



Cisco TEO Adapter Guide for SNMP

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Americas Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
<http://www.cisco.com>
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

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Cisco TEO Adapter Guide for SNMP

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New and Changed Information

The user interface of all activities and events provided by the SNMP Adapter for Cisco Tidal Enterprise Orchestrator 2.3 have changed. The improved functionality focuses on the following new features:

- Additional SNMP V3 privacy protocols for SNMP credentials
- Introduction of SNMP targets
- Security credentials per device requirement

Some features have been removed from the SNMP adapter for TEO 2.3. In previous versions of TEO, the SNMP Trap Received event and certain SNMP activities allowed users to specify wildcard expressions. This allowed to TEO to search for incoming traps from SNMP agents without configuring a separate target. This functionality is no longer available and users must now specify a SNMP Device (Agent) target or target group from which to receive traps.

For customers using previous versions of TEO, old activity and event configurations will continue to display in TEO, but will be marked as *Deprecated*. It is recommended that all processes using the SNMP adapter are reviewed and the configuration updated according to the new configuration of TEO 2.3.

The following sections have been included and/or updated in this guide to include the features that have been implemented for Cisco Tidal Enterprise Orchestrator 2.3.

Table 1 *TEO 2.3 Feature Changes*

Feature	Location
Global adapter settings used for receiving SNMP Traps, sending SNMP traps and executing Get/Set SNMP Requests activities have been removed and a single general settings page displays which simply requires the trap listening port number.	Chapter 1, Configuring SNMP Adapter
The SNMP User runtime user was renamed SNMP Credential and contains additional privacy protocols	Chapter 2, Managing SNMP Credentials
New SNMP (Device) Agent and SNMP (Device) Manager targets which allow users to create targets on a per device basis as well as per server.	Chapter 3, Managing SNMP Targets
The SNMP Trap Received trigger was modified to require a target	Chapter 4, Managing SNMP Triggers

Table 1 **TEO 2.3 Feature Changes**

Feature	Location
The Destination field was removed in all SNMP activities which now require a SNMP target.	Chapter 5, Using SNMP Activities
The following activities have been renamed: <ul style="list-style-type: none">• Correlate SNMP Trap activity was renamed Correlate SNMP Trap Received activity• Publish SNMP Trap activity was renamed Generate SNMP Trap activity• Publish Task as SNMP activity was renamed Generate SNMP Trap from Task activity	Chapter 5, Using SNMP Activities



Preface

Revised: April 2012, OL-25261-02

Tidal™ Enterprise Orchestrator is designed to enhance the management and administration of Simple Network Management Protocol (SNMP). The SNMP adapter allows a level of support for different platforms and applications to send and receive data through SNMP.

This guide provides instructions for viewing SNMP adapter properties, defining SNMP 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	Configuring the SNMP Adapter	Provides information on the SNMP adapter properties
Chapter 2	Managing SNMP Credentials	Provides information on creating and managing runtime user accounts
Chapter 3	Managing SNMP Targets	Provides information on viewing defined targets that are available for execution by a process
Chapter 4	Managing SNMP Triggers	Provides the specific criteria used to determine when processes or activities are triggered for execution
Chapter 5	Using SNMP Activities	Provides instructions for defining SNMP 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 font</i>	Document titles, new or emphasized terms, and arguments for which you supply values are in <i>italic font</i> .
[]	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 <code>courier font</code> .
< >	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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<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

Subscribe to the *What's New in Cisco Product Documentation* as a RSS feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS Version 2.0.



CHAPTER 1

Configuring the SNMP Adapter

Simple Network Management Protocol (SNMP) is used in network management systems to monitor network devices for conditions that require administrative attention.

Users can access the SNMP Adapter properties from the Administration—Adapters view in the Console. The SNMP 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.

This chapter covers the following topics:

- [Accessing SNMP Adapter Properties, page 1-2](#)
- [Configuring Listening Port Adapter Settings, page 1-3](#)
- [Viewing Adapter Prerequisites, page 1-4](#)
- [Viewing Adapter-Supported Objects, page 1-5](#)
- [Viewing Adapter History, page 1-6](#)

Accessing SNMP Adapter Properties

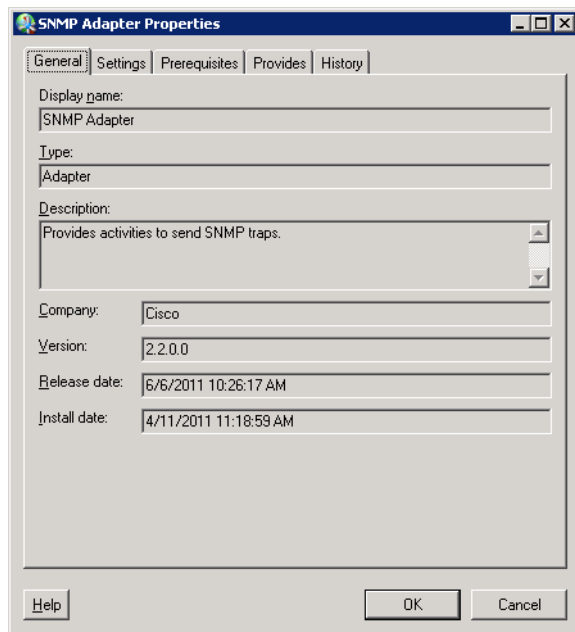
To view adapter properties:

Step 1 On the Administration—Adapters view, highlight **SNMP 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 SNMP Adapter Properties dialog box displays.

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



The General tab displays the following information about the adapter:

Field	Description
Display 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.

Configuring Listening Port Adapter Settings

Use the Settings tab to configure the security settings required for a SNMP Agent and the port to use when receiving a trap.

To configure listening port settings:

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

The SNMP Adapter Properties dialog box displays.

Step 2 Click the **Settings** tab to continue.



Note


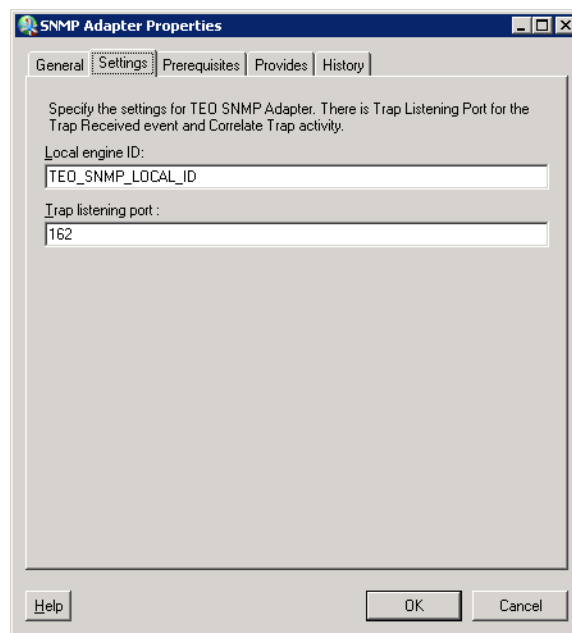
The Required Value  icon displayed on a tab or page indicates that the field is required and is either missing a value or contains an invalid value.

Figure 1-2 *SNMP Adapter Properties—Settings Tab*



Step 3 On the Settings tab, specify the listening port for the incoming traps:

Field	Description
Local Engine ID	ID number of the SNMP engine The SNMP engine ID number can be automatically discovered by the SNMP adapter or specified by the SNMP Agent Device target.
Port number	Port number that the event or the activity used to listen for incoming traps. The default port number is 162.

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

Viewing Adapter Prerequisites

Use the Prerequisites tab to display the names and objects that are required by the SNMP adapter.

SNMP Adapter Prerequisites

This section provides the system requirements for the SNMP adapter.

Table 1-1 Minimum SNMP Adapter Requirements

Component	Minimum Requirement
Java	1.6
Port for listening trap	TEO server that listens on the port to receive traps Default: 162

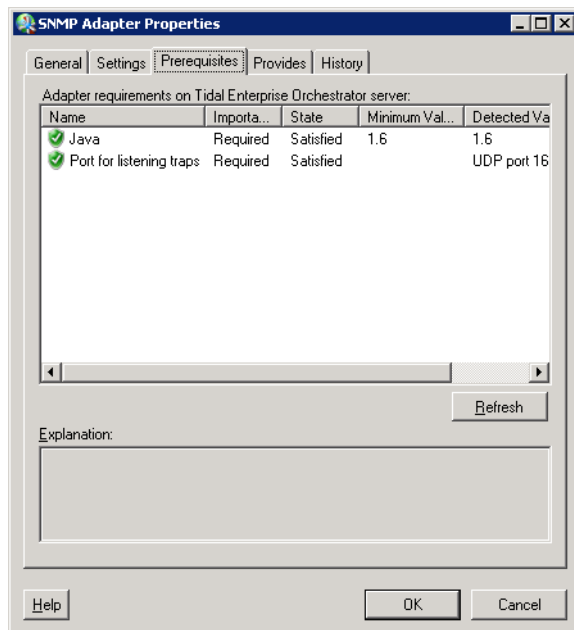
To view adapter prerequisites:

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

The Properties dialog box displays.

Step 2 Click the **Prerequisites** tab to view the prerequisites that is required by the adapter.

Figure 1-3 SNMP Adapter Properties Dialog Box—Prerequisites Tab



Step 3 Review the following information required by the adapter and click **OK** to close the dialog box.

