to monitor for the defined event conditions. The fields on these tabs are the same fields that are on their respective tabs in their **Event Definition** dialogs. Refer to the "Configuring the Schedule Tab on an Event Monitor" section on page 7-260 for more information about the fields on this tab.

Associated Action(s) Tab

This tab associates action(s) with the file event. An event must have an associated action before it can be enabled. For information about the fields on this tab, refer to "Associated Action(s) Tab" section on page 7-245.

Description Tab

This is a free text field where you can provide a description and notes about this particular event, up to 255 characters.

Trigger History Tab

The **Trigger History** tab lists all of the instances when the event was triggered during the trigger history retention period. This retention period is configured on the **Default** tab of the **System Configuration** dialog. For information about the fields and options on this tab, refer to the "Trigger History Tab" section on page 7-248.

Event Activity Pane

The **Event Activity** pane displays information about the status and activity of each event that has been defined. A user can only view events in this pane that are made public to all users or that belong to that user or the workgroups that the user is a member of. A user can drill down through each event record for more details about the circumstances of each event.

Event Activity Pane Interface

From the **Navigator** pane, select **Operations>Event Activity** to display the **Event Activity** pane. You can double-click any of the listed events to display its details.

Search Field

Enter text that you want to search for within the columns displayed into this field.

> **Note**   This field at the top right of the grids will only search text columns that are not grayed out and are string-based. See Searchable Columns, page 2-35.

Columns

- **Status Light** – The status light provides an at-a-glance graphic indicator of the current status of the event monitor. There are three colors used to indicate status:
  - **Green** – Scheduled status
  - **Yellow** – Outside time window status
  - **Red** – Suspended status
- **Times Triggered** – The number of times that the event monitor has been triggered during the current day.
- **Status** – The current status of the event monitor. There are three possible statuses:
  - **Scheduled** – The event trigger is scheduled for the current day
  - **Suspended** – The event trigger is scheduled for the current day but has been suspended using the **Suspend Monitoring** option in the **Event Control** context menu in the **Event Activity** pane.
  - **Outside Time window** – The event trigger is scheduled for the current day but is currently outside of the event monitor's specified time windows and is thus inactive.
- **Name** – The name of the defined event monitor.
- **Owner** – The user account that owns the event. By default, the user that defined the event is the owner.
- **Public** – Indicates if the event monitor is available to other users.
- **Trigger** – Displays the trigger assigned to the event monitor.
- **Modified** – Displays the last date and time that the parameters of the event monitor were changed.
- **Type** – Displays the type of event monitor.
- **Agent** – Displays the name of the connection that is being monitored.

Event Activity Preferences Dialog

Select **Preferences** from the **View** main menu while viewing the **Events Activity** pane to display the **Event Activity Preferences** dialog.

This dialog contains the following elements:

- **Columns** – From the **Columns** tab, you can select which columns are displayed in the **Job Activity** pane and in what order they appear.
    - A checkmark to the left of a column title indicates that it will be displayed in the pane. No checkmark indicates that it will not be displayed.
    - To rearrange the order in which the columns are displayed, select the column and click the up or down arrow.

Navigator Context Menu

When you right-click in the **Navigator** pane while viewing the **Event Activity** pane, the **Navigator** context menu displays.

The **Navigator** context menu for the **Event Activity** pane contains the following options:

- **Preferences** – Displays the **Preferences** dialog for the **Job Activity** pane.
- **Print** – Displays the **Reports** pane to view and print your connection definitions. Has the same function as the **Print** button on the toolbar. For more information, see Chapter 11, "Monitoring Production".
- **Export** – Saves the data in the current pane as an HTML file.
- **Refresh** – Updates the data in the current pane.
- **New Root Folder** – Adds a new root folder to the **Navigator** pane.
- **New Sub Folder** – Adds a new sub folder to the **Navigator** pane.

