



Cisco TEO Adapter Guide for Microsoft Windows

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New and Changed Information

The following table describes significant new and changed information for the March 2012 release of Tidal Enterprise Orchestrator.

The highlighted features have been implemented to improve the product functionality.

Table 1 TEO 2.3 Release Feature Changes

Feature	Location
Run Security Analyzer activity has been removed from the Microsoft Windows adapter.	
Created new Write activity which allows users to write content to a file on a remote machine	Chapter 5, Using Windows Activities
Added script examples to Execute Windows activity	Chapter 5, Using Windows Activities



Preface

Revised: April 2012, OL-24575-02

Tidal™ Enterprise Orchestrator's process automation engine provides the logical constructs necessary to support even the most complex requirements to automate Microsoft Windows server operating systems tasks. Windows Server 2003 or later is required for use in TEO.

The Windows Adapter provides the ability to easily query Windows performance data and execute Windows commands and scripts. This guide is intended to provide information on using the objects provided by the Windows Adapter.

This guide provides instructions for viewing Windows adapter properties, defining Windows targets and activities, instructions for completing the property pages for each specific activity, and instructions on viewing the activity results.

Organization

This guide includes the following chapters:

Chapter 1	Understanding Windows Adapter	Provides information on the Windows adapter properties
Chapter 2	Managing Windows Users	Provides information on creating and managing runtime user accounts
Chapter 3	Managing Windows Targets	Provides information on viewing defined targets that are available for execution by a process
Chapter 4	Managing Windows Event Triggers	Provides the specific criteria used to determine when processes or activities are triggered for execution
Chapter 5	Using Windows Activities	Provides instructions for defining Windows activities and instructions for completing the property pages for the activity

Conventions

This guide uses the following conventions:

Convention	Indication
bold font	Commands and keywords and user-entered text appear in bold font.
<i>italic</i> font	Document titles, new or emphasized terms, and arguments for which you supply values are in <i>italic</i> font.
[]	Elements in square brackets are optional.
{x y z}	Required alternative keywords are grouped in braces and separated by vertical bars.
[x y z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.
courier font	Terminal sessions and information the system displays appear in <i>courier</i> font.
< >	Nonprinting characters such as passwords are in angle brackets.
[]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.


Note

Means *reader take note.*


Tip

Means *the following information will help you solve a problem.*


Caution

Means *reader be careful.* In this situation, you might perform an action that could result in equipment damage or loss of data.


Timesaver

Means *the described action saves time.* You can save time by performing the action described in the paragraph.


Warning

Means *reader be warned.* In this situation, you might perform an action that could result in bodily injury.

Product Documentation

Documentation Formats

Documentation is provided in the following electronic formats:

- Adobe® Acrobat® PDF files
- Online help

You must have Adobe® Reader® installed to read the PDF files. Adobe Reader installation programs for common operating systems are available for free download from the Adobe Web site at www.adobe.com.

Guides and Release Notes

You can download the TEO product documentation from Cisco.com. Release Notes can be found on Cisco.com and the product CD.

Online Help

Online help is available and can be accessed using the following methods:

- Click **Help** on any dialog box in the application to open the help topic in a pane to the right of the dialog box.
- In the Tidal Enterprise Orchestrator console:
 - Click the **Help Pane**  icon on the toolbar to open the help topic in a pane to the right of the Results pane.
 - Click **Help** on the menu bar.

Open Source License Acknowledgements

Licenses and notices for open source software used in Tidal Enterprise Orchestrator can be found in the [Open Source License Acknowledgements](#) on Cisco.com. If you have any questions about the open source contained in this product, please email external-opensource-requests@cisco.com.

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CHAPTER 1

Understanding Windows Adapter

Users can access the Windows Adapter properties from the Administration—Adapters view in the Console. The Windows Adapter properties dialog box displays general information about the functionality provided by the adapter, version number, release date and install date, and the history of changes made to the adapter.

The following information is provided in this chapter:

- [Accessing Windows Adapter Properties, page 1-2](#)
- [Viewing Windows Adapter-Supported Objects, page 1-3](#)
- [Viewing Windows Adapter History, page 1-4](#)

Accessing Windows Adapter Properties

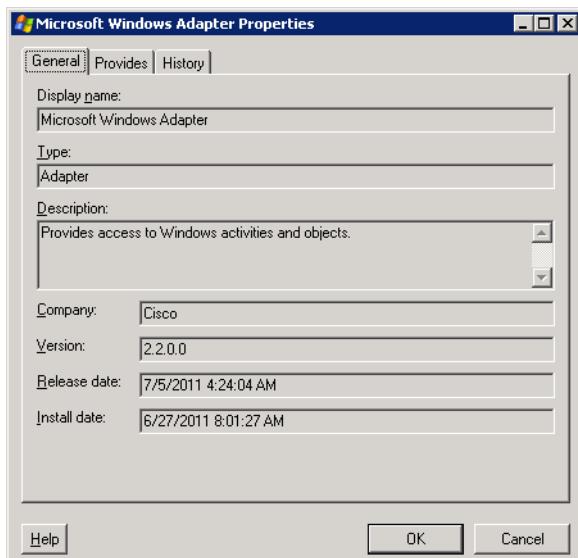
To view adapter properties:

Step 1 On the Administration—Adapters view, highlight **Windows Adapter**, and use *one* of the following methods:

- Right-click and choose **Properties**.
- OR-
- On the Details pane, click the hyperlink name on any of the tabs.

The Windows Adapter Properties dialog box displays.

Figure 1-1 Windows Adapter Properties Dialog Box—General Tab



The General tab displays the following information about the adapter:

Field	Description
Name	Name of the adapter
Type	Object type
Description	Brief overview of the adapter
Company	Name of company that created or supplied the adapter
Version	Version number of the adapter
Release date	Date and time the adapter was available in the product
Install date	Date and time the adapter was installed

Step 2 Review the properties and click **OK** to close the dialog box.

Viewing Windows Adapter-Supported Objects

Use the Provides tab to view the name and type of component for each object the Windows adapter supports.

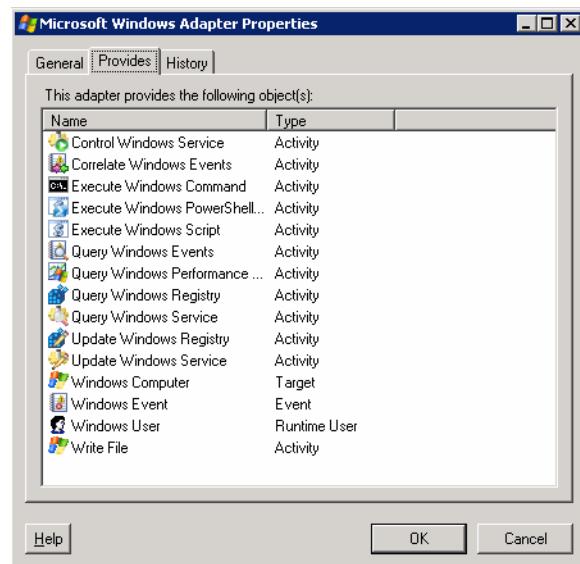
To view adapter-provided objects:

-
- Step 1** On the Administration—Adapters view, highlight **Windows Adapter**, right-click and choose **Properties**.

The Windows Adapter Properties dialog box displays.

- Step 2** Click the **Provides** tab to view the functionality that is provided by the adapter.

Figure 1-2 Windows Adapter Properties Dialog Box—Provides Tab



- Step 3** Review the following information about the list of objects provided by the adapter and click **OK** to close the dialog box.

Column	Description
Name	Name of activities, processes, and objects for which the adapter provides support
Type	The object type (Target, Runtime User, Activity, Event)

Viewing Windows Adapter History

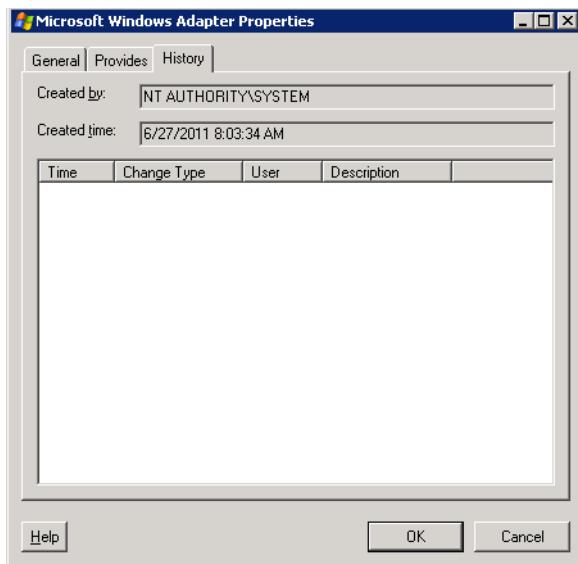
Use the History tab to view a history of changes that have been made to the adapter.

To view adapter history:

-
- Step 1** On the Administration—Adapters view, highlight **Windows Adapter**, right-click and choose **Properties**.

The Windows Adapter Properties dialog box displays.

Figure 1-3 Windows Adapter Properties Dialog Box—History Tab



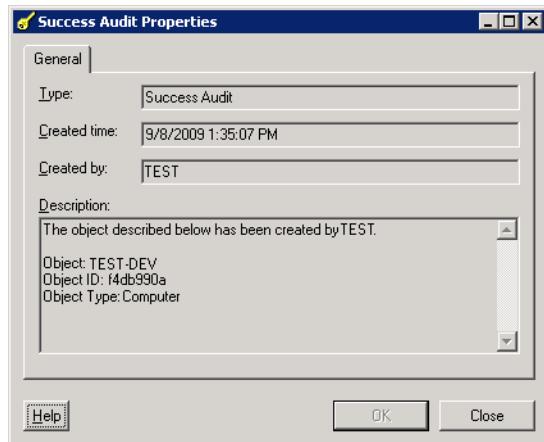
- Step 2** Click the History tab to view the changes made to the adapter.

Column	Description
Created by	The user name of the person who created the object
Created time	The date and time the object was created
Time	The date and time the action occurred
Change Type	The action that occurred
User	The user name or group that performed the action
Description	Information about the action that was performed

- Step 3** To view the audit history for a specific action, highlight the appropriate object, right-click and select **Properties**.

The Audit Properties dialog box displays.

Figure 1-4 Success Audit Properties Dialog Box



- Step 4** Review the display-only properties dialog box for information about system-related events that occurred and their status.

Field	Description
Type	Type of event logged by the system <ul style="list-style-type: none">• Success Audit• Failure Audit
Created By	System-generated record, such as an error condition, or the user name of the person who initiated the process
Created Time	Date and time the event occurred
Description	Brief description of the event

- Step 5** Click **OK** to close the dialog box.

■ Viewing Windows Adapter History



CHAPTER 2

Managing Windows Targets

The Targets feature defines specific environments or groups of environments that are appropriate for the processes, activities, or triggers that execute on the targets. You can define a target to run a process on a specific computer.

Using targets simplifies specifying where certain processes, activities, or triggers will run. The target can be defined once and reused in several processes. The targets created depend on the adapters that are installed. You can create a target for a specific Windows computer that has been created in Tidal Enterprise Orchestrator.

This chapter guides you through managing targets.

- [Accessing Definitions—Targets, page 2-2](#)
- [Defining a Windows Computer Target, page 2-5](#)
- [Managing Target Definitions, page 2-8](#)

Accessing Definitions—Targets

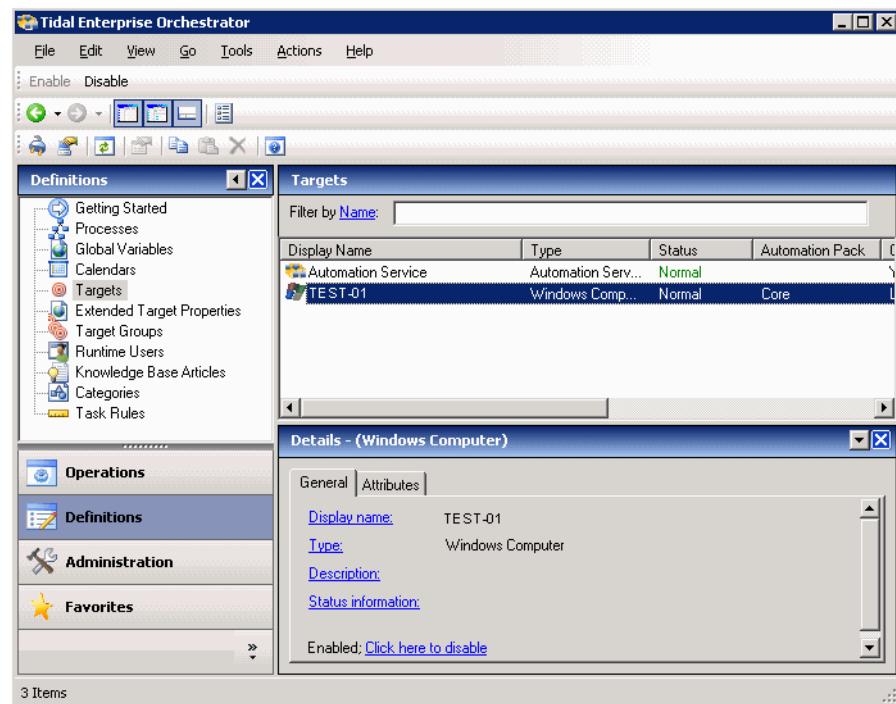
The Definitions—Targets displays all the existing defined targets. You also use this view to create new targets, modify the properties of a target, and delete targets.

To access the Targets view:

On the Definitions workspace, select **Targets**.

The Results pane displays.

Figure 2-1 Definitions—Targets



Information about the target can be displayed in the following columns:

Column	Description
Name	The name assigned to the target
Enabled	Indicates whether the target is enabled (<i>True</i>) or disabled (<i>False</i>). A disabled target is unavailable for execution.
Type	The type of target based on the associated adapter

Column	Description
Status	Indicates the status of the target. The status is used to determine whether the target is available or is not available for process or activity execution. <ul style="list-style-type: none"> • Unknown—Status of the target unknown • Normal—No known problems with this target • Unreachable—TEO is experiencing problems connecting to the target and executing activities • Disabled—Target is disabled and is not available for activity execution
Status Information	Detailed information regarding the target status and the reasons for target being unreachable
Automation Pack	Name of the automation pack associated with the target
Customizable	Indicates the customization setting for the object in the automation pack
Owner	The user name of the person who created the target
Last Modified Time	The time the target was last modified
Last Modified By	The user name of the person who last modified the target
Id	The unique identification number of the target definition
Description	A brief description of the target
Type Description	A brief overview of the target type
Created Time	The time at which the target was created
Created By	The user name of the person who created the target



Note For information on adding, removing, or sorting column headings on the display, see the *Cisco Tidal Enterprise Orchestrator Reference Guide*.

Viewing Target Properties

To view target properties:

Step 1 On the Definitions—Targets view, highlight the appropriate target, and use *one* of the following methods:

- Right-click and choose **Properties**.
- or-
- On the Details pane, click the hyperlink name on any of the tabs.

The Properties dialog box displays.

■ Accessing Definitions—Targets

- Step 2** Click the appropriate tab to review the properties

Tab	Description
General	Displays general information about the target
Connection	Displays the connection properties for the defined target
Member Of	Displays the target groups associated with the defined targets
Extended Properties	Displays the list of all extended target properties defined for a specific target type. This tab will remain blank until an extended target property is defined for the target type.
Provides	Displays the objects used by the target
History	Displays when the target was created or modified. The column also displays audit log entries that are relevant to the target.

- Step 3** Click **OK** to close the dialog box.

Target Algorithms

The following table displays the list of target algorithms that may display for an activity.

Algorithm	Description
Choose the target with the specified name	Select this radio button to run the process on the member of the group specified in the Name to match text field.
Choose all target that satisfies the specified criteria	Select this radio button to execute the process on all targets defined by the criteria specified in the Target Selection dialog box. See Defining Target Criteria, page 2-9 .

Common Regular Expressions

The following table describes are commonly used special characters that display according to the selected activity.

Character	Description
*	Zero or more
.	Any single character
+	One or more
^	Beginning of line
\$	End of line
<	Beginning of word
>	End of word

Character	Description
\n	Line break
[]	Any one character in the set
[^]	Any one character not in the set
	Or
\	Escape Special Character
{}	Tag expression
:l	C/C++ identifier
:q	Quoted string
:z	Integer
:b	Space or tab

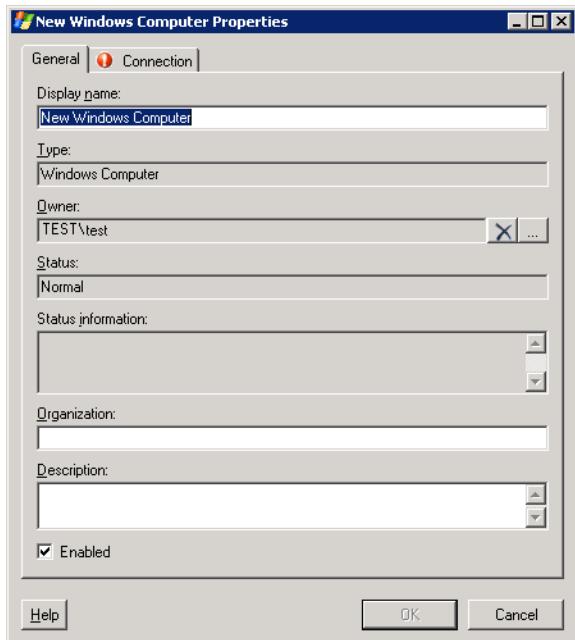
Defining a Windows Computer Target

Use the Windows Computer target to specify the connection information for the Windows computer used for processes to run against.

If Windows 2008 is used as the target, then the Windows firewall settings need to be adjusted in order to allow Windows Management Instrumentation (WMI) to pass through.