Column	Description
Name	Name of the required item for the supported adapter
Importance	Indicates the importance of the prerequisite to the adapter <ul style="list-style-type: none">• Optional• Required
State	Indicates whether the system has the required software or hardware item for the adapter <ul style="list-style-type: none">• Satisfied• Not satisfied
Minimum Value	Denotes the minimum system requirement for the item
Detected Value	Displays the actual software or hardware item in the system
Explanation	Displays the information related to the selected adapter requirement

Viewing Adapter-Supported Objects

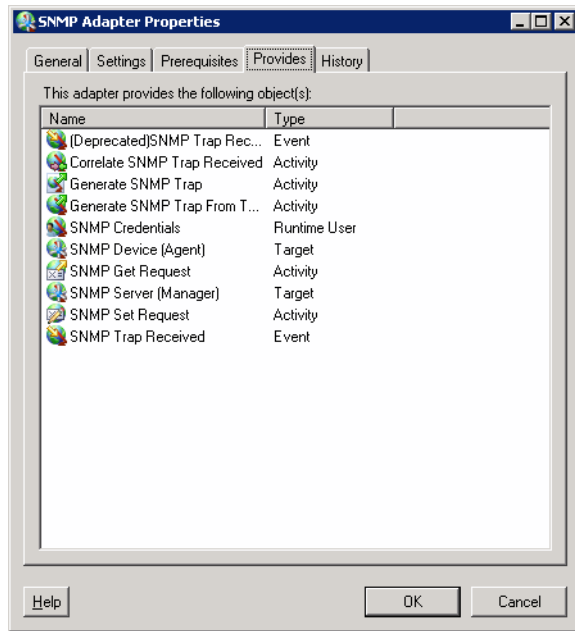
Use the Provides tab to view the name and type of component for each object the SNMP adapter supports.

To view adapter-provided objects:

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

The Properties dialog box displays.

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

Figure 1-4 *SNMP 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.

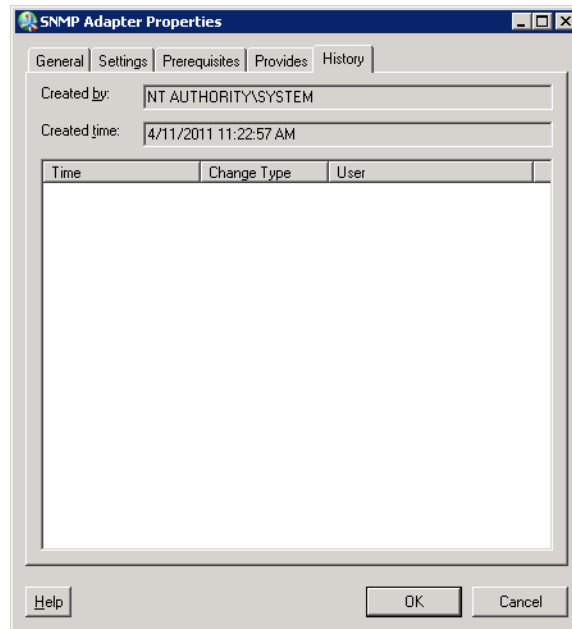
Column	Description
Name	Name of the activities, processes, and objects for which the adapter provides support
Type	Object type (Target, Runtime User, Activity, Event)

Viewing 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** In the Administration—Adapters view, highlight the appropriate adapter, right-click and choose **Properties**.
The Properties dialog box displays.
- Step 2** Click the **History** tab to view the changes made to the adapter.

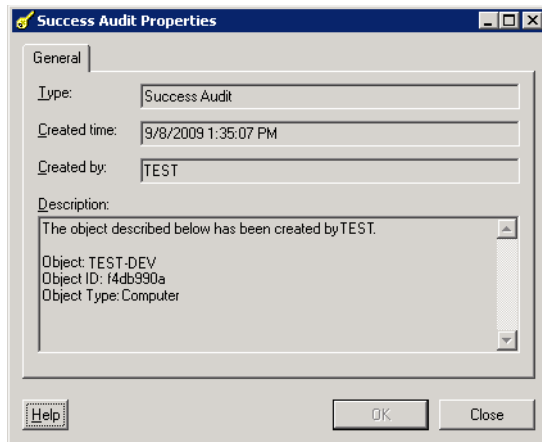
Figure 1-5 *SNMP Adapter Properties Dialog Box—History Tab*

The following information 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
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 audit history for a specific action, highlight the appropriate object, right-click and choose **Properties**.

The Audit Properties dialog box displays.

Figure 1-6 [Name] Audit Properties Dialog Box

- Step 4** Review the **Audit Log** 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 • Error • Information
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.



CHAPTER 2

Managing SNMP Targets

This chapter guides users through managing SNMP adapter targets.

- [Accessing Definitions—Targets, page 2-2](#)
- [Defining a SNMP Device \(Agent\) Target, page 2-5](#)
- [Defining a SNMP Device \(Manager\) Target, page 2-9](#)
- [Managing Target Definitions, page 2-11](#)

Accessing Definitions—Targets

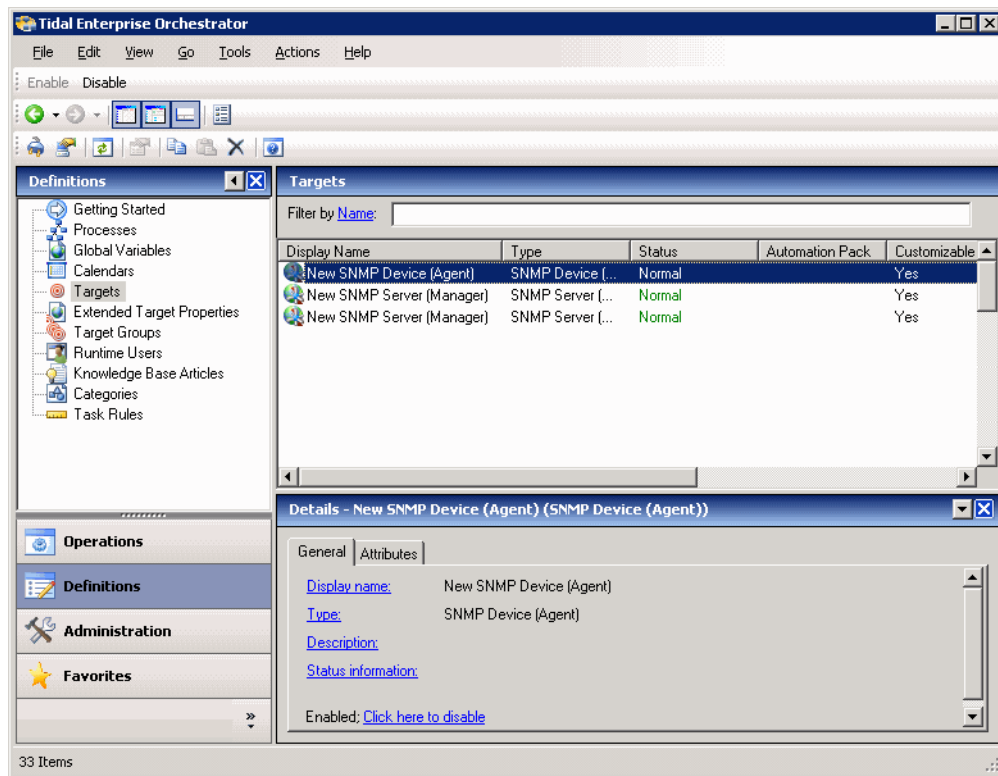
The Definitions—Targets displays all the existing defined targets. You also use this view to create new targets, modify the properties of a target, and delete targets.

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
Display 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

The property pages may display as display-only if the target definition is shipped as part of the product or the user does not have the appropriate rights.

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. The tabs displayed depend on the selected target.

Step 2 Click the appropriate tab to review the properties

Tab	Description
General	Displays general information about the target
SNMP Device (Agent)	Displays the security and credentials properties for the SNMP agent
SNMP Server (Manager)	Displays the security and credentials properties for the SNMP server
Member Of	Displays the target groups associated with the defined targets
Extended Properties	Displays the list of all target properties defined for this target type
Used by	Displays the objects referenced 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	Runs 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 option to execute the process on all targets defined by the criteria specified in the Target Selection dialog box. See Defining Target Criteria, page 2-12 .

Target Descriptions

The following table provides a listing of the targets that are associated with the product.

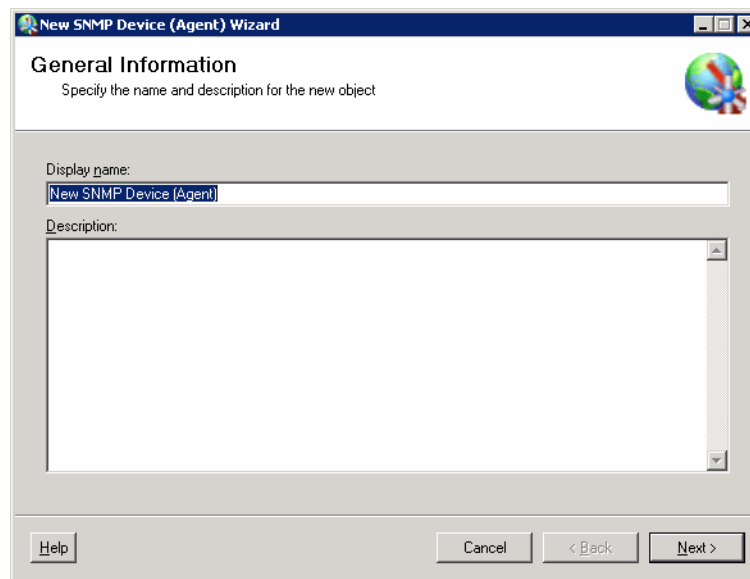
Target	Description
SNMP Device (Agent)	Configures the host and operation and notification settings for accessing an SNMP agent. See Defining a SNMP Device (Agent) Target, page 2-5 .
SNMP Server (Manager)	Configures the host and security settings for sending traps to a SNMP server See Defining a SNMP Device (Manager) Target, page 2-9 .

