



## CHAPTER 23

# Adding External Launch Points

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This chapter describes how to add launch points from Prime Network to external applications.

Topics include:

- [About Adding External Launch Points, page 23-1](#)
- [Adding an External Launch Point, page 23-2](#)
- [Accessing the External Launch Point in Prime Network, page 23-7](#)
- [Deleting an External Launch Point, page 23-8](#)

## About Adding External Launch Points

If you have Configurator or higher privileges, Prime Network allows you to add launch points in Prime Network Vision or Prime Network Events to launch an external application, command, or URL. You can add launch points to any IMO, including network elements, links, tickets, and events. These launch points appear as additional right-click menu options. When the launch point is clicked, it invokes a script or batch file that you write to define the application or command to be launched, or accesses a specified URL.

When you add a launch point, the site.xml file is updated on the Prime Network gateway. The new launch point (right-click menu option) will appear in all Prime Network clients that connect to the gateway.

The scripts or batch files used in the external launch point definition can be copied to one of the following locations:

- The Prime Network client machine—In this case, the launch point will only be functional on that client.
- The Prime Network gateway, under the Main/webstart/scripts directory—In this case, the scripts will be downloaded automatically to all clients associated with the gateway, upon next login. The launch points will be functional from all these clients. Please follow the instructions in [Enabling Automatic Download of Scripts to Clients, page 23-7](#), to enable the automatic download of the scripts to the clients.
- A shared location (like Cisco's babab).

# Adding an External Launch Point

Adding an external launch point involves the following steps:

1. [Identifying the IMO Context and Properties, page 23-2](#)
2. [Creating BQL Scripts, page 23-3](#)
3. [Running BQL Scripts, page 23-7](#)
4. [Enabling Automatic Download of Scripts to Clients, page 23-7](#)



## Note

You should maintain a list of all the IMO contexts where launch points have been added, as there is no way to get such a list from the system. This will enable you to update or delete external launch points at a later stage.

## Identifying the IMO Context and Properties

To identify the IMO context and properties:

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- Step 1** Select a network element from the Tree pane.
  - Step 2** Press **F2**. The All Properties viewer appears in a separate window.
  - Step 3** Make a note of the IMO type. If you are in the Map pane, you should make a note of the IMO type that is part of ContainedIMO and not part of IHierarchyNode; for example, IPortConnector or IManagedElement.

Example 1: Identifying IManagedElement in the Tree pane:

```
com.sheer.imo.IManagedElement
{ [ManagedElement (Key=ana7609-1)] }
```

Example 2: Identifying IPortConnector in the Tree pane:

```
com.sheer.imo.IPortConnector
{ [ManagedElement (Key=ana7609-1)] [PhysicalRoot] [Chassis] [Slot (SlotNum=5)] [Module] [Port (Port
Number=GigabitEthernet5/1 - Missing Pluggable Port)] }
```

Example 3: Identifying IManagedElement in the Map pane:

```
{ [HierarchyNode (Id=1001)] [ContainedImo]
  key=Imo, value=com.sheer.imo.IManagedElement
    { [ManagedElement (Key=ana7609-1)] }
```

- Step 4** Make a note of the property key name; for example, in IManagedElement write down IP; in IPortConnector write down PortAlias.

Example 1: IManagedElement

```
key=DeviceName, value=ana7609-1
key=IP, value=172.20.68.72
```

Example 2: IPortConnector

```
key=Location, value=5.GigabitEthernet5/1 - Missing Pluggable Port
key=PortAlias, value=GigabitEthernet5/1 - Missing Pluggable Port
```

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## Creating BQL Scripts

Read *Cisco Prime Network 3.8 Integration Developer Guide* for an understanding of Broadband Query Language (BQL), and as a prerequisite to understanding this section.

Table 23-1 describes the format and syntax that you must follow when writing the BQL `set` command to launch an external application:

**Table 23-1** BQL Command Format and Syntax

Property	Type	Value	Description
<b>management.IExternalLaunch</b>			
ID	OID	<p>Examples:</p> <p>For network elements:</p> <pre>{[ExternalLaunch(ContextImoType=com.s heer.imo.IManagedElement)(Name=exampl e1)]}</pre> <p>For tickets:</p> <pre>{[ExternalLaunch(ContextImoType=com.s heer.imo.newalarm.ITicket)(Name=examp le36)]}</pre>	<p>The OID contains the context and unique name of the external launch point.</p> <p>It defines the IMO type on which the external launch point is defined, for example:</p> <ul style="list-style-type: none"> <li>• IManagedElement—Network elements.</li> <li>• IEvent (or any other sub-type, like ISyslogAlarm)—Events and their sub-types.</li> <li>• ITicket—Tickets.</li> <li>• ITopologicalLink—Links.</li> </ul>
Filter tags	String	<p>Example:</p> <p>To filter by vendor name:</p> <pre>&lt;Vendor type="String"&gt;Cisco&lt;/Vendor&gt;</pre> <p>To filter by latest state:</p> <pre>&lt;LatestState type="String"&gt;Down&lt;/LatestState&gt;</pre>	<p>Filter tags allow you to set filters for the external launch commands. The following filter tags are supported for the supported IMOs.</p> <ul style="list-style-type: none"> <li>• IManagedElement—ElementType, Vendor</li> <li>• IEvent (or sub-type)—Description, State</li> <li>• ITicket—LatestState</li> <li>• ITopologicalLink—LinkType.</li> </ul>

Table 23-1 BQL Command Format and Syntax (continued)


Property	Type	Value	Description
ExternalBatchToExecute	String	<p>Examples:</p> <ul style="list-style-type: none"> <li>Specifying a batch file located on the client machine:  <pre>&lt;ExternalBatchToExecute type="String"&gt;C:\runthis.bat&lt;/ExternalBatchToExecute&gt;</pre> </li> <li>Specifying a batch file located on the gateway machine:  <pre>&lt;ExternalBatchToExecute type="String"&gt;foldername/runthis.bat&lt;/ExternalBatchToExecute&gt;</pre> </li> <li>Specifying a URL:  <pre>&lt;ExternalBatchToExecute type="String"&gt;http://www.cisco.com&lt;/ExternalBatchToExecute&gt;</pre> </li> <li>Passing an environment variable:  <pre>&lt;ExternalBatchToExecute type="String"&gt;%java_home%\bin\javadoc&lt;/ExternalBatchToExecute&gt;</pre> </li> </ul>	<p>Defines the details of the executable steps or batch file to be invoked. You:</p> <ul style="list-style-type: none"> <li>Must specify the parameters as an array when using a script.</li> <li>Cannot pass any parameters in the URL. You must use batch files or LineToExecute to pass the parameters.</li> <li>Can include more commands as part of a batch file.</li> <li>Can include an environment variable when invoking the batch file.</li> </ul> <p>To define a string that represents the URL or script which is executed along with its parameters, use the LineToExecute property.</p>
LineToExecute	String	<p>Example:</p> <p>Launching a URL with the Gateway IP, network element IP, and logged-in user name parameters, using / as delimiter:</p> <pre>&lt;LineToExecute type="String"&gt;http://url.example.com/\$GW\$/\$com.sheer.imo.IManagedElement.IP/\$USERNAME\$&lt;/LineToExecute&gt;</pre>	<p>Defines a string that represents the URL or script which is executed along with its parameters.</p> <p>The syntax includes:</p> <ul style="list-style-type: none"> <li>\$—Used when you specify an IMO property definition.</li> <li>~—Used when you specify a Soft Property definition.</li> <li>\$number\$—The parameter whose index is a number.</li> <li>\$USERNAME\$—The logged-in username.</li> <li>\$GW\$ —The Prime Network gateway IP address.</li> </ul> <p> <b>Note</b> The &amp; character should be written as &amp;amp; when used inside a BQL command.</p>

Table 23-1 BQL Command Format and Syntax (continued)