-
- Step 1** On the Definitions—Targets workspace, right-click and choose **New > Windows Computer**.
The New Windows Computer Properties dialog box displays.

Figure 2-2 New Windows Computer Properties Dialog Box—General Tab



Defining a Windows Computer Target

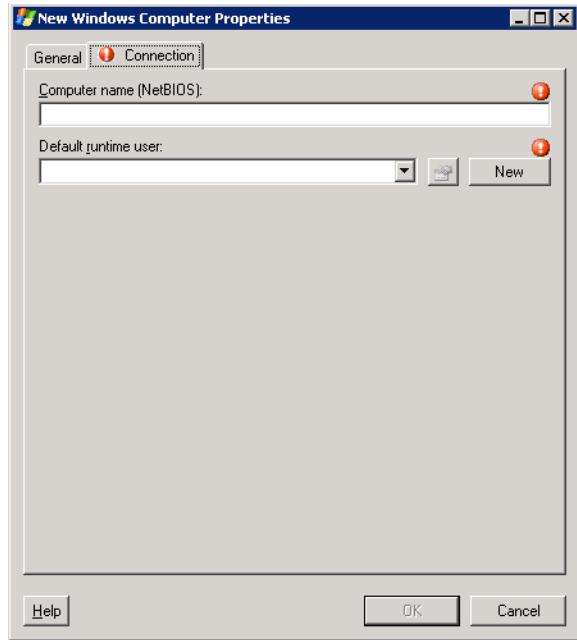
Step 2 On the General tab, enter the appropriate general information:

Field	Description
Display Name	Name of the target
Type	<i>Display-only.</i> Type of target
Owner	User name of the owner of the category. This is typically the person who created the category. Click Browse to launch the Select User or Group dialog box to change the owner.
Status	Status of the target <ul style="list-style-type: none"> • Unknown—Status of the target unknown • Normal—No known problems with this target • Unreachable—TEO is experiencing problems connecting to the target and executing activities • Disabled—Target is disabled and is not available for activity execution
Status Information	Detailed information regarding the target status and the reasons for target being unreachable
Organization	Name of the company which supports the target
Description	Brief description of the target
Enabled	Check the check box to enable the target. The check box is checked by default which makes it available immediately upon creation. If you uncheck the check box, the target is disabled and will be unavailable for execution.

Step 3 Click the **Connection** tab to continue.



Note The Required Value  icon displayed on a tab or page indicates that the field is required and is either missing a value or contains an invalid value.

Figure 2-3 New Windows Computer Properties Dialog Box—Connection Tab

- Step 4** On the Connection tab, enter the appropriate target information to specify the connection information for the Windows computer target.

Field	Description
Computer Name (NetBIOS)	The name of the computer <ul style="list-style-type: none">• Local computer name• .DNS name• NetBIOS name• IP address
Default runtime user	Select the default runtime user account that contains the credentials to connect to the target. Note To view the properties for the selected runtime user, click the Properties tool. To create a new runtime user account, click New > Windows User to create a new Windows user account. For additional information, see Chapter 3, “Managing Windows Users.”

- Step 5** Click **OK** to close the dialog box.

Managing Target Definitions

Use the Definitions—Targets view to modify and review target information. This view can be used to perform the following functions:

- Enable/Disable targets
- Modify target properties
- Review the objects in the product that use the target
- Review a history of changes made to the target
- Delete the target

Enabling a Target

A target is enabled by default. If a target is manually disabled, the target must be enabled before it is available for execution.

To enable a target:

On the Definitions—Target view, highlight the target, and then use *one* of the following methods:

- On the Results pane, right-click and choose **Enable**.
- -or-
- On the Details pane, select the **Click here to enable** option.

The Enabled column on the Results pane changes to *True*. If necessary, click **Refresh**  to update the view.

Disabling a Target

Disabling a target prevents the object from being available for execution. The disabled target is not removed from the list of targets in the Definitions—Target Results pane.

To disable a target:

On the Definitions—Target view, highlight the target, and then use *one* of the following methods:

- On the Results pane, right-click and choose **Disable**.
- -or-
- On the Details pane, select the **Click here to disable** option.

The Enabled column on the Results pane changes to *False*. If necessary, click the **Refresh** tool to update the view.

Modifying Targets

Use the Definitions—Targets view to modify the configured targets. After the initial creation, not all fields are available for updating.

To modify a target:

-
- Step 1** On the Definitions—Targets view, highlight the appropriate target, right-click and choose **Properties**. The [Target] Properties dialog box displays.
- Step 2** Modify the information on the target property tabs, as necessary.
- Step 3** Click **OK** to save the changes and close the dialog box.
-

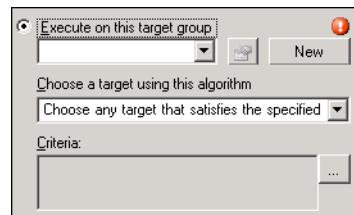
Defining Target Criteria

Use the Target Selection Criteria dialog box to specify the matching criteria for the selected target group.

To define the target selection criteria:

-
- Step 1** On the Target tab, select the **Execute on this target group** radio button, and then select the appropriate target group from the drop-down list.

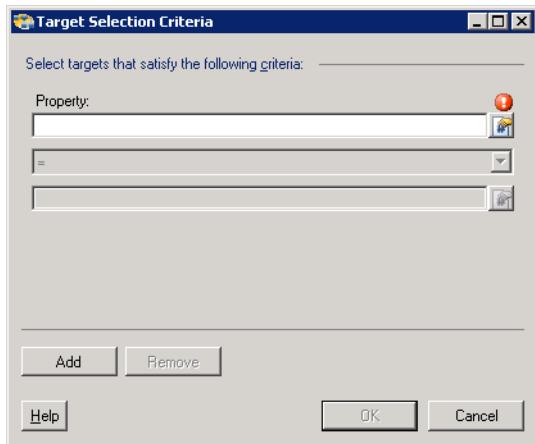
Figure 2-4 Target Tab—Execute on this target group Section



- Step 2** From the Choose a target using this algorithm drop-down list, select **Choose the target that satisfies the specified criteria**.

- Step 3** On the Criteria box, click **Browse**.

The Target Selection Criteria dialog box displays.

Figure 2-5 Target Selection Criteria Dialog Box

Step 4 On the Properties pane, specify the following information, as necessary:

Field	Description
Property	Choose the appropriate property to match within the target. Click the Reference tool to select the variable from the Insert Variable Reference dialog box. See Inserting a Target Variable Reference, page 2-12 .
Operators	Select the appropriate operator to be used to evaluate the expression. The displayed operators depend on the selected property. Note For information on the displayed operators, see Comparison Operators, page 2-11 .
Value	Enter the appropriate value for the target

Step 5 To modify the list of Properties pane containing target criteria, click one of the following buttons:

Button	Description
Add	Click this button to add a new Properties pane to complete with criteria for the target.
Remove	Click this button to remove the selected Properties pane in the display

Step 6 Click **OK** to return to the Target tab.

The defined criteria displays in the display-only box.

Comparison Operators

The following table contains operators that may display throughout TEO.

Operator	Description
contains	Iterates through the contents of the collection and determines if the specified item exists (if this is a string collection, this is case-insensitive)
contains (case-sensitive)	Iterates through the contents of the collection and determines if the specified item exists (same as above, but a case-insensitive version)
contains only	Iterates through the contents of the collection and determines if the only item in the collection is the specified item (if this is a string collection, this is case-insensitive)
contains only (case-sensitive)	Iterates through the contents of the collection and determines if the only item in the collection is the specified item (same as above, but a case-insensitive version)
does not match wildcard	Determines if the item does not match all items in the wildcard example
is empty	Determines if there are items in the collection or not
equals	Determines if the left side equals the right side (if this is a string comparison, this is case-insensitive)
not equals	Determines if the left side does not equal the right side
matches regular expression	Determines if the left side matches the regular expression specified on the right side
matches wildcard	Determines if the left side matches the wildcard specified on the right side
equals (case-sensitive)	Determines if the left side equals the right (this is the case-sensitive version of Equals for string)
less than [<]	Determines if a value is less than another value
more than [>]	Determines if a value is greater than another value
equal [=]	Determines if a value is equal to another value
not equal [>]	Determines if a value is not equal to another value
greater than or equal [>=]	Determines if a value is greater than or equal to another value
less than or equal [<=]	Determines if a value is less than or equal to another value

Inserting a Target Variable Reference

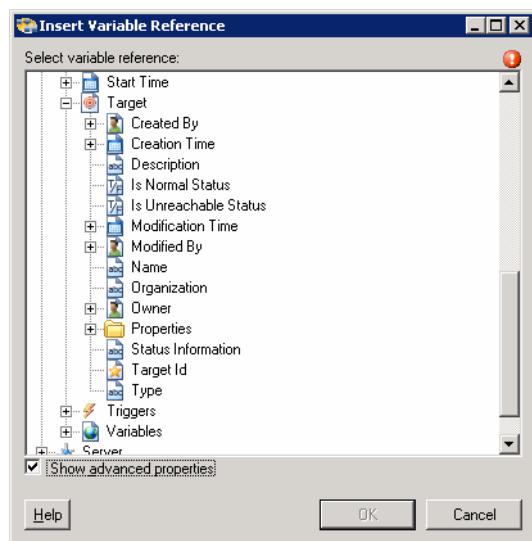
The Reference  icon to the right of a text field indicates that the field can be populated by referencing a defined variable or the property of another activity or process. Use the Insert Variable Reference dialog box to select a defined variable or reference an object to populate a field. The OK button does not activate until a valid property or variable is selected.

To insert a target variable reference:

-
- Step 1** To the right of a field on a property page, click the **Reference** tool.

The Insert Variable Reference dialog box displays.

Figure 2-6 *Insert Variable Reference Dialog Box*



- Step 2** Check the **Show Advanced** check box to display all items that are available for referencing.

If the check box is not checked, then only the most commonly-used items are displayed for activities, processes or events.



Note The Required Value  icon displayed on a tab or page indicates that the field is required and is either missing a value or contains an invalid value.

-
- Step 3** Click the **Target Expand (+)** to display the reference objects for the target.

- Step 4** From the list of displayed objects, select the appropriate property.

Reference Variable	Description
Name	Display name of the target
Created by	User name or the owner of the target
Creation Time	The date and time the target was created
Modified by	User name of the individual who modified the target
Modification Time	The date and time the target was modified
Description	Description of the target

Reference Variable	Description
Type	Type of target
Is Normal Status	Status is normal and indicates that there are no known problems with this target
Is Unreachable Status	Status is unreachable which indicates that no known problems with this target
Status Information	Detailed information regarding the target status and the reasons for target being unreachable
Target ID	ID number assigned to the target
Organization	Name of the company which supports the target
Owner	The user name of the person who created the target
Properties	Extended target properties for a specific target type
Computer name	<p>The name of the computer</p> <ul style="list-style-type: none"> • Local computer name • .DNS name • NetBIOS name • IP address

Step 5 Click **OK** to add the selected reference variable to the related text field.

Creating a Copy of a Target

The copy option is used when there is an existing target that contains properties that can be used for defining a new target without creating a completely new target. The following steps may not be available for all targets.

To create a copy a target:

Step 1 On the Definitions—Targets view, highlight the appropriate target, right-click and select **Copy**.

Step 2 On the Results pane, right-click and select **Paste**.

A copy of the defined target is pasted into the Results pane.

Step 3 To rename the copied target or other properties, right-click and select **Properties**.

Modify the target name, as appropriate, and click **OK** to close the dialog box.

Deleting a Target

Use the Definitions—Targets view to delete targets that are no longer used. Before deleting a target, access the properties, and click the **Used By** tab to view where objects are being referenced by the target. This ensures that deleting the target does not affect any processes or activities. If there are any entries in the Used By tab, the deletion will fail.

To delete a target:

Step 1 On the Definitions—Targets view, highlight the appropriate target, right-click and select **Delete**.

The Confirm Delete dialog box displays.

Step 2 Click **Yes** to delete the target.

Viewing Member Of Properties

Use the Member of tab to view the target groups to which a target belongs. The name and type of target group displays in the list box.

To view the member of targets:

Step 1 On the Definitions—Targets view, highlight the appropriate target, right-click and choose **Properties**.

The [Target] Properties dialog box displays.

Step 2 Click the **Member Of** tab to view the target groups.

Field	Description
Display Name	Name of the target group
Type	<i>Display-only.</i> Type of target group
Description	Brief description of the target

Step 3 To view the properties for a specific object, highlight the object, right-click and select **Properties**.

Step 4 Click **OK** to close the dialog box.

Viewing Extended Properties

Use the Extended Properties tab to view the list of all extended target properties defined for a specific target type. This tab will remain blank until an extended target property is defined for the target type.

For additional information on extended properties, refer to the *Cisco Tidal Enterprise Orchestrator Reference Guide*.

To view the target extended properties:

Step 1 On the Definitions—Targets view, highlight the appropriate target, right-click and choose **Properties**.

The [Target] Properties dialog box displays.

Step 2 Click the **Extended Properties** tab to view the extended properties defined for the target.

Column	Description
Name	Name of the target property
Value	Displays value for the target property. If no value is defined, then the default property value will display.
Using Default	Indicates whether the default property value is displayed. <i>Yes</i> will display if no value is defined. <i>No</i> will display if a value is defined for the target property.

Step 3 Click **OK** to close the dialog box.

Modifying Extended Property Values

To modify the extended properties:

On the Extended Properties tab, highlight the appropriate target property and click the appropriate button to define or modify the value.

Button	Description
Edit	Click this button to defined or modify the value of a specific target property. The Edit button is disabled by default. The button will be enabled only when a target property is selected in the list.
Reset Value	Click this button to reset the value of the target property to its default value. The Reset Value is enabled only if a value is specified for a selected target property.

Viewing Used By Properties

Use the Used By tab to display the objects that directly reference the selected target in their configuration. Because the Used By tab displays objects in a tree view, users can also display the objects which directly reference the top level objects for the selected object.

The objects at the top level are the objects that reference the selected object directly, but users can expand the listed objects and see their referenced objects.

Example:

If *object A* is used by *objects X* and *Y* and *object X* is used by *object Q*, then on the property pages of *object A*, the user will see *X* and *Y* listed. If a user expands (+) *object X*, then *object Q* will display.

To view used by objects:

Step 1 On the Definitions—Targets view, highlight the appropriate target, right-click and choose **Properties**.

The [Target] Properties dialog box displays.

Step 2 Click the **Used By** tab to view the objects used by the target.

Object	Description
Display Name	Name of the object
Type	Type of object

Step 3 To view the properties for a specific object, highlight the object, right-click and select **Properties**.

Step 4 Click **OK** to close the dialog box.

Viewing Targets History

Use the History tab to view a history of changes that have been made to the target.

Step 1 On the Definitions—Targets view, highlight the appropriate target, right-click and choose **Properties**.

The [Target] Properties dialog box displays.

Step 2 Click the **History** tab to view the changes made to the target.

Column	Description
Created by	The user name of the person who created the object
Created time	The date and time the object was created
Time	The date and time the action occurred
Change Type	The action that occurred
User	The user name of the person that performed the action
Description	Information about the action that was performed

- Step 3** To view the details for a specific action, highlight the appropriate time, right-click and choose **Properties**.
- Step 4** Click **OK** to close the dialog box.



CHAPTER 3

Managing Windows Users

Many operating system and application activities require credentials for proper execution. The Runtime Users feature is used to create a runtime user record to store the information about the user security context and to pass this information to the adapters for activity execution, event monitoring and some target operations (such as availability monitoring and discovery). When defining a process or certain activities, you can use the runtime user records that are defined in the product to assign credentials for the process or activity.

The following sections in this chapter provide instructions on managing runtime user accounts:

- [Accessing Definitions—Runtime users, page 3-2](#)
- [Defining a Windows User, page 3-4](#)
- [Managing Runtime User Definitions, page 3-6](#)

Accessing Definitions—Runtime users

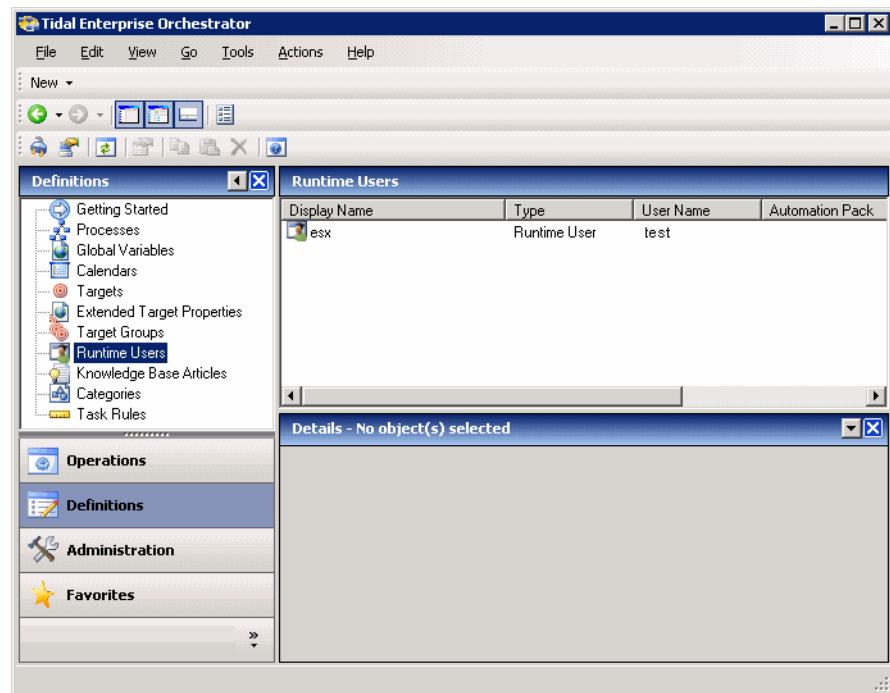
Use the Definitions—Runtime Users view to display the credentials of the runtime users and to specify new runtime user credentials, update the credentials of users, or delete users.

