



## CHAPTER 12

# Managing Global Libraries and Variables

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This chapter provides detailed information about the Global Libraries, variable groups and variables, and how to manage them, and includes the following sections:

- [Understanding Global Libraries and Variables, page 12-1](#)
- [Managing Global Libraries, page 12-2](#)
- [Working With Variables On the Variables Tab, page 12-7](#)
- [Global Libraries and Variable Reference, page 12-9](#)

## Understanding Global Libraries and Variables

This section describes roles and local users in more detail, and includes the following topics:

- [Global Libraries Overview, page 12-1](#)
- [Variables Overview, page 12-1](#)

## Global Libraries Overview

Use the Global Libraries tab to view default variable groups and variables, and to manage user-defined variable groups and variables. The Global Libraries tab contains the following libraries:

- `System_VGT_Library`—View the default variable groups and variables in this library.
- `User_VGT_Library`—Manage variable groups and variables in this library.

## Variables Overview

Variables are representations of values to use in macros within VFrame. For added flexibility, you can define variable and variable groups.

Sometimes you might want to use the same types of variables for several different macros. VFrame allows you to create variables and variable groups, which are basically templates of variables and variable groups that you can use repeatedly.

For example, if you repeatedly use the following three variables:

- IP address
- Subnet mask
- Gateway IP address

You can create three variables and a variable group type to contain them. Later, when you create macros and service network templates that reference these variables, you only need to reference the variable group, and all three variables also will be referenced. If needed, you can modify the variables to meet your specific requirements.

## Managing Global Libraries

This section provides information about how access the Global Libraries from different templates and how to create user-defined variable groups and variables, and includes the following topics:

- [Accessing the Global Libraries, page 12-2](#)
- [Using the User\\_VGT\\_Library, page 12-4](#)

## Accessing the Global Libraries

You can access the global libraries in a number of different ways. The way you access the global libraries depends in part on what type of template you are working on.

This section explains how to access the global libraries when working with various templates, and includes the following topics:

- [Accessing the Global Libraries From a Service Network Template, page 12-2](#)
- [Accessing the Global Libraries From a LOM Managers Template, page 12-3](#)
- [Accessing the Global Libraries From a Storage Managers Template, page 12-3](#)

## Accessing the Global Libraries From a Service Network Template

### Procedure

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- Step 1** Choose **View > Templates**.
- Step 2** Double-click a template.
- Step 3** Do one of the following:
- Click **Properties**, click **Macros & Variables**, then click **Global Libraries**.  
The Global Libraries tab opens.
  - Click a logical element, click **Macros & Variables**, then click **Global Libraries**.  
The Global Libraries tab opens.
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**Related Topics**

- [Global Libraries Tab, page 12-10](#)
- [Accessing the Global Libraries From a LOM Managers Template, page 12-3](#)

## Accessing the Global Libraries From a LOM Managers Template

**Procedure**

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- Step 1** Choose **Tools > LOM Managers**.
- Step 2** Click a template.
- Step 3** Click **Macros & Variables**.
- Step 4** Click **Global Libraries**.
- The Global Libraries tab opens.
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**Related Topics**

- [Global Libraries Tab, page 12-10](#)
- [Accessing the Global Libraries From a Storage Managers Template, page 12-3](#)

## Accessing the Global Libraries From a Storage Managers Template

**Procedure**

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- Step 1** Choose **Tools > Storage Managers**.
- Step 2** Click a template.
- Step 3** Click **Macros & Variables**.
- Step 4** Click **Global Libraries**.
- The Global Libraries tab opens.
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**Related Topics**

- [Global Libraries Tab, page 12-10](#)
- [Accessing the Global Libraries From a Service Network Template, page 12-2](#)

## Using the User\_VGT\_Library

You can create, edit and delete variable groups and variables in the User\_VGT\_Library.