Property	Type	Value	Description
MenuCaption	String	Example: <pre>&lt;MenuCaption type="String"&gt;ping&lt;/MenuCaption&gt;</pre>	The wording of the right-click menu option to be used for the external launch.  <b>Note</b> Unless you want to create a mnemonic, do not use an underscore (_) character at the beginning of the string. For example, if <code>_Scripts</code> is specified as the menu caption, the result will be having the menu caption as <code>Scripts</code> , where <code>s</code> is the mnemonic.
MenuPath	String	Example: <pre>&lt;MenuPath type="String"&gt;external launch demo&lt;/MenuPath&gt;</pre>	The menu path to be followed to get to the external launch point. You can have a sub-menu separated by a forward slash (/).
Parameters	IMObjects _Array	<pre>&lt;Parameters type="IMObjects_Array"&gt;</pre>	All external launch parameters must be passed in an array. See <a href="#">management.IExternalLaunchParameter, page 23-5</a> .
Role	String	Example: <pre>&lt;Role type="string"&gt;CONFIGURATOR&lt;/Role&gt;</pre>	Defines the minimum user role required to use the launch point—administrator, configurator, and so on. If this is not defined, all users will have access to the launch point.
Selection Limit	Int	Example: <pre>&lt;SelectionLimit type="int"&gt;2&lt;/SelectionLimit&gt;</pre>	Defines the number of items that must be selected for the launch point to be displayed. For example, if the selection limit is 2, the right-click menu option will not appear if only 1 item is selected, or if 3 items are selected. It will only appear if 2 items are selected.
<b>management.IExternalLaunchParameter</b>			
ID	OID	{[ExternalLaunchParameter(Index=1)]}	Index value defines the order in which the parameters will be passed to the script.
IMOType	String	Example 1: <pre>&lt;IMOType type="String"&gt;com.sheer.imo.IPortConnecto r&lt;/IMOType&gt;</pre> Example 2: <pre>&lt;IMOType type="String"&gt;com.sheer.imo.newalarm.ITic ket&lt;/IMOType&gt;</pre>	Defines the IMO context type. You can also leave this field empty. You can pass the parameter not only from the IMO and its parent on which you set the menu but also from the IMO tree up to <code>IManagedElement</code> . It can be the parent or the higher level IMO depending on the IMO that you have selected for your menu.

Table 23-1 BQL Command Format and Syntax (continued)

Property	Type	Value	Description
PropertyName	String	<p>Example 1:</p> <pre>&lt;PropertyName type="String"&gt;PortAlias&lt;/PropertyName&gt;</pre> <p>Example 2:</p> <pre>&lt;PropertyName type="String"&gt;LatestState&lt;/PropertyName&gt;</pre> <p>Example 3 (retrieving properties of a contained IMO):</p> <pre>&lt;PropertyName type="String"&gt;ObjectId.Key&lt;/PropertyName&gt;</pre> <p>Example 4 (using a business tag key as a parameter):</p> <pre>&lt;PropertyName type="String" "&gt;@IBusinessObject.EKey&lt;/Property Name&gt;</pre>	<p>Defines the IMO key name within the IMO context type. This value is used by the script while invoking the application.</p> <p>You can also have any constant value.</p> <p>If the property name includes another IMO, you can retrieve the properties of this IMO.</p> <p>For details about adding Soft Property parameters, see <a href="#">Defining Soft Property Parameters</a>.</p>
RunSingleCommand	Boolean	<p>Example:</p> <pre>&lt;RunSingleCommand type="boolean"&gt;&gt;true&lt;/RunSingleCommand&gt;</pre> <p>The script will be called once, with the required properties of all selected IMOs passed at the same time.</p>	<p>If the value is set to true, a single script will be run for all the selected objects. If set to false, a script will be run for each of the selected objects.</p>
ReplaceNullWith	String	<p>Example:</p> <pre>&lt;ReplaceNullWith type="String"&gt;N/A&lt;/ReplaceNullWith&gt;</pre>	<p>If you want a null value not to be ignored or replaced with an empty string, you can use the ReplaceNullWith string. This is optional.</p> <p>In the example, the null value will be replaced by N/A. See <a href="#">Defining Soft Property Parameters</a> for more information on the usage of this property.</p>

## Defining Soft Property Parameters

You can use a soft property as a parameter in an external launch BQL command.

To define a soft property parameter you need to write the soft property name (not the label) in the PropertyName entry, and add the following entry to the parameter definition:

```
<SoftProperty type="boolean">true</SoftProperty>
```

If you do not add this entry, by default the value is assumed to be false.

Parameters that have the value true for the soft property entry are not validated in the definition of the command. This is because there is no means to discover whether the IMO on which the command is run has the soft property defined on it.

The launch point will be visible even if the IMO does not have the soft property defined on it. When a soft property is not defined, an appropriate message is displayed after the command is run.

**Note**

If you create an ExternalBatchtoExecute-based external launch command that includes a soft property and the specified soft property does not exist on the IMO, the output will have an empty string (" "). This is to ensure that any logic built in to the script which depends on the parameter order, functions as desired. You may use the ReplaceNullWith external launch command parameter if you want to get a different string for the null value.

## Running BQL Scripts

See the [Cisco Prime Network 3.8 Integration Developer Guide](#) to understand how to run a BQL script. This guide is located in the Prime Network Technology Center on the Cisco Developer Network (CDN), under the Integration tab.