To access the Runtime Users properties:

On the Definitions workspace, choose **Runtime Users**.

The Results pane displays.

Figure 3-1 Definitions—Runtime Users



Information about the runtime user accounts can be displayed in the following columns:

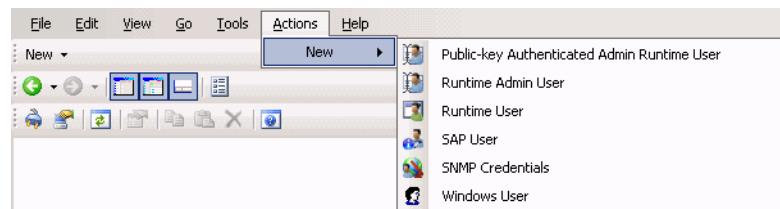
Column	Description
Display Name	The display name assigned to the runtime user account
Type	The type of user account
User Name	The user name assigned to the account
Owner	The user name of the person who created the account
Last Modified Time	The time the credentials were last modified
Last Modified By	The user name of the person who last modified the credentials
Id	The unique identification number of the runtime user definition
Description	A brief overview of the runtime user definition
Type Description	A brief description of the information in the Type column
Created Time	time the runtime user account was created

Column	Description
Created By	The user name of the person who created the runtime user definition
Automation Pack	Name of the automation pack from which the runtime user record was imported

Actions Menu and Toolbar

The Runtime Actions menu and toolbar provide the option to create new runtime users to hold the security credentials that are assigned to processes and activities. The New option is also available by right-clicking **Runtime Users** on the Definitions pane.

Figure 3-2 Runtime Actions Menu



Runtime User Details Pane

The Details pane in the lower portion of the page displays detailed information about the chosen runtime user. Clicking a link on a tab page opens the Properties dialog box for the runtime user.

Tab	Description
General	Displays general information about the object including the name, type, value, a brief description of the runtime user
Attributes	Displays the dates, times and owner associated with the creation and modification of the runtime user

Defining a Windows User

The credentials specified for a runtime user stores the information about the user security context and to pass this information to the adapters. Use the credentials specified for the Windows user to assign run options for processes or activities.

To create a Windows User:

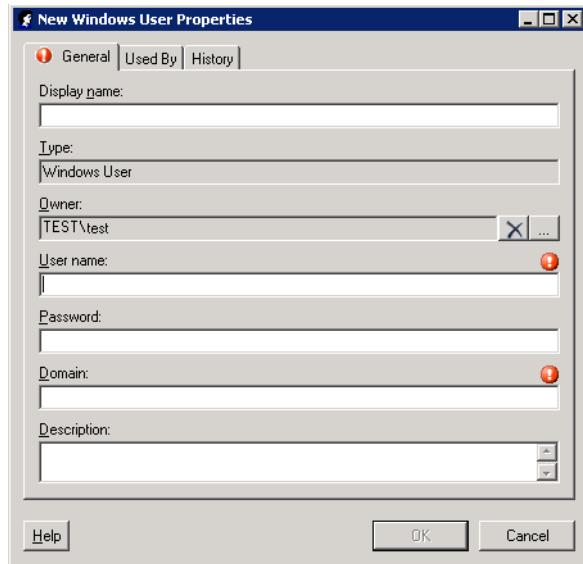
-
- Step 1** On the Definitions—Runtime Users view, right-click and choose **New > Windows User**.

The New Windows User Properties dialog box displays.



Note The Required Value icon displayed on a tab or page indicates that the field is required and is either missing a value or contains an invalid value.

Figure 3-3 *New Windows User Properties Dialog Box—General Tab*



-
- Step 2** On the General tab, specify the following information, as appropriate:

Field	Description
Display Name	Name of the Windows user account. This field is populated with the information specified in the Domain and User name text fields.
Type	<i>Display only.</i> Type of object
Owner	User name of the owner of the object. This is typically the person who created the object. Click Browse to launch the Select User or Group dialog box to change the owner.
User name	The user name assigned to the user account

Field	Description
Password	The password assigned to the user account Note For existing runtime user records, check the check box to enter the new password assigned to the user account. If the password entered is incorrect, then a confirmation dialog box displays stating: <i>"Logon failure: unknown user name or bad password."</i>
Domain	The Windows domain in which the user account resides
Description	Brief description of the Windows user account

Step 3 Review the information on the following tabs, as necessary, and then click **OK** to close the dialog box.

- Used By tab—Displays the objects which reference the target. This tab will remain blank until the target is used by an object. See [Viewing Used By Properties, page 3-6](#).
- History tab—Displays the history of actions taken against the target. This tab remains blank until after the initial target creation. See [Viewing Runtime User History, page 3-7](#).

The new runtime user displays in the list of runtime user accounts on the Definitions—Runtime User view.

Managing Runtime User Definitions

Use the following procedures to view and modify runtime user definitions.

Modifying a Runtime User Record

Use the Definitions—Runtime Users view to display the runtime user properties and modify the runtime user records.

To modify a runtime user credentials:

-
- Step 1** On the Definitions—Runtime Users view, highlight the appropriate runtime user record, right-click and choose **Properties**.
The [Runtime User] Properties dialog box displays.
- Step 2** On the General tab, modify the appropriate information, as necessary.
- Step 3** Confirm the changes, and then click **OK** to close the dialog box.
-

Deleting a Runtime User

Use the Definitions—Runtime Users view to delete a runtime user record.

-
- Step 1** On the Definitions—Runtime Users view, highlight the appropriate runtime user, right-click and choose **Delete**.
The Confirm Delete dialog box displays.
- Step 2** Click **Yes** to confirm the deletion.
-

Viewing Used By Properties

Use the Used By tab to display the objects that directly reference the chosen runtime user in their configuration. Because the Used By tab displays objects in a tree view, users can also display the objects which directly reference the top level objects for the chiseled object.

The objects at the top level are the objects that reference the chiseled object directly, but users can expand the listed objects and see their referenced objects.

Example:

If *object A* is used by *objects X* and *Y* and *object X* is used by *object Q*, then on the property pages of *object A*, the user will see *X* and *Y* listed. If a user expands (+) *object X*, then *object Q* will display.

To view used by objects:

-
- Step 1** On the Definitions—Runtime Users view, highlight the appropriate runtime user, right-click and choose **Properties**.

The [Runtime User] Properties dialog box displays.

- Step 2** Click the **Used By** tab to view the objects which reference the runtime user.
-

Object	Description
Display Name	Name of the object
Type	Type of object

- Step 3** To view information about an object, highlight the object, right-click and choose **Properties**.

The display-only dialog box displays the properties of the object.

- Step 4** Click **OK** to close the dialog box.
-

Viewing Runtime User History

Use the History tab to view a history of changes that have been made to the runtime user.

-
- Step 1** On the Definitions—Runtime Users view, highlight the appropriate runtime user, right-click and choose **Properties**.

The [Runtime User] Properties dialog box displays.

- Step 2** Click the **History** tab to view the changes made to the runtime user.

The following information about the history of the runtime is displayed:

Column	Description
Created by	The user name of the person who created the object
Created time	The date and time the object was created
Time	The date and time the action occurred
User	The user name of the person that performed the action
Type	The action that occurred
Description	Information about the action that was performed

-
- Step 3** To view the audit history for a specific action, highlight the appropriate time, right-click and choose **Properties**.

- Step 4** Click **OK** to close the dialog box.
-

■ Managing Runtime User Definitions



CHAPTER 4

Managing Windows Event Triggers

Triggers determine how or when the process will be executed. Multiple triggers can be added that can be initiated when certain conditions are met. Process triggers are available for viewing within the process editor. The process trigger tab displays all triggers associated with the process. On this tab, users are able to create new triggers, modify the properties of a trigger, and delete triggers.

This chapter guides you through managing triggers.

- [Accessing Trigger Properties, page 4-2](#)
- [Defining a Windows Event Trigger, page 4-4](#)
- [Managing Trigger Definitions, page 4-9](#)

Accessing Trigger Properties

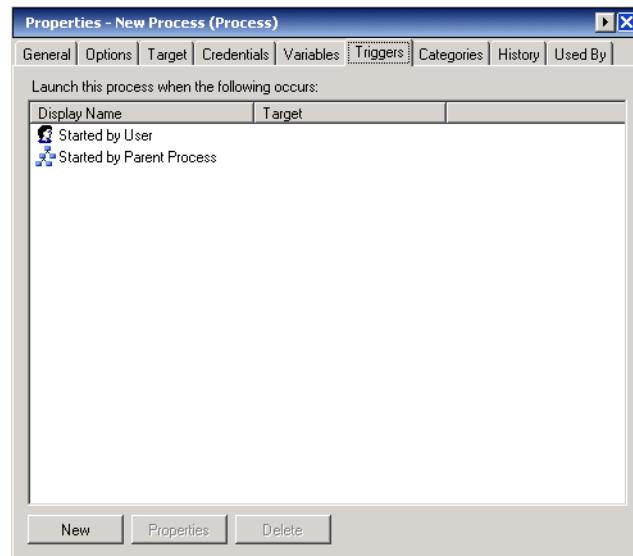
Process triggers are available for viewing within the process editor. The trigger tab displays all triggers associated with the process. The Triggers displays all the existing defined targets. You also use this view to create new targets, modify the properties of a target, and delete targets.

If a process contains a trigger, a user will be able to view display-only trigger properties in the process instance views as well as in the process editor.

Use the following steps to view trigger properties in the process editor:

-
- Step 1** On the Definitions—Processes view, use *one* of the following methods:
- Highlight the appropriate process, right-click and choose **Edit**.
 - OR-
 - On the Navigation pane, select **Processes**, right-click and choose **New**.
- Step 2** After the Process Editor dialog box displays, click the **Triggers** tab.

Figure 4-1 Process Editor –Triggers Tab



Information about the trigger is displayed in the following columns:

Column	Description
Display Name	Name assigned to the trigger
Target	Target which is executed by the trigger

- Step 3** On the Triggers tab, highlight the appropriate trigger, and click **Properties**.
The Trigger Properties dialog box displays.

Step 4 Select the appropriate tab to review the properties.

Tab	Description
General	Displays general information about the trigger
Event Log	Criteria used for an event to match to trigger a process
Target	Target on which to monitor for events that will trigger the process.
Credentials	Runtime user whose credentials should be used to monitored for events that will trigger the process.
Knowledge Base	Knowledge base article to be associated with the trigger
Conditions	Specifies when an action is to be taken based on an evaluation of conditions that have been defined

Step 5 Click **OK** to close the dialog box.

Common Wildcard Expressions

The following table describes are commonly used wildcard special characters that display according to the selected activity.

Character	Description
*	Match Any Character
#	Match Any Single Digit
?	Match Any Single Character

Defining a Windows Event Trigger

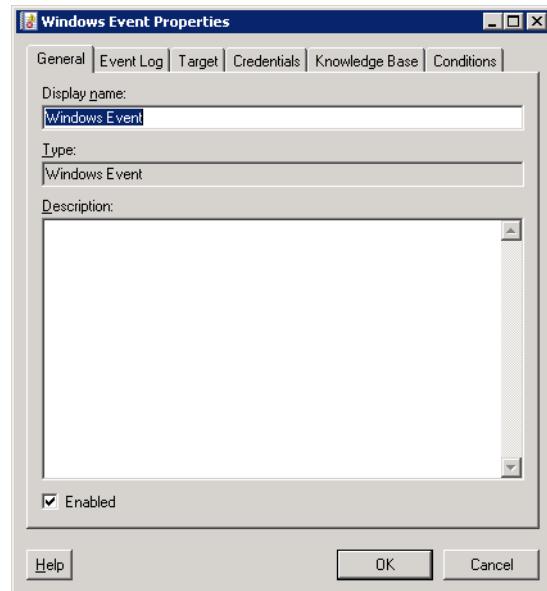
Use the Windows Event trigger to specify the events that must be occur before the process executes.

To create a Windows Event trigger:

-
- Step 1** On the Process—Triggers tab, click **New > Windows Event**.

The Windows Event Properties dialog box displays.

Figure 4-2 Windows Event Properties Dialog Box—General Tab



- Step 2** On the General tab, enter the following information:

Field	Description
Display Name	Name of the trigger
Type	<i>Display-only.</i> Type of trigger
Description	Brief description of the trigger
Enabled	<p>The check box is checked by default. The checked box indicates the target group is available for execution.</p> <p>Uncheck the check box to disable the object. If the check box is unchecked, the object is disabled and will be unavailable for execution.</p>

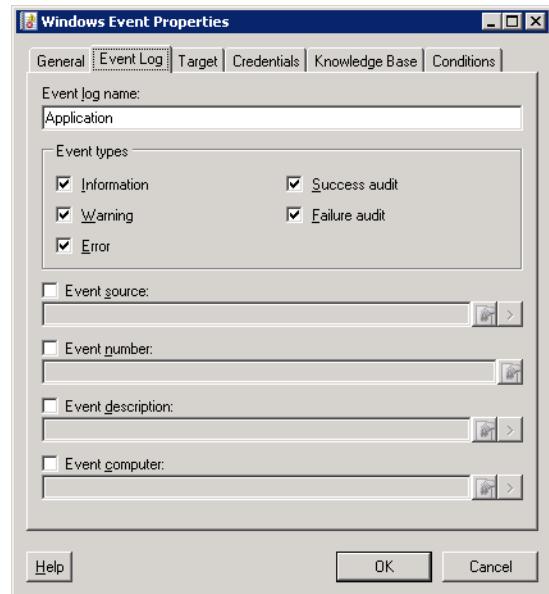
Step 3 Click the **Windows Event** tab to continue.



Note

The Required Value icon displayed on a tab or page indicates that the field is required and is either missing a value or contains an invalid value.

Figure 4-3 Windows Event Properties Dialog Box—Event Log Tab



Note

Click the **Reference** tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Activity Variable References, page 5-41](#).

Step 4 On the Event Log tab, specify the following information:

Field	Description
Event log name	The name of the event log to be matched. Enter a name or expression in the text field.
Event types	Check the check boxes for the types of events that must be matched. The following event types are available: <ul style="list-style-type: none"> • Information • Warning • Error • Success Audit • Failure Audit
Event source	Check this check box and enter the source or expression in the text field to find event log entries by where they occurred.

■ Defining a Windows Event Trigger

Field	Description
Event number	<p>Check this check box and enter the event ID in the text field to find an event log entry by the event ID.</p> <p>Note Use a comma to separate multiple event IDs in the field.</p>
Event description	<p>Check this check box and enter the description in the field to find an event log entry to match the description.</p>
Event computer	<p>Check this check box and enter the computer name in the text field to find an event log entry to match to a specific computer.</p>



Note The Expression displayed to the right of the Reference icon indicates that a Wildcard expression is available. For additional information, see [Common Wildcard Expressions, page 4-3](#).

Step 5 Click the **Target** tab to specify the target on which to monitor for events that will trigger the process:

Field	Description
Monitor on this target	<p>Select this radio button and then click Browse to launch the Select Targets dialog box to select a specific target to monitor other than the target specified in the process properties.</p> <p>Note To view the properties for the target, click the Properties tool.</p>
Choose a target reference	<p>Select this radio button and then click the Reference tool to launch the Insert Variable Reference dialog box.</p> <p>On the Insert Variable Reference dialog box, expand Process > Target > Properties, select the appropriate target reference property, and click OK.</p> <p>The selected target reference property displays in the text field.</p>
Monitor using this target group	<p>Select the appropriate target group where the process should be executed.</p> <p>Note To view the properties for the target group, click the Properties tool. To create a new target group, click New > [Target Group] Name.</p>

Field	Description
Monitor for events on	
All targets in this group	Select this radio button to execute the process on all members of the target group.
Choose a target using this algorithm	Select this radio button to execute the process on a specific member of the target group or a random target in the target group. Select the appropriate option from the drop-down list to determine the target member parameters. For algorithm descriptions, see Target Algorithms, page 2-4 .

- Step 6** On the Credentials tab, select *one* of the following radio buttons to specify the runtime user whose credentials should be used to monitor for changes that will trigger the process:

Field	Description
Process runtime user	Select this radio button to use the credentials for the runtime user that was specified for the process
Target's default runtime user	Select this radio button to use the default runtime user for the target that is specified in the activity
Specific runtime user	Select this radio button to specify different credentials than what are used for the process. The selected runtime user overrides the runtime user that was specified for the process. Note To view the properties for the selected user, click the Properties  tool. To create a new runtime user, click New > [Runtime user] . For additional information, see Chapter 3, “Managing Windows Users.”

- Step 7** Click the **Conditions** tab, and then the appropriate panel, to specify when an action is to be taken based on an evaluation of defined conditions.

Panel	Description
Basic	Creates simple conditions using variables to match to operator criteria. See Adding Basic Conditions to an Object, page 4-10 .

Defining a Windows Event Trigger

Panel	Description
Advanced	<p>Creates a more complex condition.</p> <ul style="list-style-type: none"> Compound Condition—Compiles other conditions (time condition, prior process instance condition, variable condition, or another compound condition) into a single condition. The Compound Condition is created by the addition of another True/False option in the Advanced Panel. Prior Process Instance Condition—Determines that when a process has occurred within a specific time interval, the condition will evaluate to false. If no process instance is selected, then the trigger will search for all process instances. Time Condition—Specify a condition based on a defined calendar. Variable Condition—Specify a variable to be used as the condition under which the variable should evaluate as true. <p>See Adding Advanced Conditions to an Object, page 4-11.</p>

Step 8 Click the **Knowledge Base** tab to assign a knowledge base article to the object.