This section helps you work with the User\_VGT\_Library, and includes the following topics:

- [Creating User\\_VGT\\_Library Variable Groups, page 12-4](#)
- [Editing and Deleting User\\_VGT\\_Library Variable Groups, page 12-5](#)
- [Creating User\\_VGT\\_Library Variables, page 12-5](#)
- [Editing and Deleting User\\_VGT\\_Library Variables, page 12-6](#)

## Creating User\_VGT\_Library Variable Groups

### Procedure

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- Step 1** Choose **View > Templates**.
- Step 2** Create a new template or double-click an existing template.
- Step 3** Click **Properties** and then click **Macros & Variables**.
- Step 4** Click **Global Libraries**.  
The Global Libraries tab opens.
- Step 5** Right-click **User\_VGT\_Library** and click **Create Variable Group Type**.  
The Variable Group dialog box appears.
- Step 6** Enter a name and description in the fields and then click **OK**.  
The newly created variable group type appears under User\_VGT\_Library.
- Step 7** Right-click the newly created variable group type and do one of the following:
- To add a previously created variable group type, click **Add Variable Group Type**. The Variable Group Type Selector dialog box opens. Click the appropriate variable group type and then click **OK**. The variable group type and its contents are added to the variable group type you just created. For details, see [Variable Group Type Selector Dialog Box, page 12-13](#).
  - To add a variable type, click **Add Variable Type**, enter the appropriate information in the Variable dialog box and then click **OK**. For details, see [Variable Dialog Box, page 12-15](#).
- Step 8** Click **OK**.
- Step 9** Click **Save**.
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### Related Topics

- [Global Libraries Tab, page 12-10](#)
- [Understanding Global Libraries and Variables, page 12-1](#)

## Editing and Deleting User\_VGT\_Library Variable Groups

### Procedure

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- Step 1** Choose **View > Templates**.
- Step 2** Create a new template or double-click an existing template.
- Step 3** Click **Properties** then click **Macros & Variables**.
- Step 4** Click **Global Libraries**.  
The Global Libraries tab opens.
- Step 5** Navigate to the variable group type to edit or delete.
- Step 6** Right-click the variable group type and do one of the following:
- To edit it, click **Edit Variable Group Type**, change the name and description as desired, and then click **OK**.
  - To delete it, click **Delete Variable Group Type**.
- Step 7** Click **OK**.
- Step 8** Click **Save**.
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### Related Topics

- [Global Libraries Tab, page 12-10](#)
- [Understanding Global Libraries and Variables, page 12-1](#)

## Creating User\_VGT\_Library Variables

### Procedure

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- Step 1** Choose **View > Templates**.
- Step 2** Create a new template or double-click an existing template.
- Step 3** Click **Properties** then click **Macros & Variables**.
- Step 4** Click **Global Libraries**.  
The Global Libraries tab opens.
- Step 5** Navigate to an existing variable group type or create a new one (see [Creating Variable Groups On the Variables Tab, page 12-7](#)).
- Step 6** Right-click the variable group type and click **Add Variable Type**.
- Step 7** Enter the following information in the fields:
- Enter a name and description in the appropriate fields.
  - In the Type field, click the type of variable that you are creating.
  - Click the **Advanced** check box to define any of the following parameters:
    - Shared—Check the **Shared** check box to allow the variable value to be used by child elements, such as servers in a server group.

- **Multivalued**—Check the **Multivalued** check box to specify that the variable contains more than one value. If multivalued is checked, resource pools (not single values) must be assigned as the value. For more information, see [Understanding Global Libraries and Variables, page 12-1](#).

If you check the Multivalued and Assign a Default Value check boxes, you can define multiple default values.

- **Optional**—Check the **Optional** check box to indicate that a value is not required for the variable.
- **Allow Pool Assignment**—Check the **Allow Pool Assignment** check box to allow a resource pool to be assigned to the variable. Left unchecked, only one resource can be assigned to the variable.
- **Restrict Values**—Check the **Restrict Values** check box to enumerate specific values or identify a range of values from which to choose when defining the variable value. (Applies only to Integer or String variable types.)
- **Assign a Default Value**—Check the **Assign a Default Value** check box to show the value as the default value for the variable. When you check this check box, the Assign a Default Value area appears.

**Step 8** Click **OK**.

**Step 9** Click **Save**.

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#### Related Topics

- [Global Libraries Tab, page 12-10](#)
- [Understanding Global Libraries and Variables, page 12-1](#)

## Editing and Deleting User\_VGT\_Library Variables

### Procedure

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**Step 1** Choose **View > Templates**.

**Step 2** Create a new template or double-click an existing template.

**Step 3** Click **Global Libraries**.

The Global Libraries tab opens.