Event Activity Pane Context Menu

When you right-click in the **Event Activity** pane, the **Event Activity** context menu displays. The **Monitor Control** options only apply to external events such as file, email or variable events that have defined a monitor. The **Event Activity** context menu has the following options:

- **Monitor Control** – The **Monitor Control** submenu has the following control options:
    - **Suspend Monitoring** – Suspends the monitoring activity of the selected event monitor.
    - **Resume Monitoring** – Resumes the monitoring activity of the event monitor that was suspended.
- **Details** – Displays the **Event Details** dialog for the selected type of event occurrence. Alternately, you can display these dialogs by double-clicking the individual event monitor record.
- **Print** – Displays the **Reports** pane to view and print your connection definitions. Has the same function as the **Print** button on the toolbar. For more information, see Chapter 11, "Monitoring Production".
- **New Root Folder** – Adds a new root folder to the **Navigator** pane.
- **New Sub Folder** – Adds a new sub folder to the **Navigator** pane.

Event Details Dialog

The details for any event listed in the **Event Activity** pane can be displayed by either double-clicking it or by right-clicking it and selecting **Details** from the context menu. Those events that define monitors have additional tabs to provide details specific to that type of event.The fields on the tabs of the **Event Details** dialog are read-only though a user can update the information in the fields at any time by selecting the **Refresh** option from the context menu.

Common To All Tabs

- **Event Name** – The name of the event (up to 30 characters).
- **Event Trigger** – The condition that causes TES to trigger the assigned (associated) action(s).
- **Owner** – The user account that owns the event. By default, the user that defined the event is the owner.

Status Tab

The **Status** tab provides details on the current status of the event trigger.

- **Current Status** – The event's current status.
- **Times Triggered** – The number of times that this event has been triggered.
- **Last trigger condition time** – The date and time of the last time the event was triggered.

Variable, File and Email Monitor Tabs

These tabs appear depending upon the type of event selected. Job and system events do not have these tabs because they do not require a monitor. The fields on these tabs are the same fields that are on their respective tabs in their **Event Definition** dialogs.

Schedule Tab

These tabs only appear for variable, file and email events. The **Schedule** tab displays when the event monitor is scheduled to monitor for the defined event conditions. The fields on these tabs are the same fields that are on their respective tabs in their **Event Definition** dialogs. Refer to the "Configuring the Schedule Tab on an Event Monitor" section on page 7-260 for more information about the fields on this tab.

Description Tab

Displays any description about the use and purpose of the event.

Triggered Today Tab

The **Triggered Today** tab lists all of the instances when the event was triggered during the current production day. The columns of information on this tab is the same as the ones on the **Trigger History** tab. Once the current production day ends, the information on this tab is moved to the **Trigger History** tab. Like the **Trigger History** tab, you can also drill down to get more information about the event trigger, and, if a job event, more information about the job that the event was associated with. Refer to the "Trigger History Tab" section on page 7-248 for more information about the fields on this tab.

Trigger History Tab

The **Trigger History** tab lists all of the instances when the event was triggered during the trigger history retention period configured in the **System Configuration** dialog. The fields on this tab are the same fields as on the **Triggered History** tab of the **Event Definition** dialog. Refer to the "Trigger History Tab" section on page 7-248 for more information about the fields on this tab.

Event Procedures

Adding Jobs and Job Groups to Job Events

You can link any number of jobs or job groups to a job event.

To add a job/job group to a job event:

Step 1 Select one of the defined job events in the **Job Events** pane.

Step 2 Double-click the job event to edit from the **Job Events** pane, or right-click the job event and select **Edit Event** from the context menu, or select the job event and click the **Edit** button on the TES toolbar to display the **Job Event Definition** dialog.

Step 3 Click the **Associated Job(s)** tab.

Step 4 The drop-down arrow button lists all the jobs you own and that are owned by workgroup to which you belong.

Step 5 Select the job(s) and/or job group(s) you want to associate to this job event and click the **Add** button.

Associating Actions to Events

You can associate any number of actions to an event. However, if you are using a job control action type (Job events only), then only one job control can be associated (or combined with the other action types) at any time. When the event trigger occurs, all the actions that are associated with the event will occur.

To associate actions to events:

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

Step 2 Double-click the event or right-click the event and select **Edit Event** from the context menu, or select the event and click the **Edit** button on the TES toolbar to display the **Event Definition** dialog.