Knowledge Base Field Options	Description
Knowledge Base	<i>Display-only.</i> Display name for the selected knowledge base article(s)
Delete	Highlight the appropriate knowledge base article and click the Delete  tool to remove the knowledge base article from the list.
Browse	<p>Click Browse to launch the Select Knowledge Base dialog box for a list of existing knowledge base articles.</p> <p>For additional information on knowledge base articles, refer to the <i>Cisco Tidal Enterprise Orchestrator Reference Guide</i>.</p>
Properties	Highlight the appropriate knowledge base article and click the Properties  tool to view and/or modify the properties of the defined knowledge base article.

The following information is displayed on the Knowledge Base tab.

Field	Description
Summary	Brief description of the issue
Possible cause	Explanation of the condition that may be causing the issue
Possible resolution	List of actions that can be performed to attempt to resolve the issue
Related information	Additional information related to the issue

Step 9 On the Trigger tab, click **OK** to complete the trigger definition.

The new trigger displays on the Trigger property page.

Managing Trigger Definitions

The information in this section provide instructions on modifying trigger properties. Use the Process—Triggers property page to perform the following functions:

- Enable/Disable triggers
- Modify triggers properties
- Delete the trigger
- Adding incident properties to the trigger
- Defining target selection criteria

Enabling a Trigger

A trigger is enabled by default. If a trigger is manually disabled, the trigger must be enabled before it is available for monitoring.

To enable a trigger:

On the Process—Trigger view, highlight the trigger, and then right-click and choose **Enable**.

The trigger becomes enabled in the trigger list.

Disabling a Trigger

Disabling a target prevents the object from being monitored. The disabled trigger is not removed from the list of triggers in the Triggers tab.

To disable a trigger:

On the Process—Trigger view, highlight the trigger, and then right-click and choose **Disable**.

The trigger becomes disabled in the trigger list.

Modifying Triggers

Use the Triggers tab to modify the configured triggers. After the initial creation, not all fields are available for updating.

To modify a trigger:

Step 1 On the Triggers tab, highlight the appropriate the trigger, and click **Properties**.

The selected trigger dialog box displays.

Step 2 Modify the information on the trigger tabs, as necessary, and click **OK**.

The modified trigger displays in the Trigger tab.

Adding Basic Conditions to an Object

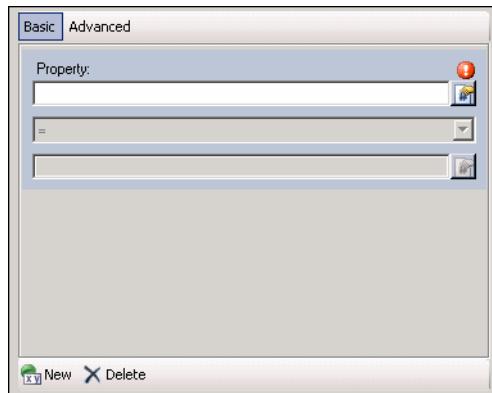
Use the Basic panel to create simple conditions using variables to match to operator criteria.

To add a new condition to an object:

- Step 1** On the [Object] property page or dialog box, click the **Conditions** tab.

The Conditions tab displays.

Figure 4-4 Conditions Tab—Basic Panel



- Step 2** Under Conditions, click the **True/False** link to determine when the object should execute against the specified conditions.

Option	Description
TRUE	Default link option indicates the process is always executed when the event matching criteria in the "trigger-specific" page happens A single condition is listed by default and is set to <i>True</i> . If no other conditions are specified, this condition will remain and cannot be deleted by the user.
FALSE	Click this link to indicate the process is NEVER executed when the event happens.

- Step 3** Click the appropriate button to modify the condition properties used to execute the object.

Button	Description
New	Click New to add a Properties pane to the condition.
Delete	Click this button to remove the last Properties section in the list of properties.

- Step 4** Each time the New button is clicked, a Properties section is displayed for the condition. The following table displays the fields for the Properties section.

Button	Description
Property	Data for this field cannot be manually entered. Click the Reference tool to select a property variable to use as a condition.
Operators	Select the appropriate operator to be used to evaluate the expression. The displayed operators depend on the selected property. Note For information on the displayed operators, see Comparison Operators, page 2-11 .
Value	Enter value for the property

- Step 5** Click **OK** to save the object.

Adding Advanced Conditions to an Object

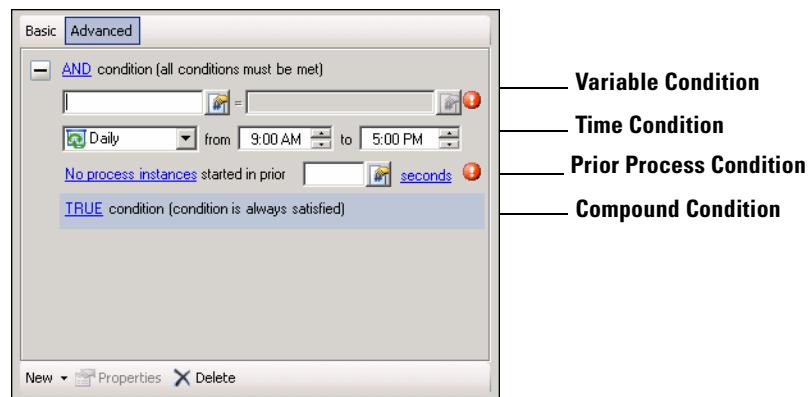
Use the Advanced panel to create a TEO-based condition. Users have the ability to define the properties of the conditions within the Advanced panel, as well as within the Properties dialog box.

The conditions specified on the Basic panel can also be configured on the Advanced pane, because they transition to simple TEO-level variable conditions. All other TEO conditions on the Advanced panel cannot transition to the Basic panel and will not display.

To add an advanced condition to an object:

- Step 1** On the [Object] property page or dialog box, click the **Conditions** tab.
The Conditions tab displays.
- Step 2** Click the **Advanced** panel to continue.

Figure 4-5 Conditions Tab—Advanced Panel



- Step 3** Under Conditions, click the **True/False** link to determine when the object should execute against the specified conditions.

Option	Description
TRUE	<p>Default link option indicates the process is always executed when the event matching criteria in the "trigger-specific" page happens</p> <p>A single condition is listed by default and is set to <i>True</i>. If no other conditions are specified, this condition will remain and cannot be deleted by the user.</p>
FALSE	Click this link to indicate the process is NEVER executed when the event happens.

- Step 4** Click the appropriate button to modify the condition properties used to execute the object.

Button	Description
New	<p>Click New > [Condition] to add a single condition to Advanced panel. Repeat this step to add additional condition properties to the Conditions tab.</p> <ul style="list-style-type: none"> • Compound Condition—Compiles other conditions (time condition, prior process instance condition, variable condition, or another compound condition) into a single condition. The Compound Condition is created by the addition of another True/False option in the Advanced Panel. • Prior Process Instance Condition—Determines that when a process has occurred within a specific time interval, the condition will evaluate to false. If no process instance is selected, then the trigger will search for all process instances. • Time Condition—Specify a condition based on a defined calendar. • Variable Condition—Specify a variable to be used as the condition under which the variable should evaluate as true.
Properties	<p>Click anywhere around the appropriate condition. After the area around the condition is shaded blue, click Properties to launch the condition properties dialog box.</p> <p>Note Condition properties can be modified on the tab or within the conditions properties dialog box.</p>
Delete	Highlight the appropriate condition and then click Delete to remove the condition from the object.



Note For additional information on creating a condition, refer to the *Cisco Tidal Enterprise Orchestrator Reference Guide*.

After the first condition is added, the following operators are displayed. The operator is set to *AND* by default.

Operator	Description
AND condition (All conditions must be met)	Click this option if an action is to be taken only when all conditions in the list are <i>true</i> .
OR condition (One condition must be met)	Click this option if an action is to be taken when one condition in the list is <i>true</i> .

- Step 5** Click **OK** to save the object.
-

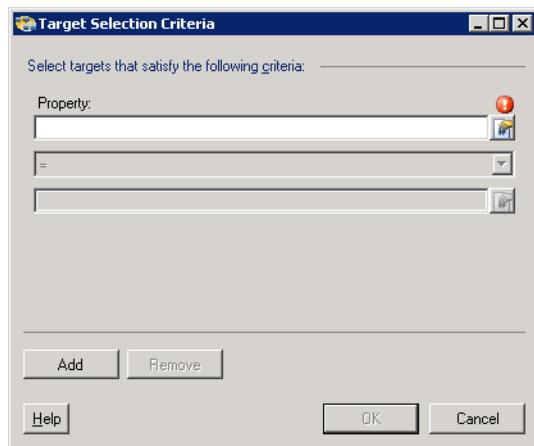
Defining Target Criteria for Trigger

The Target Selection Criteria dialog box is launched from clicking **Browse** on the Target property page on the selected trigger. Use the Target Selection Criteria dialog box to specify the matching criteria for the selected target group.

To define the target selection criteria:

-
- Step 1** On the Trigger Target property page, select **Monitor on this target group**, and the appropriate target group.
- Step 2** Under Monitor for Events on, from the Choose a target using this algorithm drop-down list, select **Choose the target that satisfies the specified criteria**.
- Step 3** Click **Browse** to launch the Target Selection Criteria dialog box.

Figure 4-6 Target Selection Criteria Dialog Box



- Step 4** On the Properties pane, specify the following information, as necessary:

Field	Description
Property	Choose the appropriate property in the to match within the target. Click the Reference tool to select the variable from the Insert Variable Reference dialog box. See Inserting a Target Variable Reference, page 2-12 .
Operators	Select the appropriate operator to be used to evaluate the expression. The displayed operators depend on the selected property. Note For information on the displayed operators, see Comparison Operators, page 2-11 .
Value	Enter the appropriate value for the target.

- Step 5** To modify the list of Properties pane containing target criteria, click one of the following buttons:

Button	Description
Add	Click this button to a new Properties pane to complete with criteria for the target.
Remove	Click this button to remove the selected last Properties pane in the display

- Step 6** Click **OK** to return to the Trigger—Target property page.

The defined criteria displays in the display-only box.

Deleting Triggers

To delete a trigger:

On the Triggers tab, highlight the appropriate the trigger, and click **Delete**.

The selected trigger is removed from the Trigger tab.



CHAPTER 5

Using Windows Activities

The Windows Adapter provides the following activities for querying specific Windows performance information. Additional activities may display in the Process Editor toolbox if the user has imported the Windows automation pack. For additional information on those activities, see the *Cisco TEO Process Automation Guide for Microsoft Windows*.

This chapter provides instructions for defining a Windows activities, instructions for completing the property pages for each specific activity, and instructions on viewing the activity results.

- [Windows Adapter Activities, page 5-2](#)
- [Defining the Control Windows Service Activity, page 5-3](#)
- [Defining the Correlate Windows Events Activity, page 5-7](#)
- [Defining the Execute Windows Command Activity, page 5-11](#)
- [Defining the Execute Windows PowerShell Script Activity, page 5-14](#)
- [Defining the Execute Windows Script Activity, page 5-17](#)
- [Defining the Query Windows Event Activity, page 5-21](#)
- [Defining the Query Windows Performance Counter Activity, page 5-24](#)
- [Defining the Query Windows Registry Activity, page 5-26](#)
- [Defining the Query Windows Service Activity, page 5-29](#)
- [Defining the Update Windows Registry Activity, page 5-31](#)
- [Defining the Update Windows Service Activity, page 5-34](#)
- [Defining the Write File Activity, page 5-36](#)
- [Managing Activity Definitions, page 5-39](#)
- [Viewing Activity Instance Information, page 5-47](#)

Windows Adapter Activities

When defining an activity in the process workflow, the properties pane contains property pages that are specific to the selected activity. The following table displays the activities that are provided by the Windows adapter.

Activity	Description
Control Windows Service	Specifies the Windows service to which an action should be performed. See Defining the Control Windows Service Activity, page 5-3 .
Correlate Windows Events	Specifies the event log information that is to be located on the target. See Defining the Correlate Windows Events Activity, page 5-7 .
Execute PowerShell Script	Specify a Windows PowerShell script and the target directory on which to execute. See Defining the Execute Windows PowerShell Script Activity, page 5-14 .
Execute Windows Command	Specifies a Windows command and the target directory on which to execute. See Defining the Execute Windows Command Activity, page 5-11 .
Execute Windows Script	Specifies a Windows command and the target directory on which to execute. See Defining the Execute Windows Script Activity, page 17 .
Query Windows Events	Specifies the criteria for an event that must be matched to trigger the process. See Defining the Query Windows Event Activity, page 5-21 .
Query Windows Performance Counter	Specifies the information used to collect performance data for your monitoring system components. See Defining the Query Windows Performance Counter Activity, page 5-24 .
Query Windows Registry	Specifies the information necessary to read information from the registry keys. See Defining the Query Windows Registry Activity, page 5-26 .
Query Windows Service	Produces the current state of the service, the startup type of the service, and specifies the Windows service to be queried. See Defining the Query Windows Service Activity, page 5-29 .

Activity	Description
Update Windows Registry	Specifies the information required to update the existing information from the registry keys. See Defining the Update Windows Registry Activity, page 5-31 .
Update Windows Service	Specifies the Windows service to configure with a new startup mode. See Defining the Update Windows Service Activity, page 5-34
Write File	Writes content into a file that resides on a remote machine See Defining the Write File Activity, page 5-36 .

Defining the Control Windows Service Activity

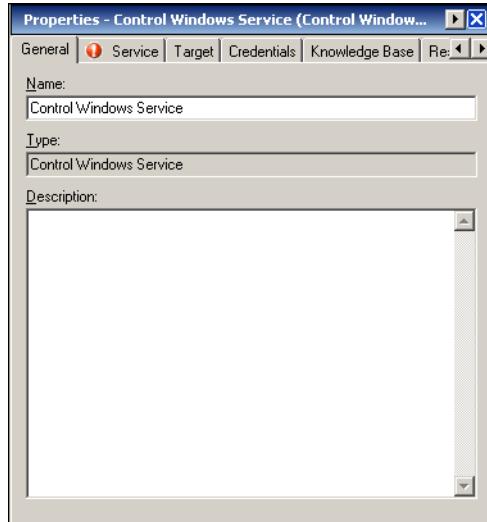
Use the Control Windows Service activity to specify the Windows service to which an action should be performed.

To define the Control Windows Service Activity:

Step 1 On the Toolbox pane, under Windows, select **Control Windows Service** and drag and drop the activity onto the Workflow pane.

The Control Windows Service property page displays.

Figure 5-1 Control Windows Service Properties Page—General Tab



Step 2 On the General tab, enter the following information:

Field	Description
Display Name	Name of the activity

Defining the Control Windows Service Activity

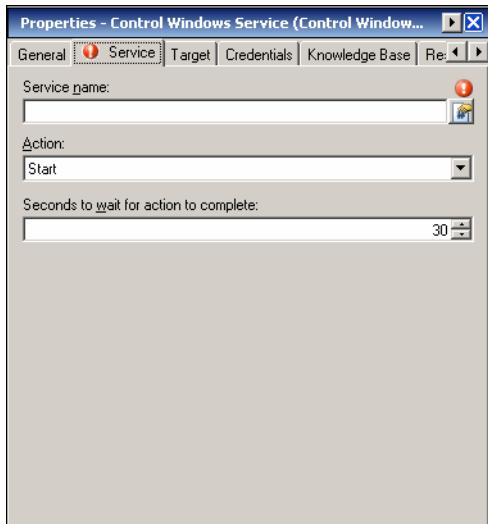
Field	Description
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

- Step 3** Click the **Service** tab to continue.



Note The Required Value ! icon displayed on a tab or page indicates that the field is required and is either missing a value or contains an invalid value.

Figure 5-2 Control Windows Service Properties Page—Service Tab



Note Click the **Reference** tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Activity Variable References, page 5-40](#).

- Step 4** On the Service tab, specify the Windows service and the action that should be performed against the service and the amount of time to wait before completion:

Field	Description
Service name	Name of the Windows service against which a selected action performs
Action	Action to be performed against the service <ul style="list-style-type: none"> • Start • Stop • Pause • Resume • Restart
Seconds to wait for action to complete	Enter or use the scroll buttons to modify the number of seconds to wait for the action to complete

Step 5 Click the **Target** tab to specify whether the process target should be used or overridden with a different target:

Field	Description
Execute on process target	Select this radio button to use the same target that was specified in the process definition.
Execute on activity target	Select this radio button to execute this activity on the same target as one of the earlier activities in the process. The selected target overrides the target specified in the process definition.
Executed on this target	<p>Select this radio button and then click Browse to launch the Select Targets dialog box to select a specific target on which to execute the activity.</p> <p>The targets that display in the Select Targets dialog box are targets already defined in TEO.</p> <p>Note To view the properties for the selected target, click the Properties  tool. For additional information, see Chapter 2, “Managing Windows Targets.”</p>
Execute on the target selected this algorithm	<p>Select this radio button to execute the target selected by one of the target algorithm displayed in the drop-down list.</p> <p>Note The available algorithms that display depend on the selected activity. See Target Algorithms, page 2-4 for target algorithm descriptions.</p>
Execute on this target reference	<p>Select this radio button and then click the Reference tool to launch the Insert Variable Reference dialog box.</p> <p>On the Insert Variable Reference dialog box, expand Process > Target > Properties, select the appropriate target reference property, and click OK.</p> <p>The selected target reference property displays in the text field.</p>
Execute on this target group	<p>Select this radio button and then click Browse to launch the Select Target Group dialog box to select a specific target on which to execute the activity.</p> <p>The target groups that display in the Select Target Group dialog box are target groups already defined in TEO.</p> <p>Note To view the properties for the selected target group, click the Properties  tool. For additional information, see the <i>Cisco Tidal Enterprise Orchestrator Reference Guide</i>.</p>
Choose a target using this algorithm	<p>Select this radio button to execute the process using <i>one</i> of the options from the drop-down list.</p> <p>Note For algorithm descriptions, see Target Algorithms, page 2-4.</p>

Defining the Control Windows Service Activity

- Step 6** Click the **Credentials** tab to specify the runtime user whose credentials should be used for process execution:

Field	Description
Use target's default runtime user	Select this radio button to use the default runtime user for the target that is specified in the activity
Use process runtime user	Select this radio button to use the credentials for the runtime user that was specified in the process properties
Override process runtime user	Select this radio button to specify a runtime user whose credentials are different than what was specified in the process properties. The selected runtime user overrides the runtime user that was specified for the process. Note To view the properties for the selected runtime user, click the Properties  tool. To create a runtime user record for the process, click New > [Runtime User] . For additional information on creating a runtime user, see Chapter 3, “Managing Windows Users.”