**Step 4** Navigate to the variable type that you want to edit or delete.

**Step 5** Right-click the variable type and do one of the following:

- To edit it, click **Edit Variable Type**, make the desired changes, and click **OK**. For information about the fields in this dialog box, see [Variable Dialog Box, page 12-15](#).
- To delete it, click **Delete Variable Type**.

**Step 6** Click **OK**.

**Step 7** Click **Save**.

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**Related Topics**

- [Global Libraries Tab, page 12-10](#)
- [Understanding Global Libraries and Variables, page 12-1](#)

## Working With Variables On the Variables Tab

This section helps you work with variable and variable groups, and includes the following topics:

- [Creating Variable Groups On the Variables Tab, page 12-7](#)
- [Editing and Deleting Variable Groups On the Variables Tab, page 12-8](#)
- [Creating Variables On the Variables Tab, page 12-8](#)
- [Editing and Deleting Variables On the Variables Tab, page 12-9](#)

## Creating Variable Groups On the Variables Tab

You can create variable group types, which are templates of variable groups that you can use over and over.

**Procedure**

- 
- Step 1** Choose **View > Templates**.
- Step 2** Create a new template or double-click an existing template.
- Step 3** Click **Properties** then click **Macros & Variables**.
- Step 4** Click **Variables**.  
The Variables tab opens.
- Step 5** Right-click a macro container and then click **New** or click the variable group then click **New**.  
The Variable Group dialog box appears.
- Step 6** Use the Variable Group dialog box to create a variable group. See [Creating User\\_VGT\\_Library Variable Groups, page 12-4](#).
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**Related Topics**

- [Understanding Global Libraries and Variables, page 12-1](#)
- [Variables, page 11-12](#)
- [Global Libraries Tab, page 12-10](#)

## Editing and Deleting Variable Groups On the Variables Tab

You can edit variable group types, or delete them if they are no longer necessary.

### Procedure

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- Step 1** Choose **View > Templates**.
- Step 2** Create a new template or double-click an existing template.
- Step 3** Click **Properties** and then click **Macros & Variables**.
- Step 4** Click **Variables**.  
The Variables tab opens.
- Step 5** Do one of the following:
- Right-click a variable group and click **Edit** or click the variable group then click **Edit**. The Variable Group dialog box appears. Edit the variable group using the Variable Group dialog box and then click **OK**.
  - Right-click a variable group and then click **Delete** or click the variable group and then click **Delete**. The variable group is deleted.
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### Related Topics

- [Understanding Global Libraries and Variables, page 12-1](#)
- [Variables, page 11-12](#)
- [Global Libraries Tab, page 12-10](#)

## Creating Variables On the Variables Tab

You can create variable types, which are templates of variables that you can use repeatedly.

### Procedure

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- Step 1** Choose **View > Templates**.
- Step 2** Create a new template or double-click an existing template.
- Step 3** Click **Properties** then click **Macros & Variables**.
- Step 4** Click **Variables**.  
The Variables tab opens.
- Step 5** Right-click a macro container and then click **New** or click the variable group and then click **New**.  
The Variable Group dialog box appears.
- Step 6** Use the Variable Group dialog box to create a variable group. See [Creating User\\_VGT\\_Library Variable Groups, page 12-4](#).
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**Related Topics**

- [Understanding Global Libraries and Variables, page 12-1](#)
- [Variables, page 11-12](#)
- [Global Libraries Tab, page 12-10](#)

## Editing and Deleting Variables On the Variables Tab

You can edit variable types, or delete them if they are no longer necessary.

**Procedure**

- 
- Step 1** Choose **View > Templates**.
- Step 2** Create a new template or double-click an existing template.
- Step 3** Click **Properties** then click **Macros & Variables**.
- Step 4** Click **Variables**.
- The Variables tab opens.
- Step 5** Do one of the following:
- Right-click a variable and then click **Edit** or click the variable and then click **Edit**. The Variable Group dialog box appears. Edit the variable group using the Variable Group dialog box and then click **OK**.
  - Right-click a variable and then click **Delete** or click the variable and then click **Delete**. The variable group is deleted.
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**Related Topics**

- [Understanding Global Libraries and Variables, page 12-1](#)
- [Variables, page 11-12](#)
- [Global Libraries Tab, page 12-10](#)

## Global Libraries and Variable Reference

This section describes the tabs and dialog boxes you use when managing global libraries, and includes the following topics:

- [Global Libraries Tab, page 12-10](#)
- [Variables Tab, page 12-12](#)
- [Variable Group Dialog Box, page 12-13](#)
- [Variable Group Type Selector Dialog Box, page 12-13](#)
- [Variable Dialog Box, page 12-15](#)

## Global Libraries Tab

Use the Global Libraries tab to display information about default variable groups and default variables. You can also create, edit, and delete user-defined variable types and variable group types.

