



## CHAPTER 4

# Configuring the Remote Cable MSO Links Solution

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Revised: November 8, 2010, OL-21073-02

## Introduction

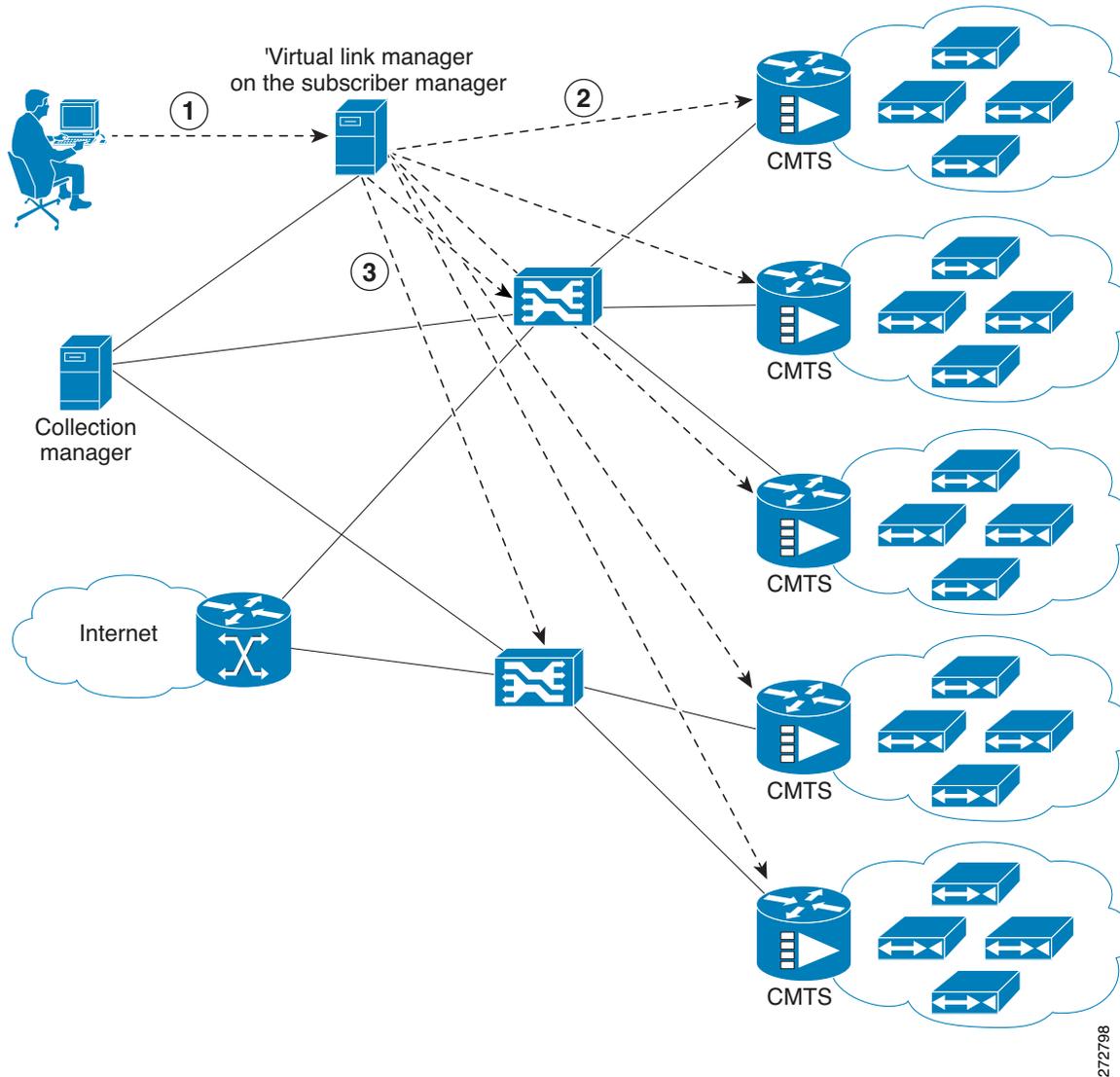
This chapter describes:

- Basic topology for managing remote cable MSO links and the high-level steps to configure the solution—[Solution Topology, page 4-2](#)
- Prerequisites for configuring a solution that uses traffic optimization on remote links with the Virtual Links Manager (VLM)—[Prerequisites, page 4-3](#)
- Configuring the VLM using the configuration files contained in the subscriber manager installation—[Configuring the Solution, page 4-4](#)

# Solution Topology

Figure 4-1 shows a system that can be configured for managing remote cable MSO links.