- Step 7** Click the Knowledge Base tab to assign a knowledge base article to the object.

Knowledge Base Field Options	Description
Text field	<i>Display-only</i> . Display name for the selected knowledge base article(s)
Delete	Highlight the appropriate knowledge base article and click the Delete  tool to remove the knowledge base article from the list.
Browse	Click Browse to launch the Select Knowledge Base dialog box for a list of existing knowledge base articles. For additional information on knowledge base articles, refer to the <i>Cisco Tidal Enterprise Orchestrator Reference Guide</i> .
Properties	Highlight the appropriate knowledge base article and click the Properties  tool to view and/or modify the properties of the defined knowledge base article.

The following information is displayed on the Knowledge Base tab.

Field	Description
Summary	Brief description of the issue
Possible cause	Explanation of the condition that may be causing the issue
Possible resolution	List of actions that can be performed to attempt to resolve the issue
Related information	Additional information related to the issue

- Step 8** On the Result Handlers tab, click *one* of the following buttons to manage the condition branches on the workflow, as necessary:

Button	Description
Add	Adds a condition branch
Remove	Removes the condition branch from the activity
Move Up	Moves the condition up one position in the list of conditions
Move Down	Moves the condition down one position in the list of conditions

- Step 9** Click the **Save**  tool to save the activity definition.

Defining the Correlate Windows Events Activity

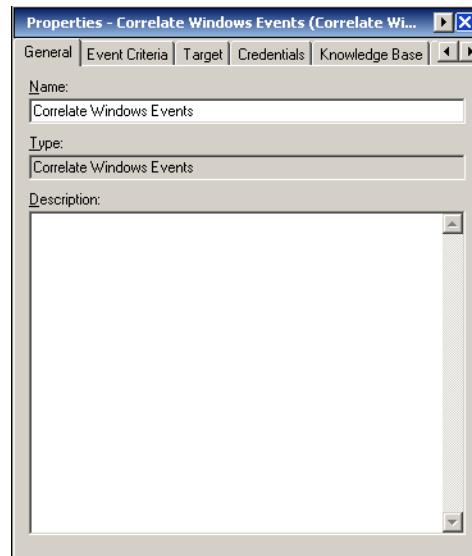
Use the Correlate Windows Events activity to specify the event log information that is to be located on the target.

To specify the Windows Events criteria:

- Step 1** On the Toolbox pane, under Windows, select **Correlate Events** and drag and drop the activity onto the Workflow pane.

The Correlate Windows Events property page displays.

Figure 5-3 Correlate Windows Events Properties Page—General Tab



Defining the Correlate Windows Events Activity

Step 2 On the General tab, enter the following information:

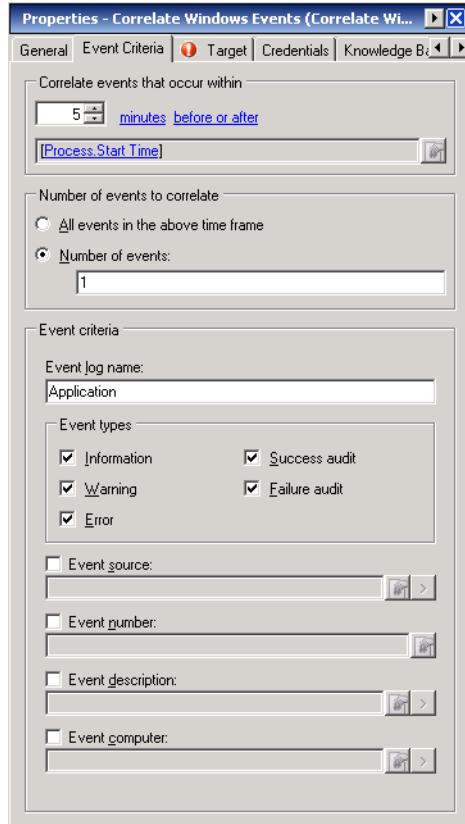
Field	Description
Display Name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Event Criteria** tab to continue.



Note The Required Value ! icon displayed on a tab or page indicates that the field is required and is either missing a value or contains an invalid value.

Figure 5-4 Correlate Windows Events Properties Page—Event Criteria Tab



Note Click the **Reference** tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Activity Variable References, page 5-40](#).

Step 4 On the Event Criteria tab, specify the following event properties for the activity:

Field	Description
Correlate events that occur within	<p>Enter a value and select the time unit to indicate the length of time to wait before or after the process start time.</p> <ul style="list-style-type: none"> • Time unit—Determines whether the value entered is in minutes or seconds • Event occurrence—Determines whether the process start time is before or after the event occurs
Number of events to correlate	<p>Select <i>one</i> of the following radio buttons to determine the number of events to correlate before publishing the event.</p> <ul style="list-style-type: none"> • All events in the above time frame—Determines whether all event should occur during the selected time • Number of events—Enter a specific number of events that should occur.

Step 5 Under Event Criteria, specify the following information, as necessary:

Option	Description
Event log name	Enter the name of the event log to be matched.
Event types	<p>Check the check boxes for the types of events that must be matched. The following event types are available:</p> <ul style="list-style-type: none"> • Information • Warning • Error • Success Audit • Failure Audit
Event source	<p>Check the check box and then enter the source or click the Reference tool to select a variable to find event log entries by where they occurred.</p>
Event number	<p>Check the check box and then enter the event ID or click the Reference tool to select a variable to find an event log entry by the event ID.</p>
Event description	<p>Check the check box and then enter the description or click the Reference tool to select a variable to find an event log entry matching a description.</p>
Event Computer	<p>Check this check box to find an event log entry by matching a specific computer. Enter the computer name in the text field that should be matched or click the Reference tool to select a variable for the field value.</p>



Note

The Expression > arrow displayed to the right of the Reference icon indicates that a Wildcard expression is available. For additional information, see [Common Wildcard Expressions, page 4-3](#).

Defining the Correlate Windows Events Activity

- Step 6** Click the **Target** tab to specify whether the process target should be used or overridden with a different target:

Field	Description
Monitor on the process target	Select this radio button to use the same target that was specified in the process definition.
Monitor on this target	Select this radio button and then click Browse to launch the Select Targets dialog box to select a specific target to monitor other than the target specified in the process properties. The targets that display in the Select Targets dialog box are targets already defined in TEO. Note To view the properties for the selected target, click the Properties  tool. For additional information, see Chapter 2, “Managing Windows Targets.”

- Step 7** Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- **Credentials**—Specify the runtime user whose credentials should be used to monitor for changes that will trigger the process. See [Step 6](#) in [Defining the Control Windows Service Activity](#).
- **Knowledge Base**—Choose the appropriate knowledge base article to associate with the process. See [Step 7](#) in [Defining the Control Windows Service Activity](#).
- **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 8](#) in [Defining the Control Windows Service Activity](#).



Note To view the correlated events, see [Viewing Correlated Windows Events, page 5-48](#).

Defining the Execute Windows Command Activity

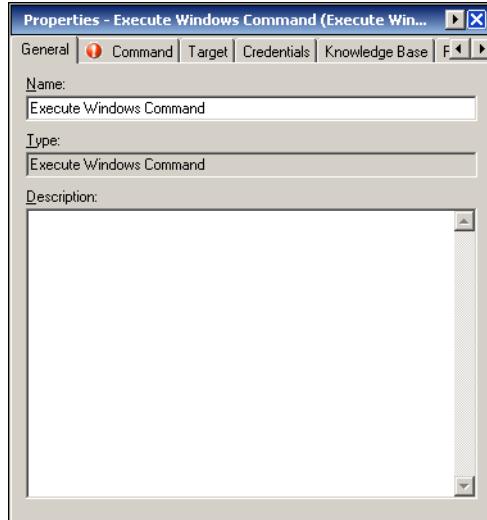
Use the Execute Windows Command activity to specify a Windows command and the target directory on which to execute.

To define the Execute Windows Command activity:

-
- Step 1** On the Toolbox pane, under Windows, select **Execute Windows Command** and drag and drop the activity onto the Workflow pane.

The Execute Windows Command property page displays.

Figure 5-5 Execute Windows Command Properties Page—General Tab



- Step 2** On the General tab, enter the following information:

Field	Description
Display Name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

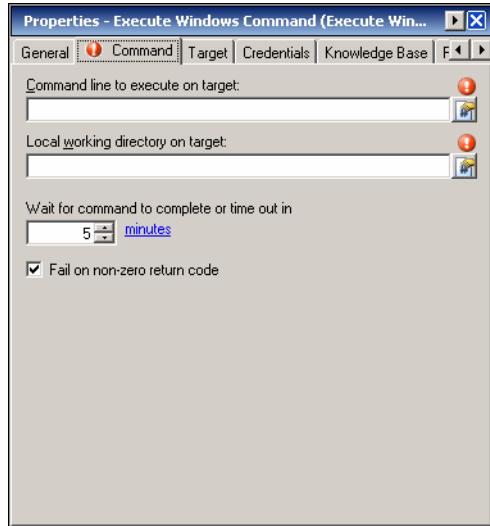
Defining the Execute Windows Command Activity

- Step 3** Click the **Command** tab to continue.



Note The Required Value icon displayed on a tab or page indicates that the field is required and is either missing a value or contains an invalid value.

Figure 5-6 Execute Windows Command Properties Page—Command Tab



Note Click the **Reference** tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Activity Variable References, page 5-40](#).

- Step 4** On the Command tab, specify the command used to execute an activity on a local working directory on the Windows target.

Field	Description
Command line to execute on target	<p>Enter the command line, including the file path relative to a working directory, to execute on the windows target.</p> <p>Example: If your local working directory is: <code>C:\program files</code> and your command is <code>myapppath\app.exe</code> the full path is: <code>C:\program files\myapppath\app.exe</code>.</p>
Local working directory on target	File path to the local working directory on the Windows target where the command will be executed

Field	Description
Wait for command to complete or time out in	Enter a value or use the scroll buttons to specify the time frame to wait for the action to complete. Note Select the time unit link to adjust the time unit (seconds, minutes, or hours).
Fail on non-zero return code	Checked box fails the activity when a return code with a non-zero value is received

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- Target—Specify whether the defined process target should be used or overridden. See [Step 5 in Defining the Control Windows Service Activity](#).
- Credentials—Specify the runtime user whose credentials should be used to monitor for changes that will trigger the process. See [Step 6 in Defining the Control Windows Service Activity](#).
- Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 7 in Defining the Control Windows Service Activity](#).
- Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 8 in Defining the Control Windows Service Activity](#).



Note To view the command output, see [Viewing Executed Windows Script Commands, page 5-50](#).

Defining the Execute Windows PowerShell Script Activity

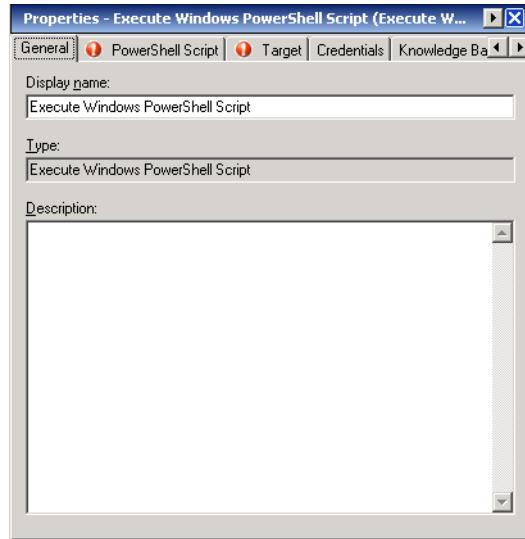
Use the Execute Windows PowerShell Script activity to specify a Windows PowerShell script and the target directory on which to execute.

To define the Execute Windows PowerShell Script activity:

- Step 1** On the Toolbox pane, select Execute Windows PowerShell and drag and drop the activity onto the Workflow pane.

The Execute Windows PowerShell Script property page displays.

Figure 5-7 Execute Windows PowerShell Script Properties Page—General Tab



- Step 2** On the General tab, enter the following information:

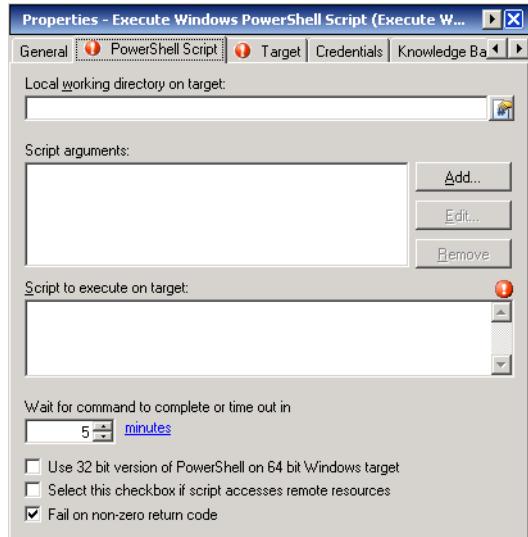
Field	Description
Display Name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **PowerShell Script** tab to continue.



Note The Required Value icon displayed on a tab or page indicates that the field is required and is either missing a value or contains an invalid value.

Figure 5-8 Execute Windows PowerShell Script Properties Page—PowerShell Script Tab



Note Click the **Reference** tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Activity Variable References, page 5-40](#).

Step 4 On the PowerShell Script tab, specify the command used to execute an activity on a local working directory on the Windows target.

Field	Description
Local working directory on target	Enter the path to the local working directory on the Windows target where the script will be executed.
Script Argument	<p>Enter the collection of argument values for the script.</p> <ul style="list-style-type: none"> • Add—Click this button to enter or select the appropriate argument to add to the script. See Adding a Script Argument, page 5-43. • Edit—Click this button to modify the script argument. See Modifying a Script Argument, page 5-44. • Remove—Click this button to remove the script argument from the list. See Removing a Script Argument, page 5-44. • Remove All—Click this button to remove all the script arguments from the list.

Field	Description
Script to execute on target	Enter the actual script code to use to execute an activity on the specified local working directory on the Windows target computer.
Use 32-bit version of PowerShell on 64-bit Windows target	Check this check box to indicate that the 32-bit PowerShell will be used to work against a 64-bit Windows target.
Select this check box if script accesses remote resources	Check this check box to indicate that the script will access remote resources
Fail on non-zero return code	Check this check box configure the activity to fail when a return code having a non-zero value is received.

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- Target—Specify whether the defined process target should be used or overridden. See [Step 5](#) in [Defining the Control Windows Service Activity](#).
- Credentials—Specify the runtime user whose credentials should be used to monitor for changes that will trigger the process. See [Step 6](#) in [Defining the Control Windows Service Activity](#).
- Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 7](#) in [Defining the Control Windows Service Activity](#).
- Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 8](#) in [Defining the Control Windows Service Activity](#).



Note To view the PowerShell output, see [Viewing Executed Windows Script Commands](#), page 5-50.

Windows PowerShell Script Argument Example

The following is an example of running Windows PowerShell scripts against multiple computers by using a simple WMI script that retrieves BIOS information from a computer (or computers).

In this example, atl-fs-01 and atl-fs-02 are example computer names. Use the appropriate computer name in your company for this example.

For additional information, see [Windows PowerShell Tip](#).

Script to Execute

```
bios.ps1 atl-fs-01 atl-fs-02
foreach ($i in $args)
{$i + "`n" + "======" ; Get-WMIObject Win32_BIOS -computername
 $i}
```

Output

atl-fs-01

SMBIOSBIOSVersion

Manufacturer

Name
SerialNumber
Version

Defining the Execute Windows Script Activity

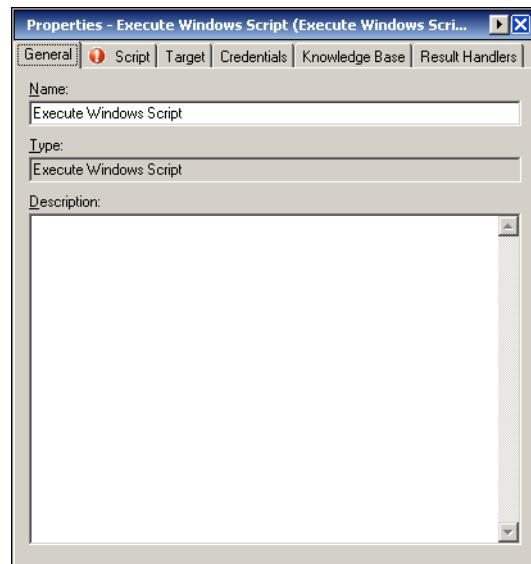
Use the Execute Windows Script activity to specify a Windows script and the target directory on which to execute.

To define the Execute Windows Script activity:

-
- Step 1** On the Toolbox pane, select **Execute Windows Script** and drag and drop the activity onto the Workflow pane.

The Execute Windows Script property page displays.