### How to Get to This Tab

See [Accessing the Global Libraries, page 12-2](#), for information about how to access this tab.

### Related Topics

- [Understanding Global Libraries and Variables, page 12-1](#)
- [Working With Variables On the Variables Tab, page 12-7](#)

### Field Reference

**Table 12-1** Global Libraries Tab

Element	Description
Actions button	<p>Click an item and then click <b>Actions</b> to open a context-sensitive drop-down menu of actions that you can perform.</p> <p><b>Note</b> The Actions button is used with the User_VGT_Library. You cannot make changes to the System_VGT_Library.</p> <p>When you choose the library, the following options appear on the drop-down menu:</p> <ul style="list-style-type: none"> <li>• Create Variable Group Type—Click <b>Create Variable Group Type</b> to create a variable group.</li> </ul> <p>When you choose a group, the following options appear on the drop-down menu:</p> <ul style="list-style-type: none"> <li>• Add Variable Group Type—Click <b>Add Variable Group Type</b> to add a variable group.</li> <li>• Edit Variable Group Type—Click <b>Edit Variable Group Type</b> to edit a variable group.</li> <li>• Delete Variable Group Type—Click <b>Delete Variable Group Type</b> to delete a variable group.</li> <li>• Add Variable Type—Click <b>Add Variable Type</b> to add a variable.</li> </ul>
Save button	Click <b>Save</b> to save the changes you made to the library.
Move up button	Click the move up button to move a variable up one position.
Move down button	Click the move down button to move a variable down one position.

**Table 12-1 Global Libraries Tab (continued)**

Element	Description
Name	<p>The names of variable group types and variable types. Variable group types are divided into two libraries:</p> <ul style="list-style-type: none"> <li>• User_VTG_Library—User-definable variable group types and variable types.</li> <li>• System_VTG_Library—Predefined variable group types and variable types.</li> </ul> <p>In these libraries, variable group types and variable types are displayed as a hierarchical tree to show relationships between items. Items in the tree are identified by icons.</p>
Description	The word or phrase describing the variable or variable group type.
Type	<p>Following are the variable types in the global libraries:</p> <ul style="list-style-type: none"> <li>• Boolean—True or False.</li> <li>• Date—Date in the format YY-MM-DD.</li> <li>• Double—Double precision number, which can be defined as an integer, fixed-point number, or floating-point number.</li> <li>• Float—Floating point number.</li> <li>• IPAddrResourceType—IP address.</li> <li>• Integer—Integer. You can define variable value restrictions that define minimum and maximum values or enumerate specific values.</li> <li>• Long—Long integer.</li> <li>• String—Sequence of simple objects. You can define variable value restrictions that define regular expressions or the enumerated values.</li> <li>• Vlan—Name or number of VLANs discovered or created by VFrame.</li> <li>• SGDefGatewayStr—IP address for the default gateway.</li> <li>• GatewayMetric—Metric for the default gateway.</li> <li>• DiscoveredVLAN—Add or remove VLANs dynamically in service network operations.</li> <li>• ESXCluster—Add to the ESX cluster.</li> <li>• StringPrefix—Host name of the logical server.</li> </ul>
IsShared	Indicates whether the variable value can be used by child elements, if any exist, such as servers in a server group. True means the variable can be shared, and False means the variable cannot be shared.
Multivalued	Indicates whether the variable is set to multivalued. True means the variable is set to multivalued, and False means it is not set to multivalued.
Optional	Indicates that a value is not required for the variable.
Default Value	Indicates that the value for the variable is the default value.
Restricted Value	Indicates that the value for the variable is the restricted value.