Step 3 Click the **Associated Action(s)** tab.

Step 4 In the **Available Action(s)** field, select the action(s) to associate with the event.

You can select the actions and then use the left arrow button (<). To select more than one action at the same time, hold down the **SHIFT** key or the **CTRL** key on your keyboard while clicking your selections, then click the left arrow button.

Job control actions are displayed in the **Available Actions** field if you are working on a Job event.

> ✎
>
> **Note** It is possible to create an infinite loop that continually submits jobs if you assign a new job action that inserts a job that is also listed in the **Associated job(s)** tab.

Changing the Ownership of Events

To change the ownership of an event:

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

Step 2 Double-click the event to edit from the **Events** pane or right-click the event and select **Edit Event** from the context menu, or select the event and click the **Edit** button on the TES toolbar to display its **Event Definition** dialog.

Step 3 From the drop-down menu in the **Owner** field, select a new owner of the event.

Creating a Job Event

You can create a job event that connects an event trigger to one or more actions. You can link jobs or job groups to job events at any time either from the **Job Event Definition** dialog or the **Job Definition** or **Job Group Definition** dialogs. Actions are associated with a job event only from the **Job Event Definition** dialog.

To create a job event:

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

Step 2 Click the **Add** button or right-click and select **Add Event** from the context menu to display the **Job Event Definition** dialog.

Step 3 In the **Event Name** field, type a name for the job event (up to 30 characters).

Step 4 If you do not want to own this job event, select another user or workgroup from the drop-down menu in the **Owner** field.

Step 5 If you want this job event to be associated with all jobs, select the **Apply this event to all jobs** option; otherwise, you must click the **Associated Jobs** tab to select a job(s) to associated with the event.

Step 6 If you want the event to be public, select the **Public** option. Note that if an event is public, all users of TES with the appropriate security policy have access to that job event.

Step 7 If you want to define the event now, but you are not ready to have it triggered, clear the **Enabled** option

.

Defining an Email Monitor

To define an email monitor:

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

Step 2 From the **Email Events** pane, right-click and select the **Add Event** option from the context menu, to display the **Email Event Definition** dialog.

Step 3 In the **Event Name** field, enter a name for the email event.

Step 4 By default, the user defining the event is the owner but you can select one of the other listed users from the drop-down menu as the owner.

Step 5 In the **Email Connection** field, select a connection to an Exchange server. The connection must be already defined before it will appear in the drop-down list.

Step 6 In the **Folder** field, enter the name of the mail account to be monitored.

Step 7 In the **Conditions** section, designate what text is to be considered an event when it is detected.

Step 8 Click the adjacent **Insert** button to add a line to the **Conditions** section.

    a. In the **Scan for Text** column, enter a text string that the monitor will scan for in the email going to the designated mail account.

    b. In the **In** column, select from the drop-down list where in the email that the monitor should look for the text.

    c. In the **Case Sensitive** column, designate whether the text match is dependent upon case.

    d. In the **Disposition** section, select what will occur once the monitor detects the specified text. From the drop-down list in the **Operation** field, select an option. If you select the **Move message to folder** option, in the **Target** field, enter the pathname to the folder where you want the message stored.

    e. If you want to access the message text from within TES, select the **Return message body to Scheduler** option.

Defining a Variable Monitor

To define a variable monitor:

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

Step 2 From the **Email Events** pane, right-click and select the **Add Event** option from the context menu, to display the **Email Event Definition** dialog.

Step 3 In the **Event Name** field, enter a name for the email event.

Step 4 By default, the user defining the event is the **Owner** but you can select one of the other listed users from the drop-down menu as the owner.

Step 5 In the **Master** field, select the master that owns the variable.

Step 6 In the **Variable Name** field, select the variable to be monitored.

Step 7 In the **Operator** field, select the operator to be used with the specified value.

Step 8 In the **Value** field, specify the value that the variable needs.

Step 9 If defining an intermaster variable so that the monitor will watch for a variable published from another master, select the **Variable** option and specify the **Master** and the **Variable Name**.