Figure 5-9 Execute Windows Script Properties Page—General Tab



- Step 2** On the General tab, enter the following information:

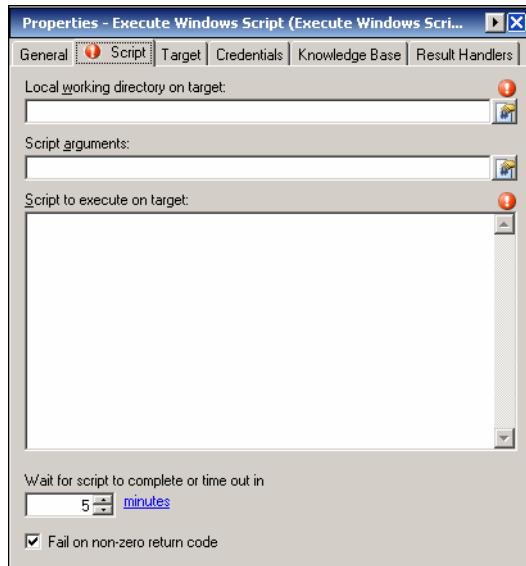
Field	Description
Display Name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Script** tab to continue.



Note The Required Value ! icon displayed on a tab or page indicates that the field is required and is either missing a value or contains an invalid value.

Figure 5-10 Execute Windows Script Properties Page—Script Tab



Note Click the **Reference** tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Activity Variable References, page 5-40](#).

Step 4 On the Script tab, specify a Windows script and the target directory on which to execute:

Field	Description
Local working directory on target	Enter the path to the local working directory on the Windows target where the script will be executed.
Script argument	<p>Enter the collection of argument values for the script.</p> <ul style="list-style-type: none"> • Add—Click this button to enter or select the appropriate argument to add to the script. See Adding a Script Argument, page 5-43. • Edit—Click this button to modify the script argument. See Modifying a Script Argument, page 5-44. • Remove—Click this button to remove the script argument from the list. See Removing a Script Argument, page 5-44. • Remove All—Click this button to remove all the script arguments from the list.

Field	Description
Script to execute on target	Enter the actual script code to use to execute an activity on the specified local working directory on the Windows target computer.
Wait for script to complete or time out in	Enter a value or use the scroll buttons to specify the time frame to wait for the action to complete. Note Select the time unit link to adjust the time unit (seconds, minutes, or hours).
Select this check box if script accesses remote resources	Check this check box to indicate that the script will access remote resources
Fail on non-zero return code	Check this check box configure the activity to fail when a return code having a non-zero value is received.

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- Target—Specify whether the defined process target should be used or overridden. See [Step 5 in Defining the Control Windows Service Activity](#).
- Credentials—Specify the runtime user whose credentials should be used to monitor for changes that will trigger the process. See [Step 6 in Defining the Control Windows Service Activity](#).
- Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 7 in Defining the Control Windows Service Activity](#).
- Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 8 in Defining the Control Windows Service Activity](#).



Note To view the script output, see [Viewing Executed Windows Script Commands, page 5-50](#).

Windows Script Argument Example

The following is an example of mapping a network drive and explaining the optional arguments available. The objective is to map the H:\ drive to a share called '\home' on a Windows 2003 server called '\alan'. This example shows how to employ all five of the MapNetworkDrive arguments, *strDriveLetter*, *strRemotePath*, *strProfile*, *strUser* and *strPassword*.

To map the network drive using the script, perform the following options:

- Copy and paste the appropriate script information below into TEO.
- Change the server name from "\alan to the name of your server.
- Check the share name '\home'. Alter the word 'home' in the script if the share name is different.

Defining the Execute Windows Script Activity

For additional information, see [Windows Logon Scripts Five Arguments for MapNetworkDrive](#).

Script to Execute

```
Option Explicit  
Dim objNetwork  
Dim strDriveLetter, strRemotePath, strUser, strPassword, strProfile
```

Values of variables set:

```
strDriveLetter = "H:"  
strRemotePath = "\\\alan\home"  
strUser = "guyton"  
strPassword = "f@ssw0rd1"  
strProfile = "false"
```

This section creates a network object. (objNetwork). Then apply MapNetworkDrive method.

```
Result H: drive. This script features 5 arguments on lines 21/22.  
Set objNetwork = WScript.CreateObject("WScript.Network")  
objNetwork.MapNetworkDrive strDriveLetter, strRemotePath, _  
strProfile, strUser, strPassword
```

Extra code just to add a message box

```
WScript.Echo " Launch Explorer, check: "& strDriveLetter  
WScript.Quit
```

Defining the Query Windows Event Activity

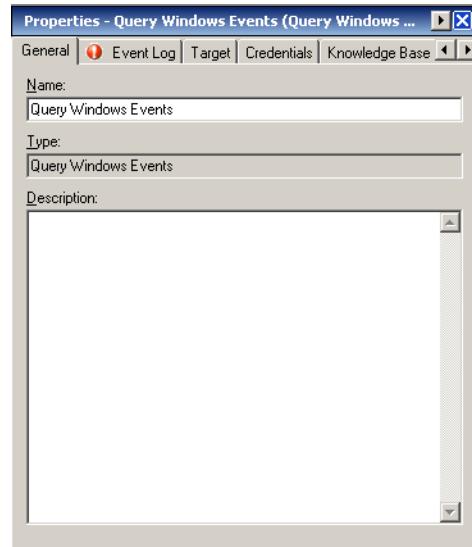
Use the Query Windows Event activity to specify the criteria for an event that must be matched to trigger the process.

To define the Query Windows Event activity:

- Step 1** On the Toolbox pane, select **Query Windows Event** and drag and drop the activity onto the Workflow pane.

The Query Windows Event property page displays.

Figure 5-11 Query Windows Event Properties Page—General Tab



- Step 2** On the General tab, enter the following information:

Field	Description
Display Name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

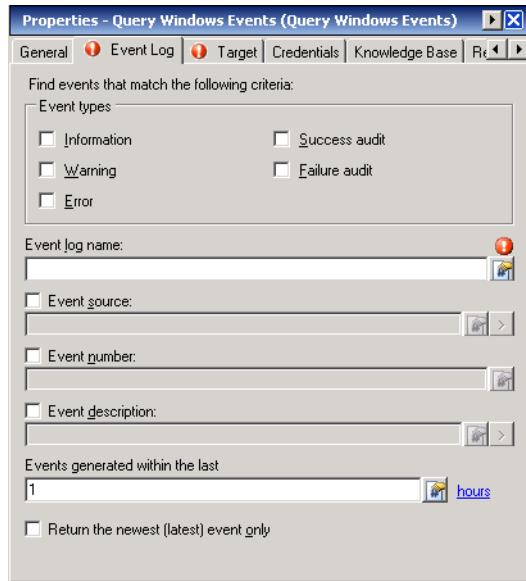
Defining the Query Windows Event Activity

Step 3 Click the **Event Log** tab to continue.



Note The Required Value icon displayed on a tab or page indicates that the field is required and is either missing a value or contains an invalid value.

Figure 5-12 Query Windows Event Properties Page—Event Log Tab



Note Click the **Reference** tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Activity Variable References, page 5-40](#).

Step 4 On the Event Log tab, specify the criteria used to match event log entries:

Field	Name
Event types	Check the check boxes for the types of events that must be matched. The following event types are available: <ul style="list-style-type: none"> • Information • Warning • Error • Success Audit • Failure Audit
Event log name	Enter the name of the event log to be matched.
Event source	Check the check box and then enter the source or click the Reference tool to select a variable to find event log entries by where they occurred.
Event number	Check the check box and then enter the event ID or click the Reference tool to select a variable to find an event log entry by the event ID.

Event description	Check the check box and then enter the description or click the Reference tool to select a variable to find an event log entry matching a description.
Events generated within the last	Specify a time period in which the event occurred. Enter that value or scroll to the value and then select the time unit (minutes, hours, or days).
Return the newest (latest) event only	Check this check box if you want only the most recent event to be returned.

**Note**

The Expression arrow displayed to the right of the Reference icon indicates that a Wildcard expression is available. For additional information, see [Common Wildcard Expressions, page 4-3](#).

Step 5

Complete the appropriate information in the following tabs, as necessary, and then click the **Save** tool to complete the activity definition.

- Target—Specify whether the defined process target should be used or overridden. See [Step 5 in Defining the Control Windows Service Activity](#).
- Credentials—Specify the runtime user whose credentials should be used to monitor for changes that will trigger the process. See [Step 6 in Defining the Control Windows Service Activity](#).
- Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 7 in Defining the Control Windows Service Activity](#).
- Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 8 in Defining the Control Windows Service Activity](#).

**Note**

To view the queried events, see [Viewing Query Windows Events, page 5-52](#).

Defining the Query Windows Performance Counter Activity

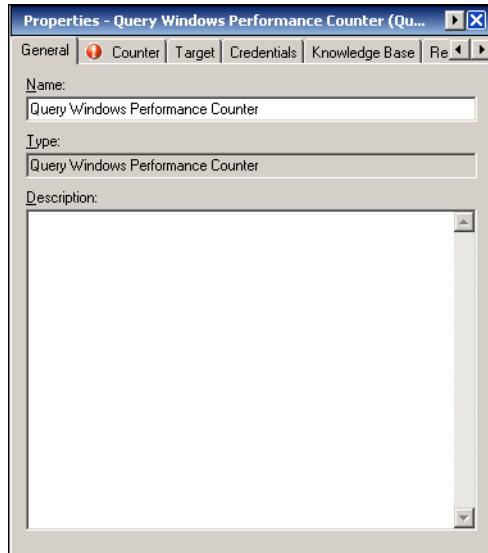
Use the Query Windows Performance Counter activity to specify the information used to collect performance data for your monitoring system components.

To define the Query Windows Performance activity:

-
- Step 1** On the Toolbox pane, select **Query Windows Performance Counter** and drag and drop the activity onto the Workflow pane.

The Query Windows Performance Counter property page displays.

Figure 5-13 Query Windows Performance Counter Properties Page—General Tab



- Step 2** On the General tab, enter the following information:

Field	Description
Display Name	Name of the activity
Type	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

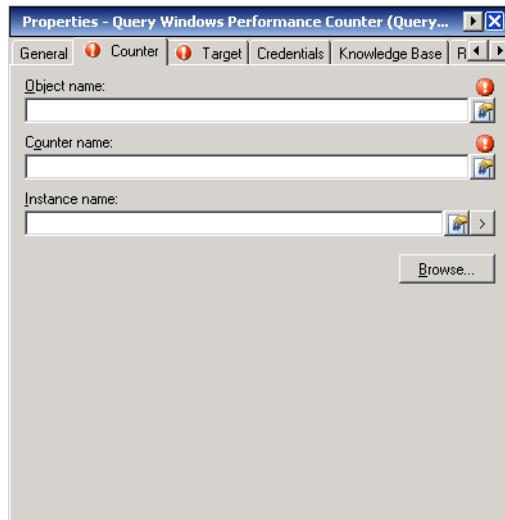
Step 3 Click the **Counter** tab to continue.



Note

The Required Value icon displayed on a tab or page indicates that the field is required and is either missing a value or contains an invalid value.

Figure 5-14 Query Windows Performance Counter Properties Page—Counter Tab



Note

Click the **Reference** tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Activity Variable References, page 5-40](#).

Step 4 On the Counter tab, specify the information used to collect performance data for your monitoring system components.

Field	Description
Object name	Name of the object used to obtain performance data
Counter name	Name of the performance counter
Instance name	Name of the instance used to obtain data
Browse	<p>Click Browse to launch the Select Performance Counter dialog box.</p> <p>For additional information about selecting the performance counter, see Selecting a Performance Counter, page 5-45.</p>



Note

The Expression arrow displayed to the right of the Reference icon indicates that a Wildcard expression is available. For additional information, see [Common Wildcard Expressions, page 4-3](#).

Defining the Query Windows Registry Activity

- Step 5** Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.
- **Target**—Specify whether the defined process target should be used or overridden. See [Step 5](#) in [Defining the Control Windows Service Activity](#).
 - **Credentials**—Specify the runtime user whose credentials should be used to monitor for changes that will trigger the process. See [Step 6](#) in [Defining the Control Windows Service Activity](#).
 - **Knowledge Base**—Choose the appropriate knowledge base article to associate with the process. See [Step 7](#) in [Defining the Control Windows Service Activity](#).
 - **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 8](#) in [Defining the Control Windows Service Activity](#).
-

Defining the Query Windows Registry Activity

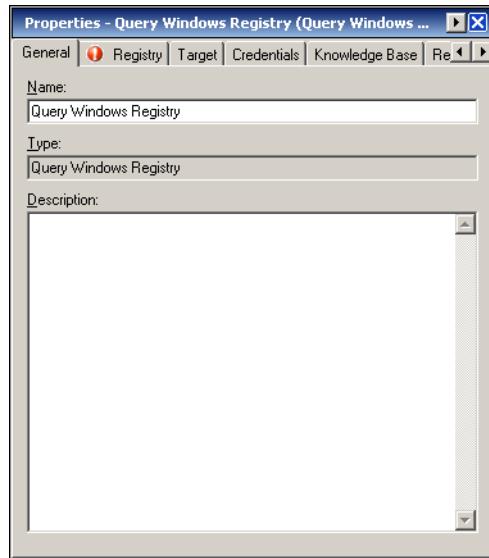
Use the Query Windows Registry activity to specify the information necessary to read information from the registry keys.

To define the Query Windows Registry activity:

- Step 1** On the Toolbox pane, select **Query Windows Registry** and drag and drop the activity onto the Workflow pane.

The Query Windows Registry property page displays.

Figure 5-15 *Query Windows Registry Properties Page—General Tab*



- Step 2** On the General tab, enter the following information:

Field	Description
Display Name	Name of the activity

Field	Description
Types	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

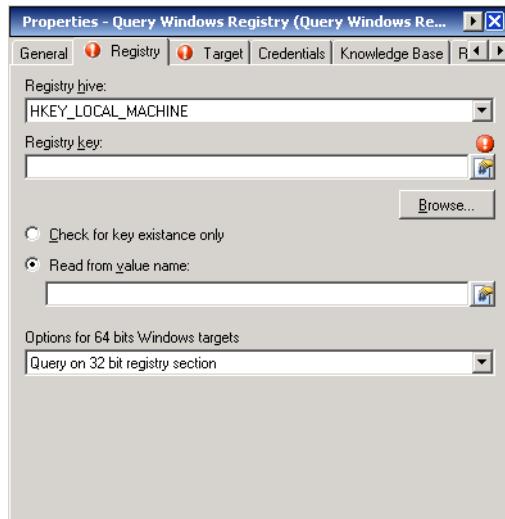
Step 3 Click the **Registry** tab to continue.



Note

The Required Value icon displayed on a tab or page indicates that the field is required and is either missing a value or contains an invalid value.

Figure 5-16 *Query Windows Registry Properties Page—Registry Tab*



Note

Click the **Reference** tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Activity Variable References, page 5-40](#).

Step 4 On the Registry tab, specify the information used to read information from the registry keys.

Field	Description
Registry hive	Select the name of the registry hive where the registry key and value are located.
Registry key	Enter the registry key or select a defined variable that represents the registry key to be used to read data. Example: software\microsoft\windows nt\currentversion
Browse	Launches the Select Registry Key dialog box to select specific registry keys. For additional information, see Selecting a Registry Key, page 5-46 .

Defining the Query Windows Registry Activity

Field	Description
Check for key existence only	Select this radio button to query the registry to determine whether the key exists
Read from value name	Select this radio button to read the value associated with the specified registry key
Options for 64-bits Windows targets	Select <i>one</i> of the following options to query the windows registry: <ul style="list-style-type: none"> • Query on 32-bit registry section • Query on 64-bit registry sections • Query on both 32-bit and 64-bit registry sections

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- Target—Specify whether the defined process target should be used or overridden. See [Step 5](#) in [Defining the Control Windows Service Activity](#).
- Credentials—Specify the runtime user whose credentials should be used to monitor for changes that will trigger the process. See [Step 6](#) in [Defining the Control Windows Service Activity](#).
- Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 7](#) in [Defining the Control Windows Service Activity](#).
- Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 8](#) in [Defining the Control Windows Service Activity](#).

Defining the Query Windows Service Activity

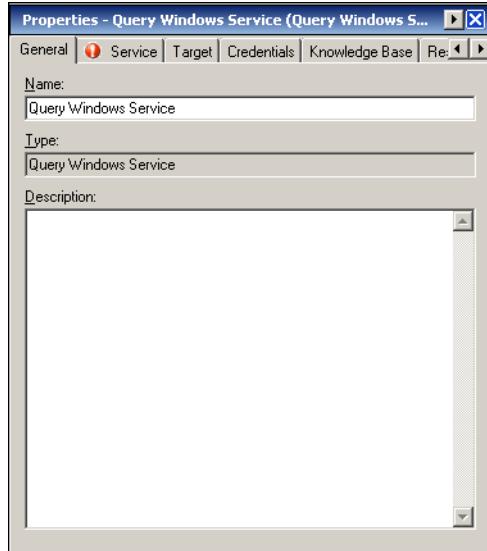
Use the Query Windows Service activity to produce the current state of the service, the startup type of the service, and specifies the Windows service to be queried.

To define the Query Windows Service activity:

-
- Step 1** On the Toolbox pane, under Windows, select **Query Windows Service** and drag and drop the activity onto the Workflow pane.

The Query Windows Service property page displays.

Figure 5-17 Query Windows Service Properties Page—General Tab



- Step 2** On the General tab, enter the following information:

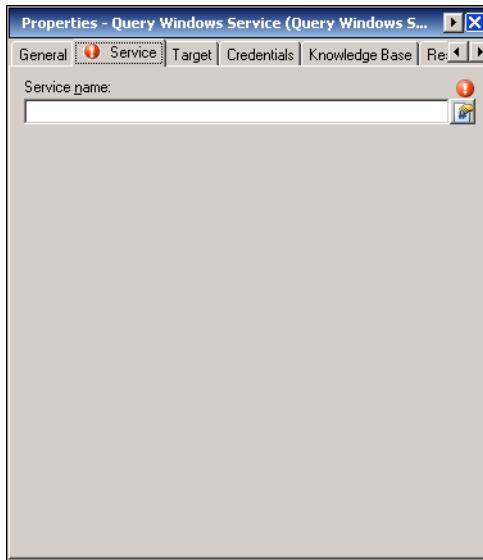
Field	Description
Display Name	Name of the activity
Types	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

Step 3 Click the **Service** tab to continue.