## Variables Tab

Use the Variables tab to display information about system variable group types. You can also create, edit, and delete user-defined variable types and variable group types

**Table 12-2** Variables Tab

Element	Description
Name	<p>The names of variable group types and variable types. Variable group types are divided into two libraries:</p> <ul style="list-style-type: none"> <li>User_VTG_Library—User-definable variable group types and variable types.</li> <li>System_VTG_Library—Predefined variable group types and variable types.</li> </ul> <p>In these libraries, variable group types and variable types are displayed as a hierarchical tree to show relationships between items. Items in the tree are identified by icons.</p>
Description	The word or phrase describing the variable or variable group type.
Type	<p>Following are the types of variables in the global libraries:</p> <ul style="list-style-type: none"> <li>Boolean—True or False.</li> <li>Date—Date in the format YY-MM-DD.</li> <li>Double—Double precision number, which can be defined as an integer, fixed-point number, or floating-point number.</li> <li>Float—Floating point number.</li> <li>IPAddrResourceType—IP address.</li> <li>Integer—Integer. You can define variable value restrictions that define minimum and maximum values or enumerate specific values.</li> <li>Long—Long integer.</li> <li>String—Sequence of simple objects. You can define variable value restrictions that define regular expressions or the enumerated values.</li> <li>Vlan—Name or number of VLANs discovered or created by VFrame.</li> <li>SGDefGatewayStr—IP address for the default gateway.</li> <li>GatewayMetric—Metric for the default gateway.</li> <li>DiscoveredVLAN—Add or remove VLANs dynamically in service network operations.</li> <li>ESXCluster—Add to the ESX cluster.</li> <li>StringPrefix—Host name of the logical server.</li> </ul>
IsShared	Indicates whether the variable value can be used by child elements, if any exist, such as servers in a server group. True means the variable can be shared, and False means the variable cannot be shared.
Multivalued	Indicates whether the variable is set to multivalued. True means the variable is set to multivalued, and False means it is not set to multivalued.
Optional	Indicates that a value is not required for the variable.

**Table 12-2** *Variables Tab (continued)*

Element	Description
Default Value	Indicates that the value for the variable is the default value.
Restricted Value	Indicates that the value for the variable is the restricted value.
Move up button	Click this button to move a variable up one position.
Move down button	Click this button to move a variable down one position.
New button	Click this button to create a new variable group or variable.
Edit button	Click this button to edit a variable group or variable.
Delete button	Click this button to delete a variable group or variable.

## Variable Group Dialog Box

Use the Variable Group dialog box to create variable groups or variable group types.

### How to Get to This Dialog Box

Click the library name, click **Action**, and then click **Create Variable Group Type**.

### Related Topics

- [Variables, page 11-12](#)
- [Understanding Global Libraries and Variables, page 12-1](#)

### Field Reference

**Table 12-3** *Variable Group Dialog Box*

Element	Description
Group Name	The name of the variable group.
Description	The word or phrase that describes the variable group.

## Variable Group Type Selector Dialog Box

Use the Variable Group Type Selector dialog box to add existing variable group types to the selected variable group.

### How to Get to This Dialog Box

Click a variable group, click **Action**, and then click **Add Variable Group Type**.

### Related Topics

- [Understanding Global Libraries and Variables, page 12-1](#)
- [Variable Group Dialog Box, page 12-13](#)