Defining a SNMP Device (Agent) Target

Use the SNMP (Device) Agent target to configure the host and operation and notification settings for accessing an SNMP agent.

- Step 1** On the Definitions—Targets view, right-click, and choose **New > SNMP (Device) Agent**.
The New SNMP Device (Agent) Wizard displays.

Figure 2-2 New SNMP Device (Agent) Wizard—General Information Panel



- Step 2** On the General panel, enter the appropriate general information:

Field	Description
Display name	Name of the target
Description	Brief description of the target

- Step 3** Click **Next** to continue.

The SNMP Device (Agent) panel 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 2-3 *New SNMP Device (Agent) Wizard—SNMP Device (Agent) Panel*

- Step 4** On the SNMP Device (Agent) panel, enter the appropriate target information to configure the host and operation and notification settings.

Field	Description
Host (Name or IP address)	<p>Enter the host name or IP address of the SNMP agent</p> <p>Example:</p> <p>IP addresses</p> <p>10.10.00.00</p> <p>Host names</p> <p>MyMachineName</p>
Port number	<p>Listening SNMP port to be used by TEO to execute SNMP GET/SNMP SET activities against the device.</p> <p>Port number that the activities use for Get/Set Requests.</p> <p>The default port number is <i>161</i>.</p>

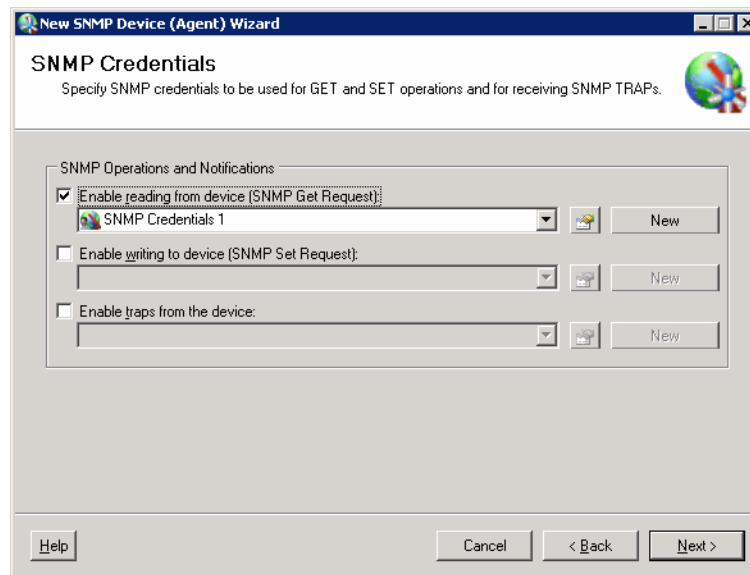
Field	Description
Enable reading only from device (SNMP Get Request)	<p>Select this radio button and then select the appropriate SNMP credentials with <i>Read</i> rights from the drop-down list.</p> <p>To view the properties of the SNMP credentials, click the Properties  tool.</p> <p>If the drop-down list does not contain the appropriate credentials, click New > SNMP Credentials to create new credentials. For additional information, see Managing SNMP Credentials, page 3-1.</p>
Let me choose SNMP operations to enable	Select this radio button to define the specific credentials for the SNMP agent.

Step 5 Click **Next** to continue.




If the user chooses to only enable reading the device, then the wizard continues to the Completion panel. If the user chooses to customize the specific SNMP operations to enable, then the wizard continues to the SNMP Credentials panel.

The SNMP Credentials panel displays.

Figure 2-4 *New SNMP Device (Agent) Wizard—SNMP Credentials Panel*



- Step 6** On the SNMP Credentials panel, specify different credentials to be used for Get or Set operations or receiving SNMP traps.

Field	Description
Enable reading only from device (SNMP Get Request)	<p>Check this check box and then select the appropriate SNMP credentials with <i>Read</i> rights from the drop-down list</p> <p>To view the properties of the SNMP credentials, click the Properties  tool.</p> <p>If the drop-down list does not contain the appropriate credentials, click New > SNMP Credentials to create new credentials. For additional information, see Managing SNMP Credentials, page 3-1.</p>
Enable writing to device (SNMP Set Request)	<p>Check this check box and then select the appropriate SNMP credentials with <i>Write</i> rights from the drop-down list</p> <p>When verifying the write credentials, the SNMP adapter will only perform the Get Request for confirmation.</p> <p>To view the properties of the SNMP credentials, click the Properties  tool.</p> <p>If the drop-down list does not contain the appropriate credentials, click New > SNMP Credentials to create new credentials. For additional information, see Managing SNMP Credentials, page 3-1.</p>
Enable traps from the device	<p>Check this check box and then select the appropriate SNMP credentials to enable traps from the device from the drop-down list.</p> <p>To view the properties of the SNMP credentials, click the Properties  tool.</p> <p>If the drop-down list does not contain the appropriate credentials, click New > SNMP Credentials to create new credentials. For additional information, see Managing SNMP Credentials, page 3-1.</p> <p>Note Please note that TEO does not verify SNMP trap credentials.</p>

- Step 7** Click **Next** to continue.

The Completing the New [SNMP Device (Agent)] Wizard panel displays the connection information about the device target added to TEO.

- Step 8** Verify the information on the panel and click **Finish** to close the wizard.

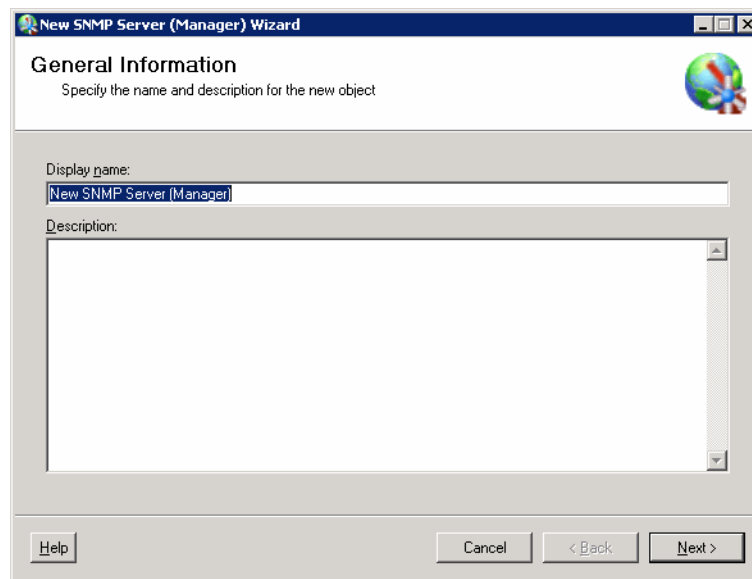
The new target is displayed on the Definitions—Targets view.

Defining a SNMP Device (Manager) Target

Use the SNMP (Server) Manager target to configure the host and security settings for sending traps to a SNMP server.

- Step 1** On the Definitions workspace, right-click **Targets**, and choose **New > SNMP Server (Manager)**. The New SNMP (Server) Manager Wizard displays.

Figure 2-5 New SNMP (Server) Manager Wizard—General Information Panel



- Step 2** On the General panel, enter the appropriate general information:

Field	Description
Display name	Name of the target
Description	Brief description of the target

- Step 3** Click **Next** to continue.

The SNMP Server (Manager) panel 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 2-6 *New SNMP Server (Manager) Wizard—SNMP Server (Manager) Panel*

Step 4 On the SNMP Server (Manager) panel, specify the connection information to the appropriate server.

Field	Description
Host (Name or IP address)	<p>Host name or IP address of the SNMP server</p> <p>Example:</p> <p>IP addresses</p> <p>10.10.00.00</p> <p>Host names</p> <p>MyMachineName</p>
Port number	<p>Listening port to be used by TEO to send traps to the SNMP server</p> <p>The default port number is <i>162</i>.</p>
Credentials used to generate traps to send to the SNMP server	<p>Select the appropriate SNMP credentials with the appropriate rights to enable traps from the device from the drop-down list.</p> <p>To view the properties of the SNMP credentials, click the Properties  tool.</p> <p>If the drop-down list does not contain the appropriate credentials, click New > SNMP Credentials to create new credentials. For additional information, see Managing SNMP Credentials, page 3-1.</p>

- Step 5** Click **Next** to continue.
- After the target is created, the Completing the New [SNMP Server (Manager)] Wizard panel displays the connection information about the target added to TEO.
- Step 6** Verify the information on the panel and click **Finish** to close the wizard.
- The new target is displayed on the Definitions—Targets view.
-

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 select **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 the **Refresh**  tool to update the view.