Note The Required Value icon displayed on a tab or page indicates that the field is required and is either missing a value or contains an invalid value.

Figure 5-18 Query Windows Service Properties Page—Service Tab



Note Click the **Reference** tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Activity Variable References, page 5-40](#).

Step 4 On the Service Name tab, in the Service Name field, specify the name of the Windows service to be queried.

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save** tool to complete the activity definition.

- **Target**—Specify whether the defined process target should be used or overridden. See [Step 5](#) in [Defining the Control Windows Service Activity](#).
- **Credentials**—Specify the runtime user whose credentials should be used to monitor for changes that will trigger the process. See [Step 6](#) in [Defining the Control Windows Service Activity](#).
- **Knowledge Base**—Choose the appropriate knowledge base article to associate with the process. See [Step 7](#) in [Defining the Control Windows Service Activity](#).
- **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 8](#) in [Defining the Control Windows Service Activity](#).

Defining the Update Windows Registry Activity

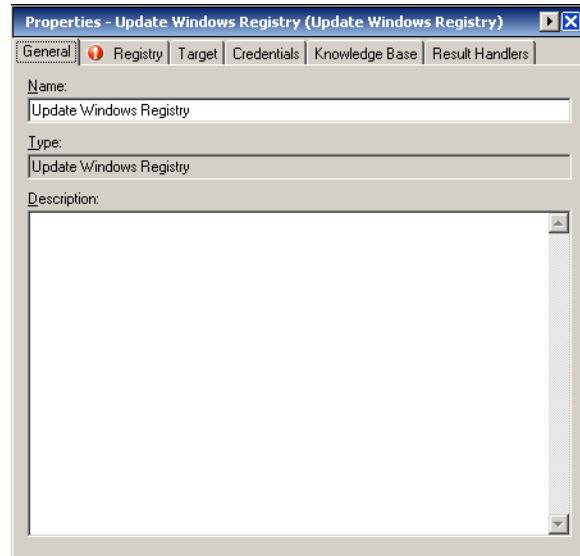
Use the Update Windows Registry activity to specify the information required to update the existing information from the registry keys.

To define the Update Windows Registry activity

- Step 1** On the Toolbox pane, under Windows, select **Update Windows Registry** and drag and drop the activity onto the Workflow pane.

The Update Windows Registry property page displays.

Figure 5-19 Update Windows Registry Properties Page—General Tab



- Step 2** On the General tab, enter the following information:

Field	Description
Display Name	Name of the activity
Types	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

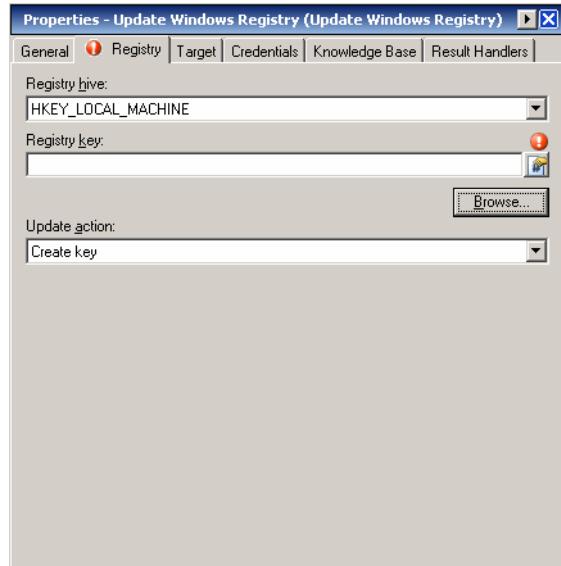
Defining the Update Windows Registry Activity

Step 3 Click the **Registry** tab to continue.



Note The Required Value icon displayed on a tab or page indicates that the field is required and is either missing a value or contains an invalid value.

Figure 5-20 Update Windows Registry Properties Page—Registry Tab



Note Click the **Reference** tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Activity Variable References, page 5-40](#).

Step 4 On the Registry tab, update the existing information from the registry keys:

Field	Description
Registry hive	Select the appropriate registry hive where the registry key and value are located.
Registry key	Enter the registry key or select a defined variable that represents the registry key to be used to read data. Example: software\microsoft\windows nt\currentversion
Browse	Click this button to launch the Select Registry Key dialog box to select specific registry keys. The selection on this dialog box populates the Registry Key field. For additional information, see Selecting a Registry Key, page 5-46 .

Field	Description
Update Action	<p>Select <i>one</i> of the following actions for the registry key</p> <ul style="list-style-type: none"> • Create Key—Create new registry key • Delete Key—Delete registry key • Create or modify value—Enter the appropriate value information for the registry key <ul style="list-style-type: none"> – Value Name—Name of the value entry – Value type—Data type of the value entry – New value —Value entry • Delete Value—Deletes the value of the registry key
Read from value name	Select this option to read the value associated with the specified registry key
Options for 64-bits Windows targets	<p>Select <i>one</i> of the following options to update the windows registry:</p> <ul style="list-style-type: none"> • Query on 32-bit registry section • Query on 64-bit registry sections • Query on both 32-bit and 64-bit registry sections

- Step 5** Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.
- Target—Specify whether the defined process target should be used or overridden. See [Step 5 in Defining the Control Windows Service Activity](#).
 - Credentials—Specify the runtime user whose credentials should be used to monitor for changes that will trigger the process. See [Step 6 in Defining the Control Windows Service Activity](#).
 - Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 7 in Defining the Control Windows Service Activity](#).
 - Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 8 in Defining the Control Windows Service Activity](#).
-

Defining the Update Windows Service Activity

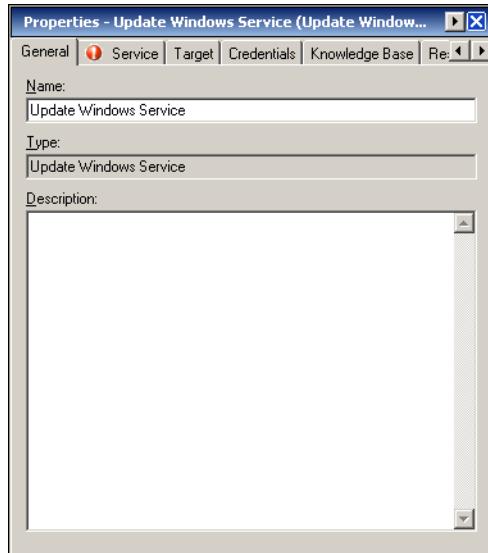
Use the Update Windows Service activity to specify the Windows service to configure with a new startup mode.

To define the Update Windows Service activity:

-
- Step 1** On the Toolbox pane, select **Update Windows Service** and drag and drop the activity onto the Workflow pane.

The Update Windows Service property page displays.

Figure 5-21 Update Windows Service Properties Page—General Tab



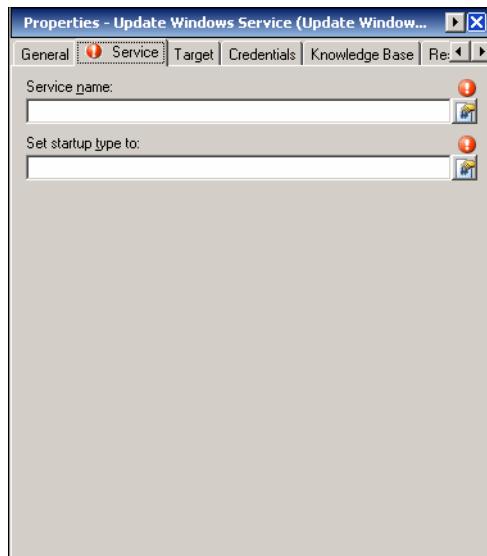
- Step 2** On the General tab, enter the following information:

Field	Description
Display Name	Name of the activity
Types	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

- Step 3** Click the **Service** tab to continue.



- Note** The Required Value icon displayed on a tab or page indicates that the field is required and is either missing a value or contains an invalid value.

Figure 5-22 Update Windows Service Properties Page—Service Tab

Note Click the **Reference** tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Activity Variable References, page 5-40](#).

Step 4 On the Service tab, specify the following Windows service to configure with a new startup mode.

Field	Description
Service Name	Name of the Windows service to be updated. Enter the name of the service, select a defined variable, or reference another property within the process.
Set startup type to	Enter a new startup mode to be used by the service (Automatic, Manual or Disabled), or a defined variable

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save** tool to complete the activity definition.

- Target—Specify whether the defined process target should be used or overridden. See [Step 5 in Defining the Control Windows Service Activity](#).
- Credentials—Specify the runtime user whose credentials should be used to monitor for changes that will trigger the process. See [Step 6 in Defining the Control Windows Service Activity](#).
- Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 7 in Defining the Control Windows Service Activity](#).
- Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 8 in Defining the Control Windows Service Activity](#).

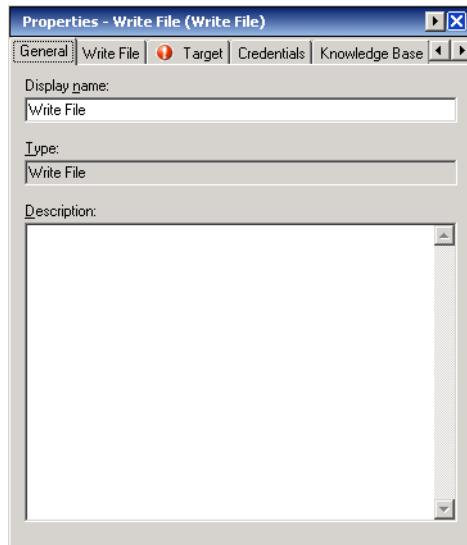
Defining the Write File Activity

Use the Write File activity to write content into a file that resides on a remote machine.

To define the Write File activity:

- Step 1** On the Toolbox pane, select **Write File** and drag and drop the activity onto the Workflow pane.
The Write File property page displays.

Figure 5-23 Write File Properties Page—General Tab



- Step 2** On the General tab, enter the following information:

Field	Description
Display Name	Name of the activity
Types	<i>Display-only.</i> Type of activity
Description	Brief description of the activity

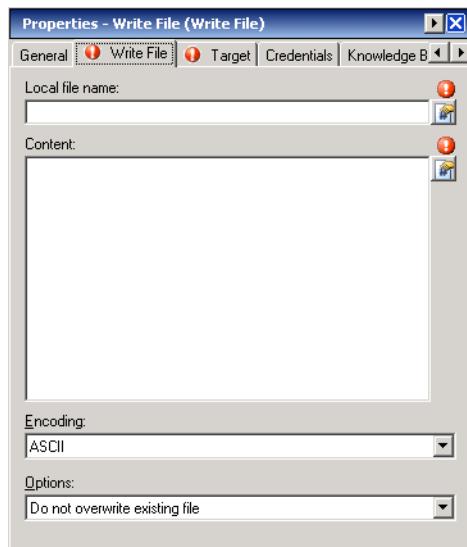
Step 3 Click the **Write File** tab to continue.



Note

The Required Value icon displayed on a tab or page indicates that the field is required and is either missing a value or contains an invalid value.

Figure 5-24 Write File Properties Page—Write File Tab



Note

Click the **Reference** tool to choose a defined variable or reference an object within the process from the Insert Variable Reference dialog box. For additional information, see [Inserting Activity Variable References, page 5-40](#).

Step 4 On the Write File tab, specify the following information:

Field	Description
Local File Name	File path including the name of the file in which the contents are written Example: C:/Documents and Settings/user name/My Documents/file name
Content	Enter the appropriate contents to include in the file.

Defining the Write File Activity

Field	Description
Encoding	Select the appropriate encoding class for the file, as necessary: <ul style="list-style-type: none"> • ASCII—An encoding for the ASCII (7-bit) character set • Unicode—An encoding for the UTF-16 format using the little endian byte order • UTF-7—An encoding for the UTF-7 format and is less robust and secure than UTF-8, UTF-16, or UTF-32 • UTF-8—An encoding for the UTF-8 format • UTF-32—An encoding object for the UTF-32 format using the little endian byte order
Options	Select the appropriate action to take when saving the file. <ul style="list-style-type: none"> • Do not overwrite existing file • Overwrite existing file • Append to existing file

Step 5 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- Target—Specify whether the defined process target should be used or overridden. See [Step 5](#) in [Defining the Control Windows Service Activity](#).
- Credentials—Specify the runtime user whose credentials should be used to monitor for changes that will trigger the process. See [Step 6](#) in [Defining the Control Windows Service Activity](#).
- Knowledge Base—Choose the appropriate knowledge base article to associate with the process. See [Step 7](#) in [Defining the Control Windows Service Activity](#).
- Result Handlers—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 8](#) in [Defining the Control Windows Service Activity](#).

Managing Activity Definitions

The information in this section provide instructions on modifying the activity properties. Use the activity property page to perform the following functions:

- Modify activity properties
- Inserting variable references
- Adding script arguments
- Removing script arguments

Modifying a Windows Activity

Modifying a process does not automatically modify an activity. Activity definitions are included in a process definition and the activity properties must be modified separately from the process properties.

Activities can only be modified in the Process Editor. With the appropriate rights from the Operations view, the Process Editor is launched when accessing the process properties.

When user rights are restricted, the Process Viewer is launched with the properties displaying a display-only view after determining that the user cannot edit the activity.

Step 1 To modify an activity, use *one* of the following methods:

- On the Definitions—Process view, highlight the appropriate process, right-click and select **Edit**.
-or-
- On the Operations workspace, select a process from any of the four process views, right-click and choose **Edit**.

The Process Editor dialog box displays.

Step 2 On the Workflow pane, select the appropriate activity, and modify activity properties, as necessary, and click **Save**.

Step 3 Make any additional changes, as necessary, and click **Exit** to close the Process Editor.

Inserting Activity Variable References

The Reference icon to the right of a text field indicates that the field can be populated by referencing a defined variable or the property of another activity or process. Use the Insert Variable Reference dialog box to select a defined variable or object to populate a field.

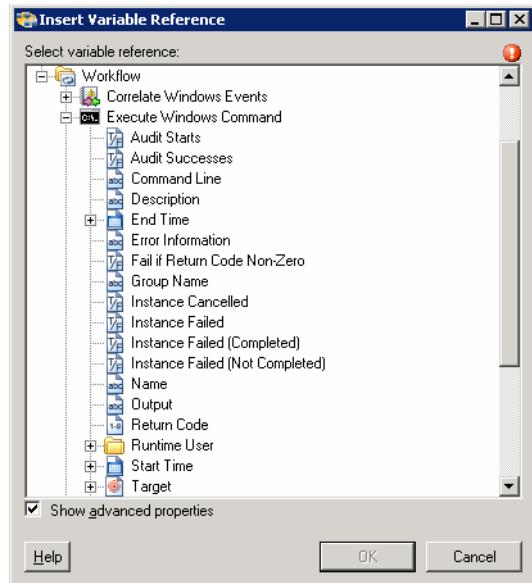
Only variables valid for the selected field can be selected in this dialog box. The OK button does not activate until a valid property or variable is selected.

To insert a variable reference:

-
- Step 1** To the right of a field on a property page, click the **Reference** tool.

The Insert Variable Reference dialog box displays.

Figure 5-25 Insert Variable Reference Dialog Box



Note The Required Value icon displayed on a tab or page indicates that the field is required and is either missing a value or contains an invalid value.

-
- Step 2** Check the **Show Advanced** check box to display all items that are available for referencing.

If the check box is not checked, then only the most commonly-used items are displayed for activities, processes or events.

- Step 3** Click the **Workflow Activity Expand (+)** to display the reference objects for the activities in the Workflow pane. The properties in the Insert Reference Variable dialog box depend on the activities.

- Step 4** From the list of available of items, select the appropriate property or variable and click **OK**.