Defining a File Monitor

To define a file monitor:

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

Step 2 From the **Email Events** pane, right-click and select the **Add Event** option from the context menu, to display the **Email Event Definition** dialog.

Step 3 In the **Event Name** field, enter a name for the email event.

Step 4 By default, the user defining the event is the **Owner** but you can select one of the other listed users from the drop-down menu as the owner.

Step 5 In the **Agent Name** field, enter the

Step 6 In the **Directory** field, enter the path to the directory to be monitored for the file's appearance.

Step 7 In the **File Mask** field, you can enter a file mask using wild card characters.

Step 8 If needed, you can configure the monitor to delay its response or to only respond after the designated file is stable for a stated interval of time or reaches a certain size.

Step 9 In the **Disposition** section, specify what should be done with the file when it meets the monitor's criteria.

Step 10 In the **Operation** field, you can either delete the file or move it to another directory that is designated in the **Target** field.

Step 11 If needed, you can select the **Return file contents as output** option include the file's contents as part of the job output.

Configuring the Schedule Tab on an Event Monitor

Whenever an event monitor is defined, it must be configured to watch for the defined event criteria at the crucial times. This is done by scheduling when the monitor should be active.

To configure the Schedule tab:

Step 1 Select the **Schedule** tab in the event being defined.

Step 2 In the **Calendar** section, select and configure a calendar as needed.

Step 3 If you want to restrict how often the event can be triggered, select the **Trigger Constraints** option and configure how often the event can be triggered within a designated interval. Select the **Ignore occurrences that exceed the limit** option

Step 4 If you want the event monitor to operate all of the time, do not select the **Time window** option; however, if you want the event monitor to operate only during certain periods of the day, select this option. Click **Insert** to create a row in the **Time window** field and enter a starting time in the **From Time** column and an ending time in the **Until Time** column. Create as many time windows as needed.

Deleting an Event

You can delete an event that is no longer in use. When you delete an event, the job event is removed from the jobs and job groups associated with it.

To delete an event:

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

Step 2   Select the job event to delete and press the **DELETE** key on your keyboard or click the **Delete** button on the TES toolbar or right-click the job event and select **Delete Event** from the context menu.

Step 3   Click **OK** in the confirmation dialog to delete the job event.

Removing Actions from Events

To remove an action from an event:

Step 1   Select an event in the **Events** pane.

Step 2   Open the event definition by double-clicking the event or right-click the event and select **Edit Event** from the context menu, or select the event and click the **Edit** button on the TES toolbar to display the its **Event Definition** dialog.

Step 3   Click the **Associated Action(s)** tab.

Step 4   In the **Selected Actions(s)** field, select the action(s) to remove from the job event, and click the right arrow button (>).

Removing Jobs/Job Groups from Job Events

To remove a job or job group from a job event:

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

Step 2   Double-click the job event to edit from the **Job Events** pane or right-click the job event and select **Edit Event** from the context menu, or select the job event and click the **Edit** button on the TES toolbar to display the **Job Event Definition** dialog.

Step 3   Click the **Associated Job(s)** tab.

Step 4   From the **Associate Job(s)** field, select the job(s)/job group(s) to disassociate from the job event.

Step 5   Click **Remove**

.

Viewing Events

You can view all the events available to you according to your security policy and all public events in the **Events** pane. You can also view the job events for a job from the **Job Events** tab of the **Job Definition** and **Job Group Definition** dialogs.

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

Viewing Jobs and Groups Associated With a Job Event

To view a job or job group associated with a job event:

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

Step 2   Double-click the desired job event from the **Job Events** pane, or click the **Edit** button on the TES toolbar to display the **Job Event Definition** dialog.

Step 3   Click the **Associated Job(s)** tab to display the jobs and job groups associated with the job event.

Viewing Job Events Associated With a Job or Job Group

To view a job event associated with a job or job group:

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

Step 2   Double-click the desired job or job group or right-click and select **Edit Job/Group** from the context menu to display its **Job Definition** (or **Job Group Definition**) dialog.

Step 3   Click the **Job Events** tab to display all job events associated with the job or job group.