Disabling a Target

Disabling a target prevents the item 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 select **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.
-

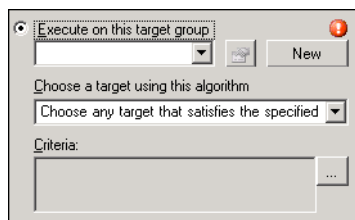
Defining Target Criteria

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

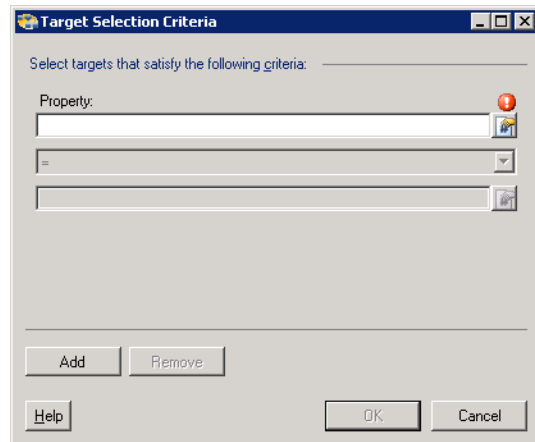
To define the target selection criteria:

-
- 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 2-7 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 2-8 Target Selection Criteria Dialog Box

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

Field	Description
Text field	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 2-15 .
Operators	The displayed operators depend on the selected property. Note For information on the displayed operators, see Comparison Operators, page 2-14 .
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 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

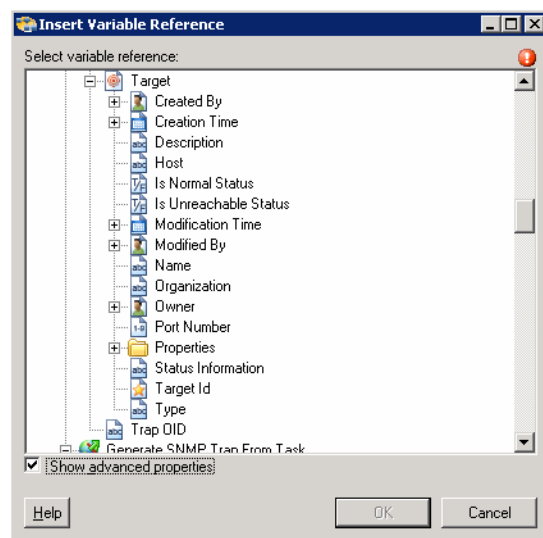
The Reference  icon to the right of a text field indicates that the field can be populated by referencing a defined variable or the property of another activity or process. Use the Insert Variable Reference dialog box to select a defined variable or reference an object to populate a field. The OK button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


On either available terminal target, the user can customize the patterns for the device. On the prompt pattern fields, the user can enter the appropriate patterns or select from a list of target reference variables.

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.
- 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.

Figure 2-9 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 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
Created by	User name or the owner of the target
Description	Description of the target
Is Normal Status	Status is normal and indicates that there are no known problems with this target

Reference Variable	Description
Is Unreachable Status	Status is unreachable which indicates that no known problems with this target
Modified by	User name of the individual who modified the target
Name	Display name of the target
Status Information	Detailed information regarding the target status and the reasons for target being unreachable
Type	Type of target
Creation Time	Date and time the target was created
Host	Host name or IP address of the SNMP target
Modification Time	The date and time the target was modified
Organization	Name of the company which supports the target
Owner	Owner of the target
Port Number	Listening SNMP port to be used by TEO to execute SNMP GET/SNMP SET activities against the device
Properties	Available extended target properties
Target ID	ID number assigned to the target
Context Name	Context name to be used during SNMP V3 operation
Engine ID	ID number of the SNMP engine
GET Credential	Credential properties which enable reading only from device (SNMP Get Request)
SET Credential	Credential properties which enable writing to device (SNMP Set Request)
TRAP Credential	Credential properties which enable traps from the device

Step 5 Click **OK** to add the related text field populates with the selected value.

Deleting a Target

Use the Definitions—Target 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 used by the target. This ensures that deleting the target does not affect any processes or activities. The following steps may not be available for all targets, such as those that are discovered and automatically created.

To delete a target:

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

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 choose **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 *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 choose **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 SNMP Credentials

Many operating systems and application activities require a user security context 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 SNMP adapter. SNMP credentials are used when specifying a SNMP target on which to execute a process or activity.

This chapter provides information on accessing the Runtime Users view, creating a SNMP Credentials account, and managing the runtime user record.

- [Accessing Definitions—Runtime users, page 3-2](#)
- [Defining a SNMP Credentials Account, page 3-4](#)
- [Managing Runtime User Definitions, page 3-7](#)

Accessing Definitions—Runtime users

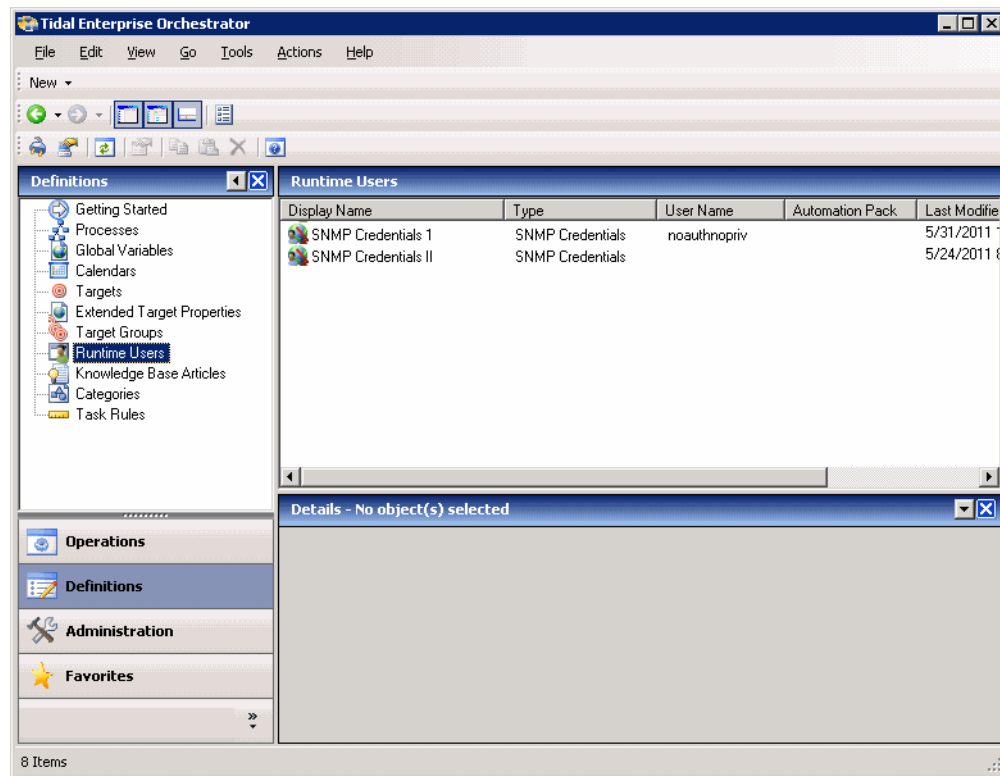
Use the Definitions—Runtime Users view to display the credentials of the runtime users and to specify new runtime user credentials, update the credentials of users, or delete users.

To access the Runtime Users properties:

On the Definitions workspace, select **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

Column	Description
Type Description	A brief description of the information in the Type column
Created Time	time the runtime user account was created
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

Runtime User Details Pane

The Details pane in the lower portion of the page displays detailed information about the selected 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 process owner associated with the creation and modification of the runtime user

Viewing Runtime User Properties

To view runtime user properties

Step 1 On the Definitions—Runtime User view, highlight the appropriate runtime user, 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.

Step 2 Click the appropriate tab to review the properties

Tab	Description
General	Displays the general properties for the runtime user
Credentials	Displays the SNMP credential properties for the runtime user
Used By	Displays the objects used by the runtime user
History	Displays when the runtime user was created or modified. The column also displays audit log entries that are relevant to the runtime user.

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

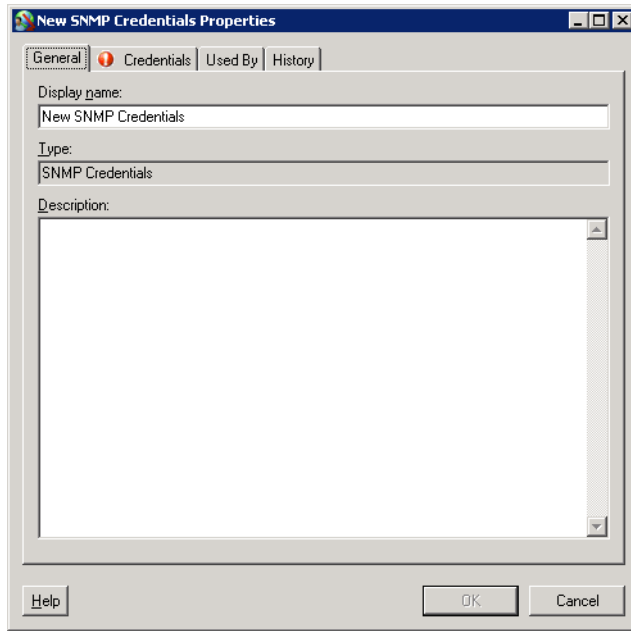
Defining a SNMP Credentials Account

Use the SNMP Credentials dialog box to specify the credentials for a SNMP runtime user. The information is used to assign run options for SNMP processes or activities.

To define a SNMP Credentials Account:

- Step 1** On the Definitions—Runtime Users view, right-click and choose **New > SNMP Credentials**. The New SNMP Credentials Properties dialog box displays.

Figure 3-2 New SNMP Credentials Properties Dialog Box—General Tab



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

Field	Description
Display Name	Name of the SNMP user account
Type	<i>Display-only.</i> Object type
Description	Brief description of the SNMP user account

- Step 3** Click the **Credentials** 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 3-3 New SNMP Credentials Properties Dialog Box—Credentials Tab

The screenshot shows the 'New SNMP Credentials Properties' dialog box with the 'Credentials' tab selected. The 'Version' dropdown is set to 'v3'. The 'User name' field is empty. The 'Security level' dropdown is set to 'noAuthNoPriv'. The 'Authentication protocol' dropdown is set to 'MD5'. There are checkboxes for 'Authentication key' and 'Privacy key', both of which are unchecked. The 'Privacy protocol' dropdown is set to 'DES'. At the bottom, there are 'Help', 'OK', and 'Cancel' buttons.