Reference Variable	Description
Notes	Description for the virtual machine
Name	Display name of the activity
Created by	User name or the owner of the activity

Reference Variable	Description
Modified by	User name of the individual who modified the activity
Type	Type of activity
Description	Description of the activity
Audit Starts	Date and time the process audit starts
Audit Successes	Indicates the number of successful audits
End Time	Date and time the activity stopped
Error Information	Description of the error that has occurred
Group Name	Name of toolbox activity group
Instance Cancelled	Indicates the process was cancelled manually
Instance Failed	Indicates the process has failed
Instance Failed (Completed)	Indicates the process has failed but the process execution was completed
Instance Failed (Not Completed)	Indicates the process has failed and did not complete the process execution
Start Time	Date and time the activity was started
Process Id	ID number of the TEO process
Process Instance Id	ID number of the TEO process instance
Event Count	Number of events correlated
First Event	First event correlated by the activity
Last Event	Last event correlated by the activity
First Count	First count of correlated events
Command Line	Command line to use to execute an activity
Fail if Return Code Non-Zero	Indication of when activity should fail when a return code having a non-zero value is received
Output	Information returned from the activity
Return Code	Number for the return code
Working Directory	File path to the local working directory on the Windows target
Arguments	Argument values for the script
Use 32 bit version of Powershell	Indicates the 32-bit version of PowerShell should be used
Script	Script code used to execute an activity
Event Table	Table containing events queried or updated
Newest Event	Most recent event to be returned
Oldest Event	Oldest event returned
Performance Value Table	Table containing performance values queried
Check Registry Key Existence	Checks the existence of a registry key
Query From	Source from which the query is retrieving data
Registry Boolean Value	Retrieves a specified Boolean subkey
Registry Key	Registry key to be used to read data

Reference Variable	Description
Modified by	User name of the individual who modified the activity
Type	Type of activity
Description	Description of the activity
Audit Starts	Date and time the process audit starts
Audit Successes	Indicates the number of successful audits
End Time	Date and time the activity stopped
Error Information	Description of the error that has occurred
Group Name	Name of toolbox activity group
Instance Cancelled	Indicates the process was cancelled manually
Instance Failed	Indicates the process has failed
Instance Failed (Completed)	Indicates the process has failed but the process execution was completed
Instance Failed (Not Completed)	Indicates the process has failed and did not complete the process execution
Start Time	Date and time the activity was started
Process Id	ID number of the TEO process
Process Instance Id	ID number of the TEO process instance
Event Count	Number of events correlated
First Event	First event correlated by the activity
Last Event	Last event correlated by the activity
First Count	First count of correlated events
Command Line	Command line to use to execute an activity
Fail if Return Code Non-Zero	Indication of when activity should fail when a return code having a non-zero value is received
Output	Information returned from the activity
Return Code	Number for the return code
Working Directory	File path to the local working directory on the Windows target
Arguments	Argument values for the script
Use 32 bit version of Powershell	Indicates the 32-bit version of PowerShell should be used
Script	Script code used to execute an activity
Event Table	Table containing events queried or updated
Newest Event	Most recent event to be returned
Oldest Event	Oldest event returned
Performance Value Table	Table containing performance values queried
Check Registry Key Existence	Checks the existence of a registry key
Query From	Source from which the query is retrieving data
Registry Boolean Value	Retrieves a specified Boolean subkey
Registry Key	Registry key to be used to read data

Reference Variable	Description
Registry Numeric Value (DWORD)	Numeric value assigned to the registry value name
Registry String Value	Retrieves a specified String subkey
Registry Value Name	Type of value (Binary Value, DWORD Value, Expandable String Value, Link)
Service Name	Name of the Windows service
Service Startup Type	Current startup mode of the Windows service
Service State	Current status of the Windows service (Started or Stopped)
Registry New Value	New value for registry key
Local File Name	File name residing on the local working directory

The related text field populates with the selected value.

Adding a Script Argument

Script arguments are a property for Windows script and command activities. The **Add** button on these activities launches the Select Argument to Add dialog box for users to specify the script arguments to be added to the list on the specified Windows activity.



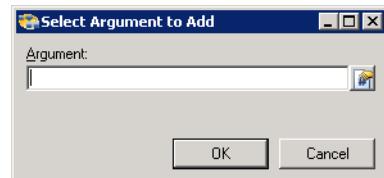
For an example of a script argument, see [Windows PowerShell Script Argument Example, page 5-16](#) and [Windows Script Argument Example, page 5-19](#).

To add a script argument:

Step 1 On the appropriate Windows activity property page, click **Add**.

The Select Arguments to Add dialog box displays.

Figure 5-26 Select Argument to Add Dialog Box



- Step 2** Enter the appropriate script argument value for the script in the text field or click the **Reference** tool to select from the list.

Field	Description
String	Dialog box can contain standard string text
Hidden String	Dialog box can contain hidden string text or query encrypted value variables in the Insert Reference Variable dialog box

- Step 3** Click **OK**.

The script argument is added to the command line argument list on the Windows activity property page.

Modifying a Script Argument

Use the Select Argument to Add dialog box to modify existing script arguments added to the Windows script or command activities.

To modify a script argument:

- Step 1** On the appropriate Windows activity property page, under Arguments, highlight the appropriate the script argument, and click **Edit**.

The Select Argument to Add dialog box displays.

- Step 2** Modify the information on the variable, as necessary, and click **OK**.

The modified script argument displays in the Windows activity tab.

Removing a Script Argument

Removing a script argument from an activity does not delete the object from the TEO server. To delete the object, refer to the appropriate object definition section.

To remove a script argument:

On the Windows activity property page tab, highlight the appropriate the argument, and click **Remove**.

The selected script argument is removed from the list on the Windows activity property page.

Selecting a Performance Counter

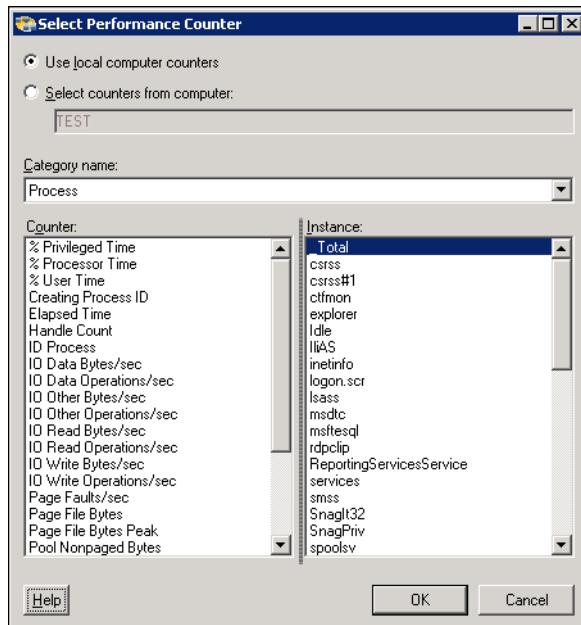
Use the Select Performance Counter dialog box to select the performance counter and the instance to be used in the Query Windows Performance Counter activity.

To select performance counter information:

-
- Step 1** On the Query Windows Performance Counter property page, click **Browse**.

The Select Performance Counter dialog box displays.

Figure 5-27 Select Performance Counter Dialog Box



-
- Step 2** Select the appropriate computer radio button:

Option	Description
Use local computer counters	Select this radio button to use the performance counters to monitor the targets specified in that activity's target tab.
Select counters from computer	Select this radio button to use the performance counters available on the specified computer

-
- Step 3** From the Category name drop-down list, select the name of the category that contains the performance counter. The following information is associated with the selected category.

List	Description
Counter	The performance counters that are available for the selected category display in this list box. Select the counter that you want to use to collect data.
Instance	The instances that are available for the listed performance counters. Select the instance from which to collect data

-
- Step 4** Click **OK** to return to the Query Windows Performance Counter property page.

Selecting a Registry Key

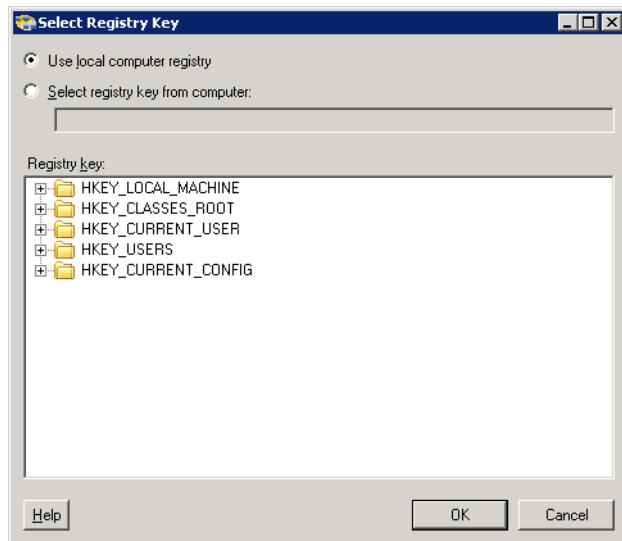
Use the Select Registry Key dialog box to select the registry key to be used in the Query Windows Registry and the Update Windows Registry activities.

To select registry key information:

-
- Step 1** On the Query Windows Registry property page, click **Browse**.

The Select Registry Key dialog box displays.

Figure 5-28 Select Registry Key Dialog Box



-
- Step 2** Select the appropriate computer item:

Option	Description
Use local computer registry	Select this radio button to use the available registry keys on your local computer.
Select registry key from computer	Select this radio button to use the registry keys available on the specified computer.

-
- Step 3** Under Registry key, select the registry key from the current registry hive, and click **OK**.

The selected key populates the Registry Key text field on the Registry tab of the Query Windows Registry and Update Windows Registry activities.

Viewing Activity Instance Information

This section describes what the user should expect to see after a process with an Windows activity is launched. Certain activities generate and display additional activity instance information for review by users.

For example, there will be certain activities that generate information based on the defined properties of the activities. In those situations, the activity instance properties will display the display-only configuration properties as well as the generated results of the configuration properties.

Viewing Activity Status

After a process is launched, status and color indicators display on the console to indicate the current status for each process and activity instance.

Status Indicators

The State column displays the status of the individual process and activity. The following indicators definitions display on the Results pane.

State	Description
Succeeded	Process has completed successfully
Running	Process is in progress
Failed (Not Completed)	Displays when the process has failed and did not complete the process execution
Failed (Cancelled)	Displays when the process is cancelled manually

Color Indicators

The colors associated with the individual activities indicate the status of the process instances. The following default colors display:

Color Indicator	Description
Blue	Process is in progress
Green	Process has completed successfully
Red	Process has failed and did not complete the process execution
Orange	Process has stopped.



To modify the fonts and colors on the Activity View status display, see the *Cisco Tidal Enterprise Orchestrator Reference Guide*.

Viewing Activity Instance Properties

The activity instance properties displayed from the Activity View are display-only.

To view activity instance properties:

-
- Step 1** On the Operations workspace, select any of the four activity views to display the activity instances on the Results pane.

Activity View	Description
View Triggered	Displays all process or activity instances that were executed (manually or automatically) and are in progress, have successfully completed, or failed during the selected time period
View Adhoc	Displays all process or activity instances that were executed manually and are in progress, have successfully completed, or failed during the selected time period
View All	Displays all process, activity, and scheduled process and activity instances that are in progress, have successfully completed, or failed during the selected display time period
View Scheduled	Displays all process or activity instances that are in progress, have successfully completed, or failed and are also scheduled to execute during the selected time period

- Step 2** On the Results pane, expand the appropriate activity instance to display the related activities.

- Step 3** Highlight the appropriate activity, and use *one* of the following methods:

- Double-click the appropriate activity instance.
- Right-click and choose **Observe**.
- On the Details pane, click the hyperlink of any object on tabs.

The [Activity Name] Properties dialog box displays.

Viewing Correlated Windows Events

When the Correlate Windows Events activity is launched, the results of the activity is displayed in the Correlate Windows Events activity instance property page. The Correlated Events display-only page displays the events found when the Correlate Windows Events activity was run.

To view the Correlate Windows Events results:

-
- Step 1** On the Operations workspace, click the Activity Views folder.

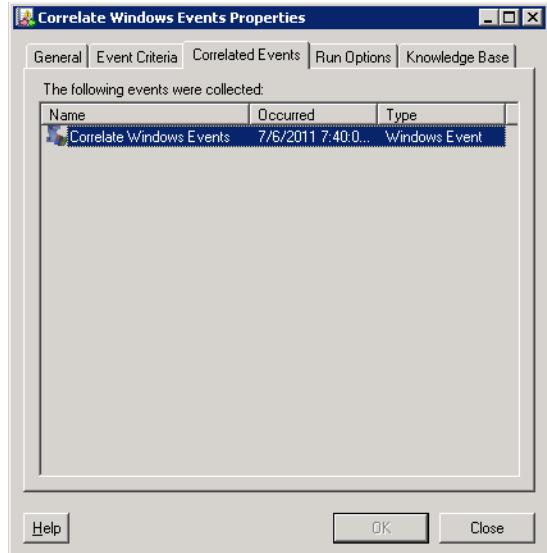
- Step 2** Use *one* of the following methods:

- Highlight the **Correlate Windows Events** activity instance, right-click and choose **Properties**.
-or-
- Double-click the appropriate activity instance.

The Correlate Windows Events Properties dialog box displays.

- Step 3** Click the **Correlated Events** tab to display the events found by the Correlate Windows Events activity.

Figure 5-29 Correlate Windows Events Instance Properties Page—Correlated Events Tab



The following information is displayed:

Column	Description
Name	The name of the event
Occurred	The time the event occurred
Type	The type of event (Information, Warning, Error, Success audit, or Failure audit)

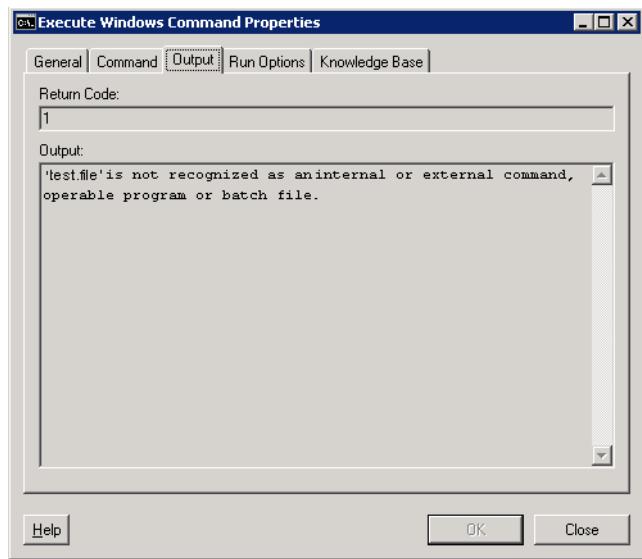
Viewing Executed Windows Script Commands

When the Execute Windows Scripts and Command activities are launched, the results of the activity is displayed in the activity instance property page. The Output display-only page displays the results of the Execute Windows activity.

To view the Executed Windows results:

-
- Step 1** On the Operations workspace, click the Activity Views folder.
- Step 2** Use *one* of the following methods:
- Highlight the **Execute Windows** activity instance, right-click and choose **Properties**.
 - or-
 - Double-click the appropriate activity instance.
- The Execute Windows Properties dialog box displays.
- Step 3** Click the **Output** tab to display the results generated by the activity.

Figure 5-30 Execute Windows Command Instance Properties Page—Output Tab



The following information is displayed:

Column	Description
Return Code	Number for the return code
Output	Information returned from the activity

Viewing Query Windows Performance Counter Values

When the Query Windows Performance Counter activity is launched, the results of the activity is displayed in the Query Windows Performance Counter activity instance property page. The Counter display-only page displays the performance counters found matching the query.

To view the Query Windows Events results:

Step 1 On the Operations workspace, click the Activity Views folder.

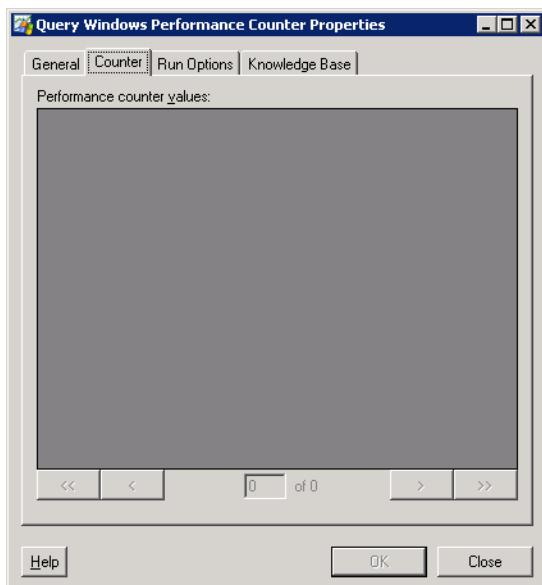
Step 2 Use *one* of the following methods:

- Highlight the **Query Windows Performance Counter** activity instance, right-click and choose **Properties**.
-or-
- Double-click the appropriate activity instance.

The Query Windows Performance Counter Properties dialog box displays.

Step 3 Click the **Counter** tab to display the results of performance counter specified in the activity in a data grid.

Figure 5-31 Query Windows Performance Counter Instance Properties Page—Counter Tab



Note Use the navigation arrows along the bottom of the tab to navigate multiple pages of results.

The following information is displayed:

Column	Description
Object name	Name of the object that contains the performance counter
Counter name	Name of the performance counter

Viewing Activity Instance Information

Column	Description
Instance name	Name of the instance from which to collect the performance data
Value	Number of counters collected

Viewing Query Windows Events

When the Query Windows Events activity is launched, the results of the activity is displayed in the Query Windows Events activity instance property page. The Events display-only page displays the events found matching the event log information specified by the Query Windows Events activity.

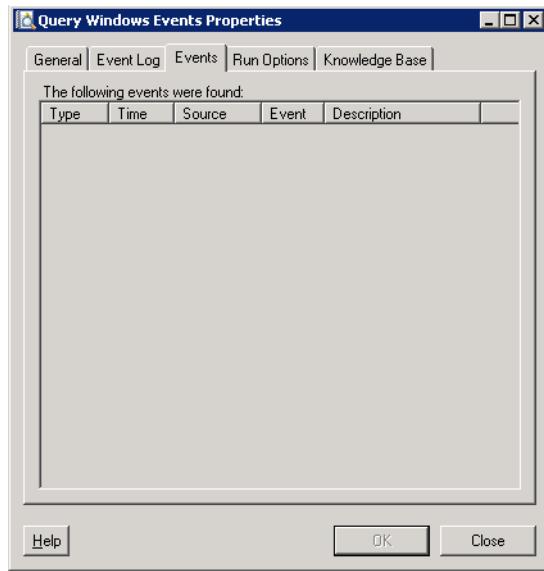
To view the Query Windows Events results:

-
- Step 1** On the Operations workspace, click the Activity Views folder.
 - Step 2** Use *one* of the following methods:
 - Highlight the **Query Windows Events** activity instance, right-click and choose **Properties**.
 - or-
 - Double-click the appropriate activity instance.

The Query Windows Events Properties dialog box displays.

- Step 3** Click the **Events** tab to display the events found by the Query Windows Events activity.

Figure 5-32 Query Windows Events Instance Properties Page—Events Tab



The following information is displayed:

Column	Description
Type	Type of event that matched criteria <ul style="list-style-type: none">• Information• Warning• Error• Success audit• Failure audit
Time	Date and time the event occurred
Source	Location of where the event occurred
Event	Event ID
Description	Brief description of the event log entry

■ Viewing Activity Instance Information



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