## Enabling Automatic Download of Scripts to Clients

In Prime Network 3.8, you have the option to have the scripts downloaded automatically to all clients associated with the gateway, upon next login.

To enable automatic download of scripts to clients:

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- Step 1** Create a directory for your scripts under the Main/webstart/scripts directory on the Prime Network gateway.
  - Step 2** Run [~/Main/scripts]% updateXLaunchScripts.pl on the gateway to update the auto-deployable scripts jar.
- The next time a client connects to the gateway, the scripts will be downloaded and extracted by the client application.
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## Accessing the External Launch Point in Prime Network

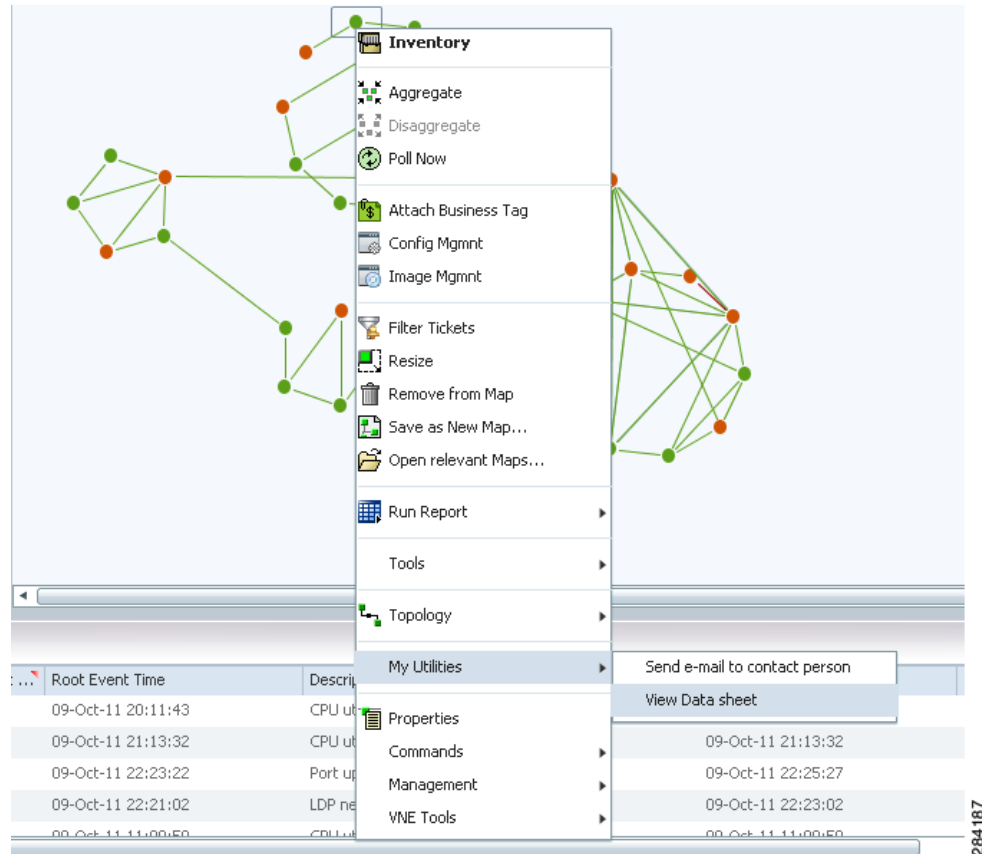
To launch an external application:

- 
- Step 1** Log into Prime Network Vision.
  - Step 2** Navigate to the IMO context(s) where you added the external launch point.

**Step 3** Right-click and navigate to the menu item you created.

Figure 23-1 illustrates an external launch point named `ping`.

**Figure 23-1 External Launch Point Example**



## Deleting an External Launch Point

You can delete an external application launch point using the BQL **Delete** command.



### Note

See the [Cisco Prime Network 3.8 Integration Developer Guide](#) for an understanding of BQL, and as a prerequisite to understanding this section.



To delete the launch point:

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**Step 1** Create a BQL script with the **Delete** command as shown below:

```
<?xml version="1.0" encoding="UTF-8"?>
<command name="Delete">
  <param name="oid">
    <value>
      <management.IExternalLaunch>
        <ID type="Oid">{[ExternalLaunch(ContextImoType=com.sheer.imo.IPortConnector
) (Name=example4)]}</ID>
      </management.IExternalLaunch>
    </value>
  </param>
</command>
```

**Step 2** Run the BQL script.

**Step 3** Launch Prime Network Vision to verify that the launch point has been removed.

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