Step 4 On the Credentials tab, specify the following information, as appropriate:

Field	Description
Version	<p>Select the appropriate SNMP version. The following SNMP versions are supported.</p> <ul style="list-style-type: none"> • SNMPv1 • SNMPv2c • SNMPv3
Community String	<p>This field is displayed when the <i>SNMPv1</i> or <i>SNMPv2c</i> versions is selected.</p> <p>Specify the community string to be used for publishing traps. The default community string is <i>public</i>.</p>
User name	<p>Enter the user name assigned to the SNMP Credentials account.</p>
Security level	<p>Security level assigned to the user:</p> <ul style="list-style-type: none"> • noAuthNoPriv—Communication without authentication and privacy • authNoPriv—Communication with authentication and without privacy. The protocols used for Authentication are MD5 (Message Digest 5 Algorithm) and SHA (Secure Hash Algorithm). • authPriv—Communication with authentication and privacy.

Field	Description
Authentication protocol	<p>Protocol used for authentication. Options is available when the security level is set to <i>authNoPriv</i> or <i>authPriv</i>.</p> <ul style="list-style-type: none"> • SHA • MD5
Authentication Key	Password used for authentication
Privacy Protocol	<p>Format for transmitting encrypting data between the two devices.</p> <p>Option available when security level is set to <i>authPriv</i>.</p> <ul style="list-style-type: none"> • DES—Data Encryption Standard uses a 56-bit key and uses the block cipher method, which breaks text into 64-bit blocks and then encrypts the text. • 3DES—Non-standard convention of the DES encryption algorithm in which three 64-bit keys are used, instead of one, for an overall key length of 192 bits. The first encryption is encrypted with second key, and the resulting cipher text is again encrypted with a third key. • AES128—Specifies the Advanced Encryption Standard which uses a symmetric 128-bit block data encryption technique • AES256—Specifies 256-bit AES as the encryption algorithm <p>Note Users must update their policy with JCE in order to use the AES256 encryption. To update the JCE provider, click Oracle JCE provider to download the correct local_policy.jar file and US_export_policy.jar file to the local Java security folder. Before downloading, rename the original security files in the Java installation folder. After downloading the files, restart TEO to apply the changes.</p>
Privacy Key	Password used for encrypting data

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

Managing Runtime User Definitions

Use the Definitions—Runtime Users view to manage SNMP runtime user records. Use the SNMP User Properties dialog box to modify and review SNMP user properties. This view can be used to perform the following functions:

- Modify runtime user properties
- Review the objects in the product that use the runtime user
- Review a history of changes made to the runtime user
- Delete the runtime user

Use the following procedures to viewing and modifying 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 selected [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 selected 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 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—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

Column	Description
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.



CHAPTER 4

Managing SNMP 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 covers the following sections:

- [Accessing Trigger Properties, page 4-2](#)
- [Defining a SNMP Trap Received 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. Users can 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:

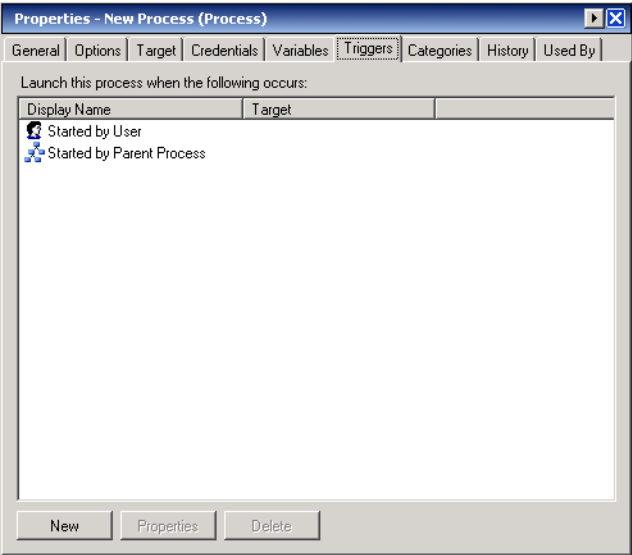
- Step 1

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 Click the appropriate tab to review the properties.

Tab	Description
General	Displays general information about the trigger
Trigger-Specific	Displays the properties of the selected trigger
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.

Viewing Trigger Properties

To view trigger properties:

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

The [Trigger Properties] dialog box displays.

Step 2 Click the appropriate tab to review the properties.

Tab	Description
General	Displays general information about the trigger
Trap Criteria	Displays the criteria for the incoming traps from all SNMP agents
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 3 Click **OK** to close the dialog box.

Defining a SNMP Trap Received Trigger

Use the SNMP Trap Received trigger to specify the criteria for the incoming traps from all SNMP agents through the port specified in the SNMP adapter.

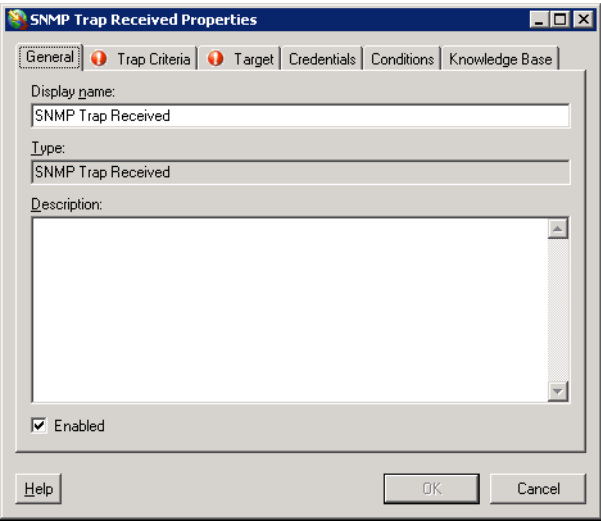
To create a SNMP Trap Received trigger:

- Step 1

In the Process Editor, on the Process Properties pane, click the **Triggers** tab.
- Step 2

Click **New > SNMP Trap Received**.
- The SNMP Trap Received Properties dialog box displays.

Figure 4-2 SNMP Trap Received Properties Dialog Box—General Tab



- Step 3

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 4 Click the **Trap Criteria** tab to continue.



Note


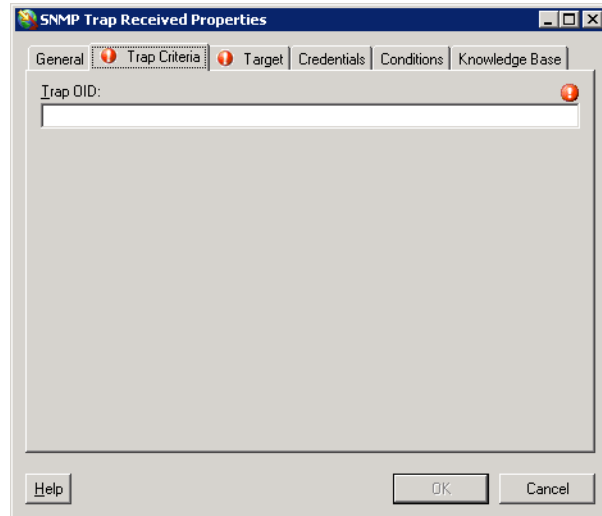
The Required Value  icon displayed on a tab or page indicates that the field is required and is either missing a value or contains an invalid value.



Figure 4-3 *SNMP Trap Received Properties Dialog Box—Trap Criteria Tab*



Step 5 On the Trap Criteria tab, specify the following information, as necessary:


Field	Description
Trap OID	Specify the OID for the trap

Step 6 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>
Monitor using 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 group on which to monitor.</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	
Select <i>one</i> of the following radio buttons to determine which members of the target group the process will run against.	
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 7 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 Managing SNMP Credentials, page 3-1 .

- Step 8** 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 4-11 .
Advanced	Creates a more complex condition. <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. See Adding Advanced Conditions to an Object, page 4-12 .

- Step 9** 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	Click Browse to launch the Select Knowledge Base dialog box for a list of existing knowledge base articles. Press Ctrl or Shift-Click to choose more than one knowledge base article. 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 10 On the Trigger tab, click **OK** to complete the trigger definition.

The new SNMP Trap Received trigger displays in 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.

Common Wildcard Expressions

Table of most commonly used wildcard characters.

Character	Description
*	Match Any Character

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.
-

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:

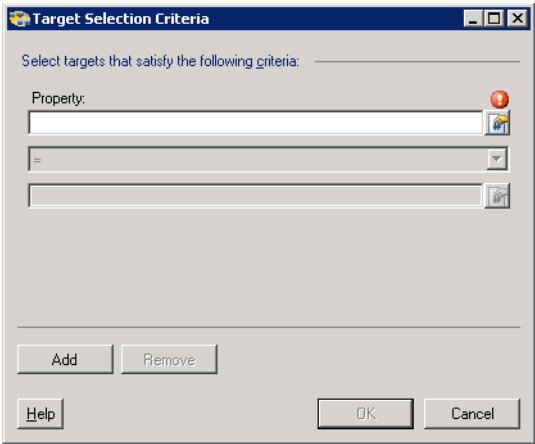
- Step 1

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 4-4 Target Selection Criteria Dialog Box



- Step 4

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

Field	Description
Property	<p>Choose the appropriate property in the to match within the target.</p> <p>Click the Reference tool to select the variable from the Insert Variable Reference dialog box.</p> <p>See Inserting a Target Variable Reference, page 2-15.</p>
Operators	<p>Select the appropriate operator to be used to evaluate the expression. The displayed operators depend on the selected property.</p> <p>Note For information on the displayed operators, see Comparison Operators, page 2-14.</p>
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.

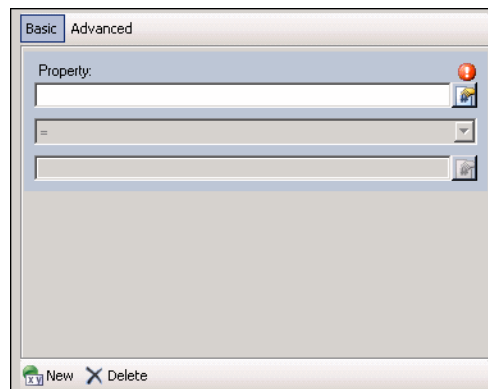
Adding Basic Conditions to an Object

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 4-5 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 operator to be used to evaluate the variable expression. The displayed operators depend on the selected property. Note For information on the displayed operators, see Comparison Operators, page 2-14 .
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 more complex condition. Users have the ability to define the properties of the conditions within the Advanced panel, as well as within the Properties dialog box.