## Field Reference

Table 12-4 Variable Group Type Selector Dialog Box

Element	Description
Name	<p>The names of variable group types and variable types. Variable group types are divided into two libraries:</p> <ul style="list-style-type: none"> <li>User_VTG_Library—User-definable variable group types and variable types.</li> <li>System_VTG_Library—Predefined variable group types and variable types.</li> </ul> <p>In these libraries, variable group types and variable types are displayed as a hierarchical tree to show relationships between items. Items in the tree are identified by icons.</p>
Description	The word or phrase describing the variable or variable group type.
Type	<p>Following are the types of variables in the global libraries:</p> <ul style="list-style-type: none"> <li>Boolean—True or False.</li> <li>Date—Date in the format YY-MM-DD.</li> <li>Double—Double precision number, which can be defined as an integer, fixed-point number, or floating-point number.</li> <li>Float—Floating point number.</li> <li>IPAddrResourceType—IP address.</li> <li>Integer—Integer. You can define variable value restrictions that define minimum and maximum values or enumerate specific values.</li> <li>Long—Long integer.</li> <li>String—Sequence of simple objects. You can define variable value restrictions that define regular expressions or the enumerated values.</li> <li>Vlan—Name or number of VLANs discovered or created by VFrame.</li> <li>SGDefGatewayStr—IP address for the default gateway.</li> <li>GatewayMetric—Metric for the default gateway.</li> <li>DiscoveredVLAN—Add or remove VLANs dynamically in service network operations.</li> <li>ESXCluster—Add to the ESX cluster.</li> <li>StringPrefix—Host name of the logical server.</li> </ul>
IsShared	Indicates whether the variable value can be used by child elements, if any exist, such as servers in a server group. True means the variable can be shared, and False means the variable cannot be shared.
Multivalued	Indicates whether the variable is set to multivalued. True means the variable is set to multivalued, and False means it is not set to multivalued.
Optional	Indicates that a value is not required for the variable.
Default Value	Indicates that the value for the variable is the default value.
Restricted Value	Indicates that the value for the variable is the restricted value.

## Variable Dialog Box

Use the Variable dialog box to create variable types.

### How to Get to This Dialog Box

Click a variable group, click **Action**, and then click **Add Variable Type**.

### Related Topics

- [Variables, page 11-12](#)
- [Understanding Global Libraries and Variables, page 12-1](#)

### Field Reference

**Table 12-5** Variable Dialog Box

Element	Description
Variable Name	The name of the variable.
Description	The word or phrase that describes the variable.
Type	<p>Following are the types of variables in the global libraries:</p> <ul style="list-style-type: none"> <li>• Boolean—True or False.</li> <li>• Date—Date in the format YY-MM-DD.</li> <li>• Double—Double precision number, which can be defined as an integer, fixed-point number, or floating-point number.</li> <li>• Float—Floating point number.</li> <li>• IPAddrResourceType—IP address.</li> <li>• Integer—Integer. You can define variable value restrictions that define minimum and maximum values or enumerate specific values.</li> <li>• Long—Long integer.</li> <li>• String—Sequence of simple objects. You can define variable value restrictions that define regular expressions or the enumerated values.</li> <li>• Vlan—Name or number of VLANs discovered or created by VFrame.</li> <li>• SGDefGatewayStr—IP address for the default gateway.</li> <li>• GatewayMetric—Metric for the default gateway.</li> <li>• DiscoveredVLAN—Add or remove VLANs dynamically in service network operations.</li> <li>• ESXCluster—Add to the ESX cluster.</li> <li>• StringPrefix—Host name of the logical server.</li> </ul>

Table 12-5 Variable Dialog Box (continued)

Element	Description
Show advanced settings	<p>Click this button to show advanced settings. Applicable settings are activated based on the type of variable you are creating. You can choose multiple settings for a variable. These settings affect what you or another user is allowed to enter when defining values for the variables.</p> <ul style="list-style-type: none"> <li>• <b>Shared</b>—Check the <b>Shared</b> check box to allow the variable value to be used by child elements, such as servers in a server group.</li> <li>• <b>Multivalued</b>—Check the <b>Multivalued</b> check box to specify that the variable contains more than one value. If multivalue is selected, resource pools (not single values) must be assigned as the value. For more information, see <a href="#">Understanding Global Libraries and Variables, page 12-1</a>.</li> </ul> <p>If you check the Multivalued and Assign default value check boxes, you can assign multiple default values.</p> <ul style="list-style-type: none"> <li>• <b>Optional</b>—Check the <b>Optional</b> check box to indicate that a value is not required for the variable.</li> <li>• <b>Allow Pool Assignment</b>—Check the <b>Allow Pool Assignment</b> check box to allow a resource pool to be assigned to the variable. Left unchecked, only one resource can be assigned to the variable.</li> <li>• <b>Restrict Values</b>—Check the <b>Restrict Values</b> check box to enumerate specific values or to identify a range of values from which to choose when defining the variable value. (Applies only to Integer or String variable types.)</li> <li>• <b>Assign a Default Value</b>—Check the <b>Assign a Default Value</b> check box to enter a default value for the variable.</li> <li>• <b>Value</b>—Click either <b>True</b> or <b>False</b>. The Value scroll list appears when you check the Assign a Default Value check box.</li> </ul>