Figure 4-1 Traffic Optimization on Remote Links Topology



## Note

Using a collection manager (CM) is optional and is not required for the solution to work. However, if you do not use a collection manager, the reports provided by the Service Control Application Reporter (SCA Reporter) can be selected only by the virtual link index and not by the virtual link name.

To work with the collection manager, you must associate the collection manager with the SCE and also with the subscriber manager. However, it is not mandatory to associate the collection manager with the subscriber manager. In this case, the collection manager receives the Raw Data Records (RDRs) but does not automatically receive the index to the vlink name mappings.

The operator configures the IP addresses of the CMTS devices, the SCEs, the CM, and their interrelations on the SM (1). The SM queries each CMTS device through SNMP to determine its sysname, interfaces and their corresponding interface speeds (2). The SM provisions the SCE virtual links (3).

## CMTS Device Compatibility

This traffic optimization on remote links solution currently supports the following Cisco CMTS Universal Broadband Router (uBR) devices:

- uBR10K
- uBR7246

To use other CMTS devices, you must ensure the following conditions are met:

- Upstream and downstream interface IDs are encoded as part of option 82, sub option 1 (the circuit ID) and appears in the DHCPACK message.
- CM-MAC, which is used as the Subscriber-ID, is encoded as option 82, suboption 2 (the remote ID) and appears in the DHCPACK message.
- DHCP traffic flows through the SCE.

The traffic optimization on remote links solution uses the following MIBs and RFCs:

- [RFC 1213 MIB-2 interface](#)—Following nodes are required: ipAddrTable, ipAddrEntry, ipAdEntAddr, ifTable, ifEntry, ifIndex, ifDescr, ifType, ifSpeed, and ifAdminStatus.
- [IANAifType MIB](#)

The DOCSIS 3.0 support for remote links solution uses the following MIBs:

- ccwbWBtoNBMappingTable
- ccwbRFChannelModulation
- ccwbRFChannelWidth

## Prerequisites

Before you set up the managing remote cable MSO links solution, you must complete the following:

- Install Release 3.6.5 onto the Subscriber Manager, Collection Manager (optional), and Service Control Engines (SCE).
- Install the Cisco Service Control Application for Broadband (SCA BB) (the Engage pqi file) on the SCEs used in the solution. See the “How to Install PQI Files on SCE Devices” section in “Using the Network Navigator” chapter, of *Cisco Service Control Application for Broadband User Guide*.

# Configuring the Solution

The procedures in this section describe how to configure the solution.

## Configuring Virtual Links Global Controllers

- Step 1** Start the SCA BB console by choosing **Start > All Programs > Cisco SCA > SCA BB Console 3.6.5 > SCA BB Console 3.6.5**.

The Cisco Service Control SCA BB Console splash screen appears. After the Console loads, the main window of the Console appears. The first time that you launch the Console, the Welcome view is open in the main window.

- Step 2** To close the Welcome view, click **Go to the console**. The Welcome view closes. The Network Navigator tool is open in the Console.

- Step 3** From the Console main menu, choose **Tools > Service Configuration Editor**.

If no service configurations are open when you open the Service Configuration Editor tool, a No Service Configuration Is Open dialog box appears:

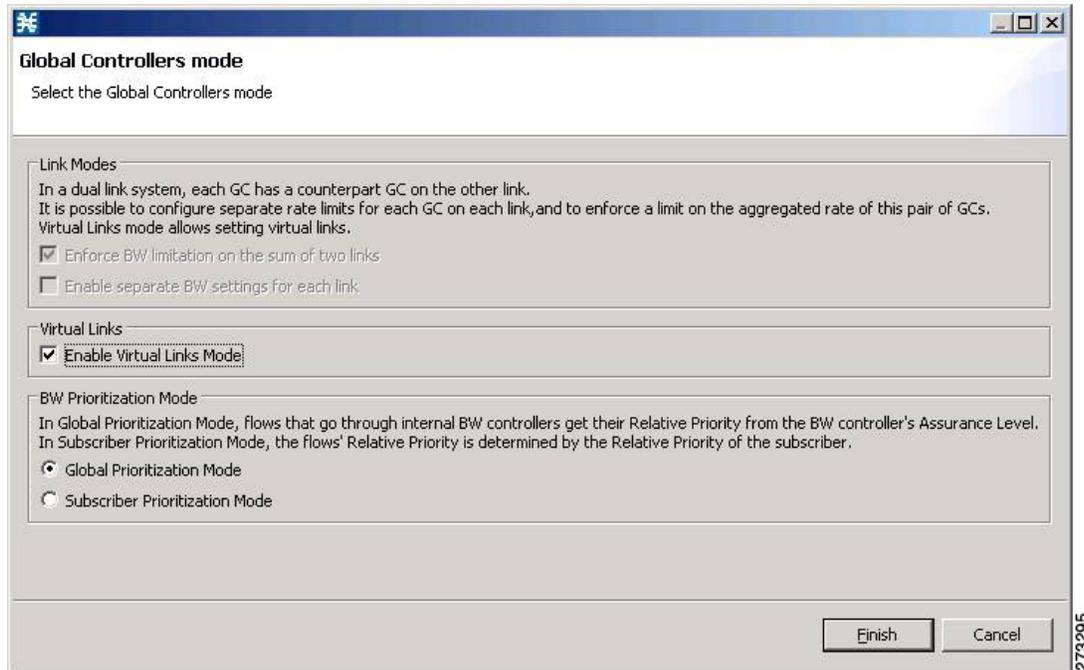
- To create a new service configuration, click **Yes**. A New Service Configuration Settings dialog box appears.
- Select an operational mode for the service configuration.
- Click **OK**.

The new service configuration is added to the Console window that becomes the active service configuration.



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- Step 4** In the Global Policy Preferences area, click **Edit Preferences**.  
The Global Controllers mode dialog box appears.

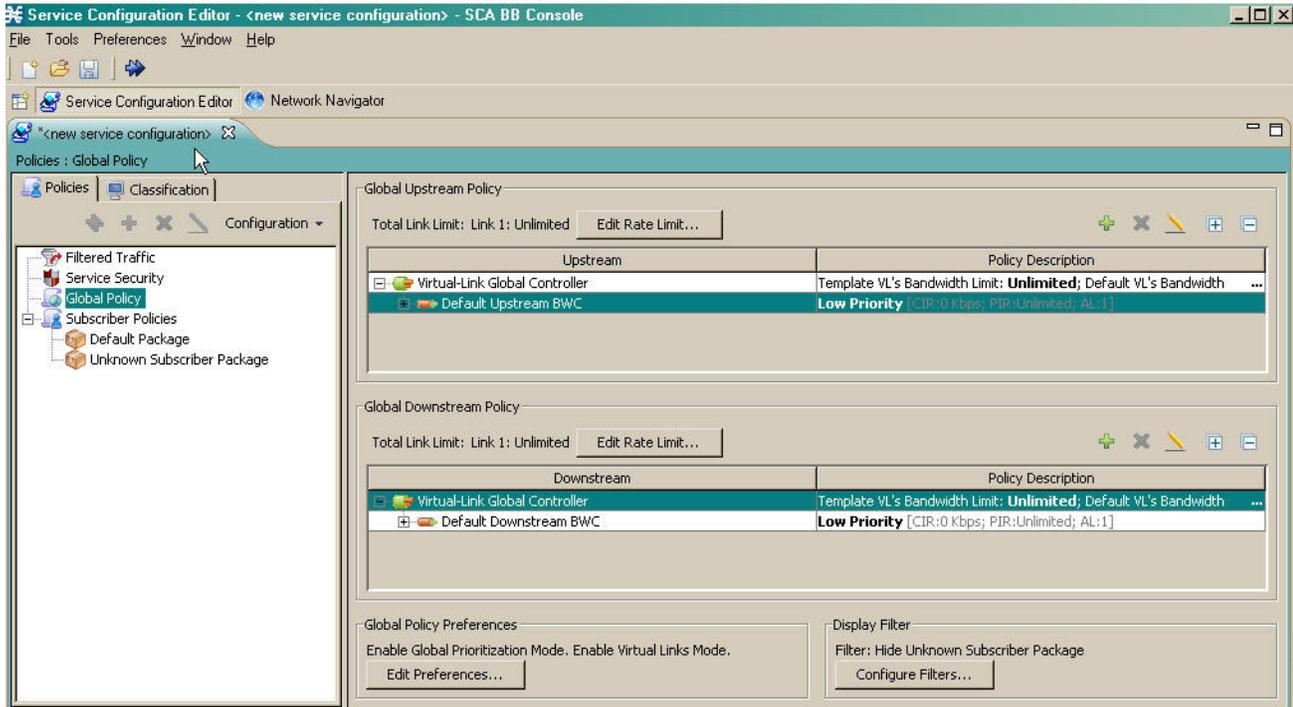


- Step 5** Check the **Enable Virtual Links Mode** check box.  
The Apply Template rate limits to all Virtual Links? dialog box appears.