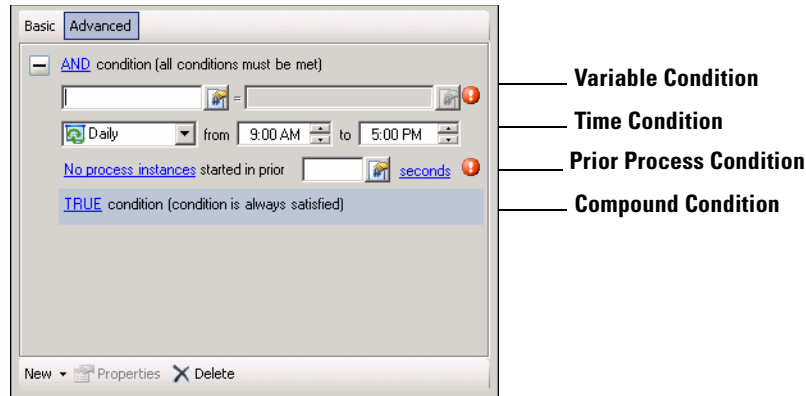
The conditions specified on the Basic panel can also be configured on the Advanced pane, because they transition to simple TEO-level variable conditions. All other TEO conditions on the Advanced panel cannot transition to the Basic panel and will not display.

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 4-6 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	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 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.

Button	Description
Properties	Click anywhere around the appropriate condition. After the area around the condition is shaded blue, click Properties to launch the condition properties dialog box. Note Condition properties can be modified on the tab or within the conditions properties dialog box.
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.

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 SNMP Activities

The Simple Network Management Protocol (SNMP) activities gather and publish data that pass through the SNMP agents. The agents return information contained in a MIB (Management Information Base), which is a data structure that defines what is obtainable from the device and what can be controlled (turned off, on, etc.).

This section provides information on how to define each activity-specific property page associated with the SNMP activities.

- [SNMP Adapter Activities, page 5-2](#)
- [Defining the Correlate SNMP Trap Received Activity, page 5-3](#)
- [Defining the Generate SNMP Trap Activity, page 5-8](#)
- [Defining the Generate SNMP Trap from Task Activity, page 5-12](#)
- [Defining the SNMP Get Request Activity, page 5-14](#)
- [Defining the SNMP Set Request Activity, page 5-17](#)
- [Managing SNMP Activity Definitions, page 5-20](#)
- [Viewing Activity Instance Information, page 5-25](#)

SNMP 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 SNMP adapter.

Activity	Description
Correlate SNMP Trap Received	Detects incoming traps matching specific criteria See Defining the Correlate SNMP Trap Received Activity, page 5-3 .
Generate SNMP Trap	Specifies the properties used to publish a generic trap to the specified target. See Defining the Generate SNMP Trap Activity, page 5-8 .
Generate SNMP Trap from Task	Publishes TEO process alerts and incident traps using the global security settings See Defining the Generate SNMP Trap from Task Activity, page 5-12 .
SNMP Get Request	Requests a set of variable values See Defining the SNMP Get Request Activity, page 5-14 .
SNMP Set Request	Updates set of variable values on the SNMP agents See Defining the SNMP Set Request Activity, page 5-17 .

Defining the Correlate SNMP Trap Received Activity

Use the Correlate SNMP Trap Received activity to detect incoming traps that match the specified criteria.

In prior versions of TEO, the SNMP Trap received allowed users to specify wildcard expressions. This allowed to TEO to search for incoming traps from SNMP agents without configuring a separate target.

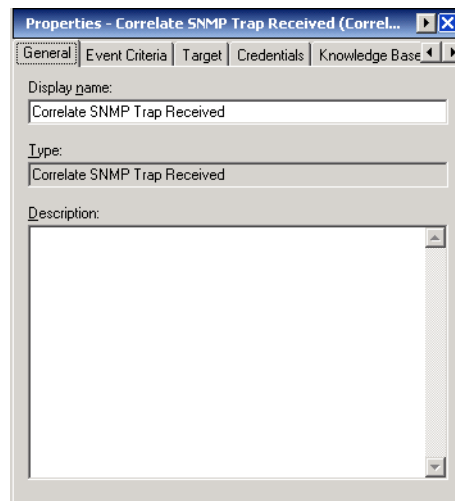
In TEO release 2.2 and later, the wildcard feature is no longer available and users can now specify a SNMP Device (Agent) target or target group from which to receive traps.

To define the Correlate SNMP Trap Received Activity:

- Step 1** On the Toolbox pane, under SNMP, select **Correlate SNMP Trap Received** and drag and drop the activity onto the Workflow pane.

The Correlate SNMP Trap Received property page displays.

Figure 5-1 Correlate SNMP Trap Received Properties Page—General Tab



- Step 2** On the General tab, specify the following general information about the activity.

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 **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 5-2 Correlate SNMP Trap Received Properties Page—Event Criteria Tab



Note

Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting an Activity Variable Reference](#), page 5-23.

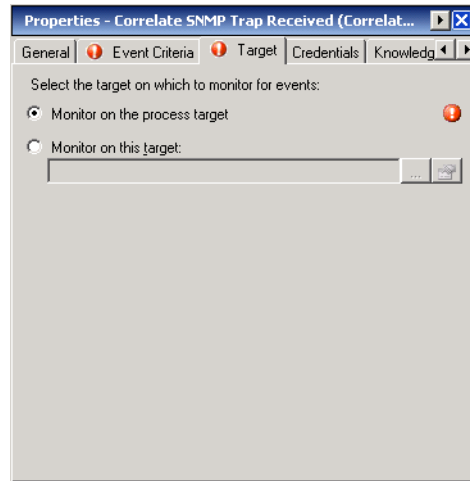
Step 4 On the Event Criteria tab, specify the following event properties for the activity:

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 of the event can occur within the following: <ul style="list-style-type: none"> Before After Before or after
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.
Event Criteria	


Field	Description
Trap OID	Specify the OID for the trap

Step 5 Click the **Target** tab to continue.

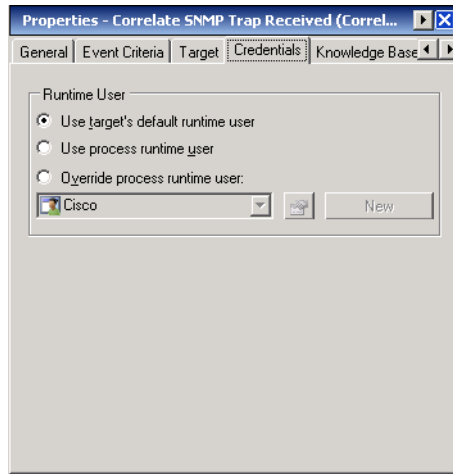
Figure 5-3 Correlate SNMP Trap Received Properties Page—Target Tab




Step 6 On the Target tab, 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	<p>Select this radio button and then click Browse to launch the Select Targets dialog box to select a specific target on which to monitor.</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. See Managing SNMP Targets, page 2-1 for additional information.</p>


Step 7 Click the **Credentials** tab to continue.


Figure 5-4 Correlate SNMP Trap Received Properties Page—Credentials Tab

Step 8 On the Credentials tab, 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 Managing SNMP Credentials, page 3-1 .

Step 9 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.


Knowledge Base Field Options	Description
Browse	Click Browse to launch the Select Knowledge Base dialog box for a list of existing knowledge base articles. Press Ctrl or Shift-Click to choose more than one knowledge base article. 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 10 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 11 Click the **Save**  tool to complete the activity definition.



Note

To view the correlated SNMP trap output, see [Viewing Correlated SNMP Trap Events, page 5-27](#).

Defining the Generate SNMP Trap Activity

Use the Generate SNMP Trap activity to publish a generic trap to the specified SNMP Manager target or target group.

To define the Generate SNMP Trap Activity:

- Step 1** On the Toolbox pane, under SNMP, select **Generate SNMP Trap** and drag and drop the activity onto the Workflow pane.

The Generate SNMP Trap property page displays.

Figure 5-5 Generate SNMP Trap Properties Page—General Tab

- Step 2** On the General tab, specify the following general information about the activity.

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 **Trap** tab to continue.



Note


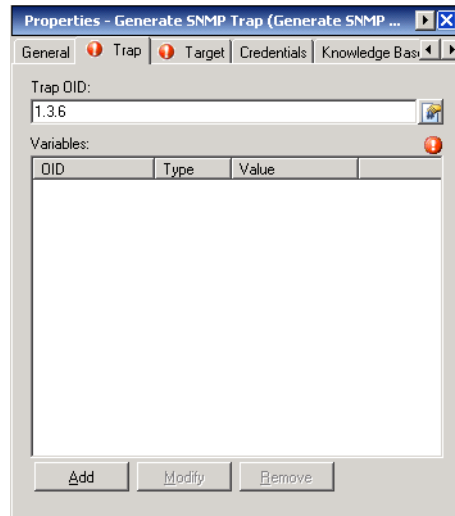

The Required Value  icon displayed on a tab or page indicates that the field is required and is either missing a value or contains an invalid value.

Figure 5-6 Generate SNMP Trap Properties Page—Trap Tab**Note**

Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting an Activity Variable Reference](#), page 5-23.

Step 4 On the Trap tab, specify the following information:

Field	Description
Trap OID	Object identifier of the trap to publish

The following columns display the list of variable bindings for the specified trap.

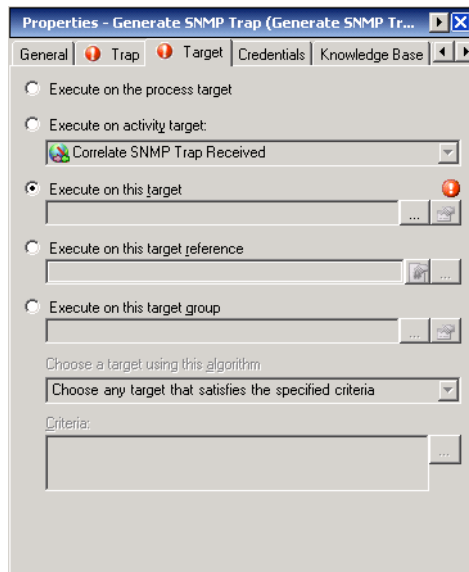
Field	Description
OID	Object Identifier of the variable binding
Type	Data type of the variable binding
Value	Value of the variable binding

Step 5 To modify the list of variables in the trap, click the following buttons, as necessary:


Field	Description
Add	Launches the Variable dialog box to allow the user to define the variable bindings for the trap. See Adding a Variable to a SNMP Activity , page 5-20 for additional information.
Modify	Modifies the variable binding for the trap
Remove	Removes the variable binding from the list See Deleting a Variable in a SNMP Activity , page 5-22 for additional information.


Step 6 Click the **Target** tab to continue.


Figure 5-7 Generate SNMP Trap Properties Page—Target Tab



Step 7 On the Target tab, specify whether the process target should be used or overridden with a different target:

Option	Description
Execute on the 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	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. 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. See Managing SNMP Targets, page 2-1 for additional information.
Execute on this target reference	Select this radio button and then click the Reference tool launch the Insert Variable Reference dialog box. On the Insert Variable Reference dialog box, expand Process > Target > Properties , select the appropriate target reference property, and click OK . The selected target reference property displays in the text field.

Option	Description
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>

Step 8 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 7 in Defining the Correlate SNMP Trap Received Activity](#).
- **Knowledge Base**—Choose the appropriate knowledge base article to associate with the process. See [Step 9 in Defining the Correlate SNMP Trap Received Activity](#).
- **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 10 in Defining the Correlate SNMP Trap Received Activity](#).

Defining the Generate SNMP Trap from Task Activity

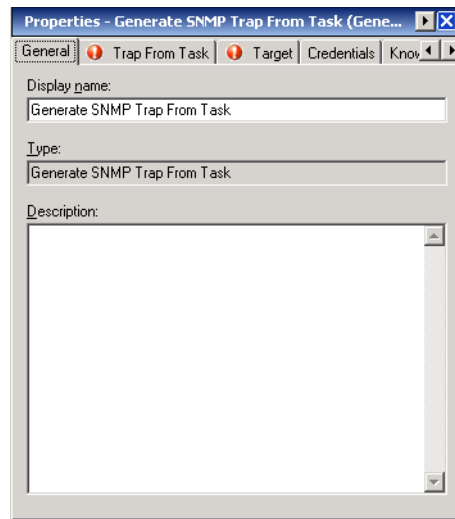
Use the Generate SNMP Trap from Task activity to publish TEO process alerts and incident traps to the specified SNMP Manager target or target group.

To define the Generate SNMP Trap from Task activity:

- Step 1** On the Toolbox pane, under SNMP, select **Generate SNMP Trap from Task** and drag and drop the activity onto the Workflow pane.

The Generate SNMP Trap from Task property page displays.

Figure 5-8 Generate SNMP Trap from Task Properties Page—General Tab



- Step 2** On the General tab, specify the following general information about the activity.

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 **Trap from Task** tab to continue.



Note


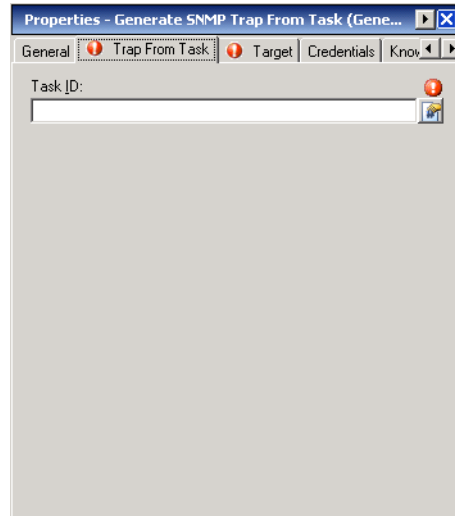

The Required Value  icon displayed on a tab or page indicates that the field is required and is either missing a value or contains an invalid value.

Figure 5-9 *Generate SNMP Trap from Task Properties Page—Generate SNMP Trap from Task Tab*




Note

Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting an Activity Variable Reference](#), page 5-23.

Step 4 On the Trap from Task tab, specify the following information:

Field	Description
Task ID	ID of the alert or incident task to publish Task GUID should contain 32-digits with four dashes placed in the following format: XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX

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 the target on which to monitor for events that will trigger the process. See [Step 7](#) in [Defining the Generate SNMP Trap Activity](#).
- **Credentials**—Specify the runtime user whose credentials should be used to monitor for changes that will trigger the process. See [Step 7](#) in [Defining the Correlate SNMP Trap Received Activity](#).
- **Knowledge Base**—Choose the appropriate knowledge base article to associate with the process. See [Step 9](#) in [Defining the Correlate SNMP Trap Received Activity](#).
- **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 10](#) in [Defining the Correlate SNMP Trap Received Activity](#).

Defining the SNMP Get Request Activity

Use the SNMP Get Request activity to request a set of variable values from SNMP agents. SNMP agents are hardware and/or software processes reporting activity in a network device. Data passes through SNMP agents and the requested information is returned in a MIB.

To define the SNMP Get Request activity:

- Step 1** On the Toolbox pane, under SNMP, select **SNMP Get Request** and drag and drop the activity onto the Workflow pane.

The SNMP Get Request property page displays.

Figure 5-10 *SNMP Get Request Properties Page—General Tab*

- Step 2** On the General tab, specify the following general information about the activity.

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 **Variables** tab to continue.



Note


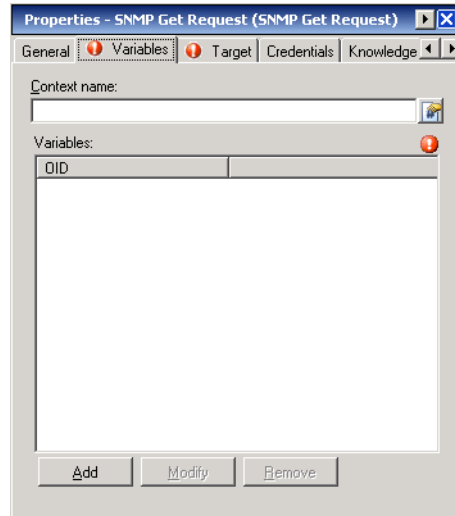

The Required Value  icon displayed on a tab or page indicates that the field is required and is either missing a value or contains an invalid value.

Figure 5-11 *SNMP Get Request Properties Page— Variables Tab*



Note

Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting an Activity Variable Reference](#), page 5-23.

Step 4 On the Variables tab, specify the following information:

Field	Description
Context name	Specify the context name to be used during SNMP V3 operation.


The following columns display the list of variables for the GET request.

Field	Description
OID	Object Identifier of the variable binding

Step 5 To modify the list of variables in the trap, click the following buttons, as necessary:

Field	Description
Add	Launches the Variable dialog box to allow the user to define the variable bindings for the get request. See Adding a Variable to a SNMP Activity , page 5-20 for additional information.

Field	Description
Modify	Modifies the variable binding for the get request
Remove	Removes the variable binding from the list See Deleting a Variable in a SNMP Activity , page 5-22 for additional information.

Step 6 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- **Target**—Specify the target on which to monitor for events that will trigger the process. See [Step 7](#) in [Defining the Generate SNMP Trap Activity](#).
- **Credentials**—Specify the runtime user whose credentials should be used to monitor for changes that will trigger the process. See [Step 7](#) in [Defining the Correlate SNMP Trap Received Activity](#).
- **Knowledge Base**—Choose the appropriate knowledge base article to associate with the process. See [Step 9](#) in [Defining the Correlate SNMP Trap Received Activity](#).
- **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 10](#) in [Defining the Correlate SNMP Trap Received Activity](#).

Defining the SNMP Set Request Activity

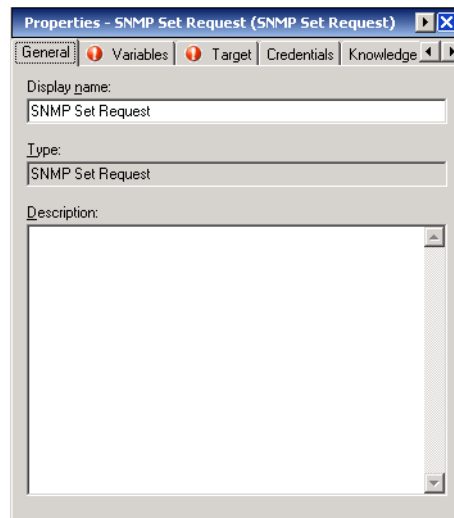
Use the SNMP Set Request activity to update a set of variable values on the SNMP agents. SNMP agents are hardware and/or software processes reporting activity in a network device. The SNMP Set Request activity modifies the variables used to request the information that is returned in a MIB from the SNMP agent.

To define a SNMP Set Request activity:

- Step 1** On the Toolbox pane, under SNMP, select **SNMP Set Request** and drag and drop the activity onto the Workflow pane.

The SNMP Set Request property page displays.

Figure 5-12 *SNMP Set Request Properties Page—General Tab*



- Step 2** On the General tab, specify the following general information about the activity.

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 **Variables** tab to continue.



Note


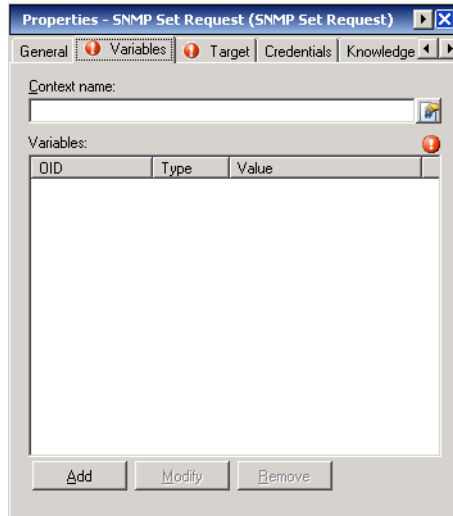

The Required Value  icon displayed on a tab or page indicates that the field is required and is either missing a value or contains an invalid value.

Figure 5-13 *SNMP Set Request Properties Page—Variables Tab*



Note

Click the **Reference**  tool to choose a defined variable or reference an object within the process on the Insert Variable Reference dialog box. For additional information, see [Inserting an Activity Variable Reference](#), page 5-23.

Step 4 On the Variables tab, specify the following information:


Field	Description
Context name	Specify the context name to be used during SNMP V3 operation.

The following columns display the list of variables for the SET request.

Field	Description
OID	Object Identifier of the variable binding
Type	Data type of the variable binding
Value	Value of the variable binding

Step 5 To modify the list of variables in the trap, click the following buttons, as necessary:

Field	Description
Add	Launches the Variable dialog box to allow the user to define the variable bindings for the get request. See Adding a Variable to a SNMP Activity , page 5-20 for additional information.
Modify	Modifies the variable binding for the get request
Remove	Removes the variable binding from the list See Deleting a Variable in a SNMP Activity , page 5-22 for additional information.

Step 6 Complete the appropriate information in the following tabs, as necessary, and then click the **Save**  tool to complete the activity definition.

- **Target**—Specify the target on which to monitor for events that will trigger the process. See [Step 7](#) in [Defining the Generate SNMP Trap Activity](#).
- **Credentials**—Specify the runtime user whose credentials should be used to monitor for changes that will trigger the process. See [Step 7](#) in [Defining the Correlate SNMP Trap Received Activity](#).
- **Knowledge Base**—Choose the appropriate knowledge base article to associate with the process. See [Step 9](#) in [Defining the Correlate SNMP Trap Received Activity](#).
- **Result Handlers**—Click the appropriate buttons to manage the condition branches on the workflow. See [Step 10](#) in [Defining the Correlate SNMP Trap Received Activity](#).

Managing SNMP Activity Definitions

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

- Add variables to a SNMP activity
- Modify trap variables
- Delete the variable

Modifying a SNMP 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 Workflow 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 choose **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.
-

Adding a Variable to a SNMP Activity

Trap variables are a required property for the SNMP Request Set and Generate SNMP Trap activities. The Add button on these activities launches the Variable dialog box for users to specify the variable properties to be added to the list on the specified SNMP activity.

To add a variable:

-
- Step 1** On the SNMP activity property page, click **Add**.
- The Variable dialog box displays.



Note


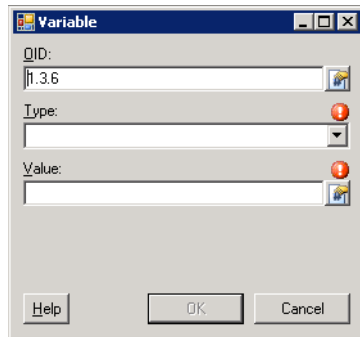
The Required Value  icon displayed on a tab or page indicates that the field is required and is either missing a value or contains an invalid value.

Figure 5-14 Variable Dialog Box**Note**

If the Add button is launched from the SNMP Get Request activity, then the dialog box will only have an OID field.

Step 2 Specify the following information:

Field	Description
OID	Object identifier of the variable (Default is 1.3.6)
Type	<p>Drop-down list of all the SNMP data types that the third-party SNMP library supports</p> <ul style="list-style-type: none"> Integer—Signed integer-valued information in the range of -231 to 231-1. This data type redefines the integer data type, which has arbitrary precision in ASN.1 but bounded precision in the SMI IP Address—Represent addresses from a particular protocol family. SMIPv1 supports only 32-bit (IPv4) addresses (SMIPv2 uses Octet Strings to represent addresses generically, and thus are usable in SMIPv1 too. SMIPv1 had an explicit IPv4 address data type.) OctetString—Ordered sequences of 0 to 65,535 octets OID—Comes from the set of all object identifiers allocated according to the rules specified in ASN.1 TimeTicks—Time since an event, measured in hundredths of a second UInteger—Unsigned integer-valued information, which is useful when values are always non-negative. This data type redefines the integer data type, which has arbitrary precision in ASN.1 but bounded precision in the SMI
Value	Instance value of the variable

Step 3 Click **OK**.

The defined variable is added to the list on the SNMP activity property page.

Modifying a Variable in a SNMP Activity

Use the Variable dialog box to modify the configured variables in the SNMP activity. After the initial creation, not all fields are available for updating.

To modify a variable:

-
- Step 1** On the SNMP activity property page, highlight the appropriate the variable, and click **Modify**.
The Variable dialog box displays.
- Step 2** Modify the information on the variable, as necessary, and click **OK**.
The modified variable displays in the SNMP activity tab.
-


Deleting a Variable in a SNMP Activity

To delete a variable:

On the SNMP activity property page, highlight the appropriate the variable, and click **Remove**.

The selected variable is removed from the list on the SNMP activity property page.

Inserting an Activity Variable Reference

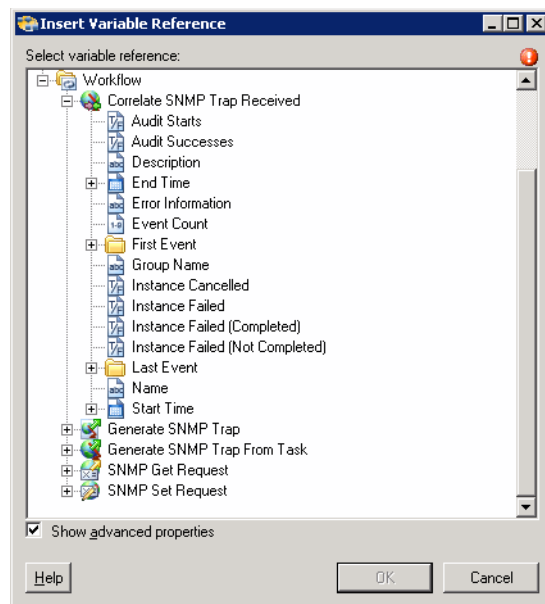
The Reference  icon to the right of a text field indicates that the field can be populated by referencing a defined variable or the property of another activity or process. Use the Insert Variable Reference dialog box to select a defined variable or object to populate a field.

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 5-15 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 objects that are available for referencing.
If the check box is not checked, then only the most commonly-used objects are displayed for activities, processes or events.
- Step 3** Expand the Process or Workflow items to display the reference objects for the activity. The properties that display depend on selected activity.
- Step 4** From the list of displayed objects, select the appropriate property.

Reference Variable	Description
Audit Starts	Date and time the process audit starts
Audit Successes	Indicates the number of successful audits
Created By	User name or the owner of the activity

Reference Variable	Description
Description	Description of the activity
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
Modified By	User name of the individual who modified the activity
Name	Name of the activity that opened the session
Start Time	Date and time the activity was started
Target	Name of the target
Timed Out	Indicates whether the activity timed out
Event Count	Number of traps correlated
First Event	First event of the trap received correlated
Last Event	Last trap received event correlated
Trap OID	Object identifier of the trap
Task ID	ID of the alert or incident task to publish
Variables	Variable assigned to the GET/SET request

Step 5 Click **OK** to add the related text field populates with the selected value.

Viewing Activity Instance Information

This section describes what the user should expect to see after a process with a SNMP 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.

**Note**

To modify the fonts and colors on the Activity View status display, see **Customizing the Fonts and Colors** in 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 the tabs.

The [Activity Name] Properties dialog box displays.

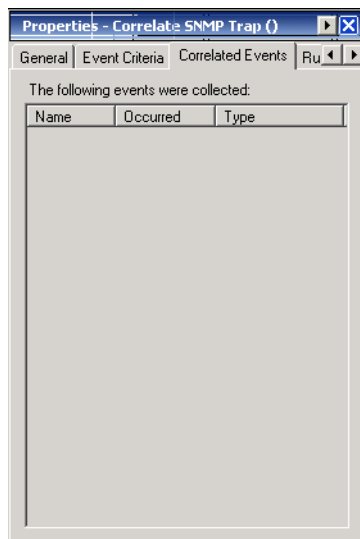
Viewing Correlated SNMP Trap Events

When the Correlate SNMP Trap activity is launched, the events that were found by the activity are displayed from the Operations Workspace activity instance view.

To view the correlated events results:

-
- Step 1** On the Operations workspace, click the Activity Views folder.
- Step 2** Use *one* of the following methods:
- Highlight the **Correlate SNMP Trap** activity instance, right-click and choose **Properties**.
 - or-
 - Double-click the appropriate activity instance.
- The Correlate SNMP Trap dialog box displays.
- Step 3** Click the **Correlated Events** tab to display the events generated by the Correlate SNMP Trap display-only activity properties.

Figure 5-16 Correlate SNMP Trap Instance Properties Page—Correlated Events Tab



The following information is displayed for each event:

Field	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)



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