- Step 6** Click **Reset all Virtual Links to Template rate limits** when you change the number of Global Controllers.  
Click **Keep Virtual Link rate limits unchanged** to retain the current Virtual Links rate limits. Only the defined Virtual link is set to the new template rate limit.
- Step 7** Click **Finish**.

The new service configuration window appears.



For more information on the Service Configuration Editor, see *Cisco Service Control Application for Broadband User Guide*.

Virtual link global controllers can be added, edited, and deleted in the same way as regular global controllers. For more information, see the following sections:

- [How to Add Global Controllers](#), page 4-6
- [How to Add Global Controllers inside Virtual Link](#), page 4-8
- [How to Edit Package Subscriber BWCs](#), page 4-11

## How to Add Global Controllers

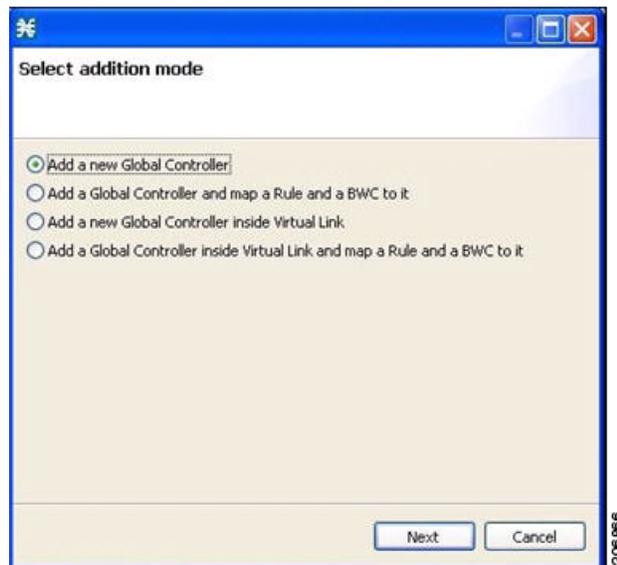


### Note

You can edit the default global controller settings, however, the default instance of global controller cannot be deleted.

- Step 1** In the Policies tab, click **Global Policy**.
- The Global Bandwidth Settings dialog box is displayed in the right (Rule) pane.
- Step 2** Above the area (Upstream or Downstream) of the desired interface, click **+** (**Add**).
- The Select Addition mode dialog box appears (Figure 4-2).

**Figure 4-2** Select Addition Mode



- Step 3** To add a new global controller, choose the **Add a new Global Controller** radio button.
- Step 4** Click **Next**.
- The Global Controller Settings dialog box appears (Figure 4-3).



**Note**

The display of Figure 4-3 depends on the global controller mode setting.

Figure 4-3 Upstream Global Controller Settings

**Global Controller Settings**

Global Controller must have a gcNameText

Name:

The global controller enforces a L1 rate limit on traffic that is mapped to it. The global controller can enforce an aggregate rate limit across all SCE links, as well as a separate rate limit per SCE link.

**Aggregate Global Controller**

The global controller can enforce a different rate limit per time frame.

The same rate limit for all time frames

A different rate limit per time frame

Single Rate Limit (Kbps)

Global Controller	Rate Limit
Aggregate	Unlimited

**Per Link Global Controller**

The global controller can enforce a different rate limit per time frame.

The same rate limit for all time frames

A different rate limit per time frame

Single Rate Limit (Kbps)

Global Controller	Rate Limit
For all Links	Unlimited

OK Cancel

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- Step 5** In the **Name** field enter a meaningful name.
- Step 6** Edit the maximum bandwidth of aggregate and per link global controller rate limit.
- Step 7** Click **OK**.
- Your changes are saved.
- The Global Controller Settings dialog box closes.

## How to Add Global Controllers inside Virtual Link

You can create AGCs inside a virtual link global controller.

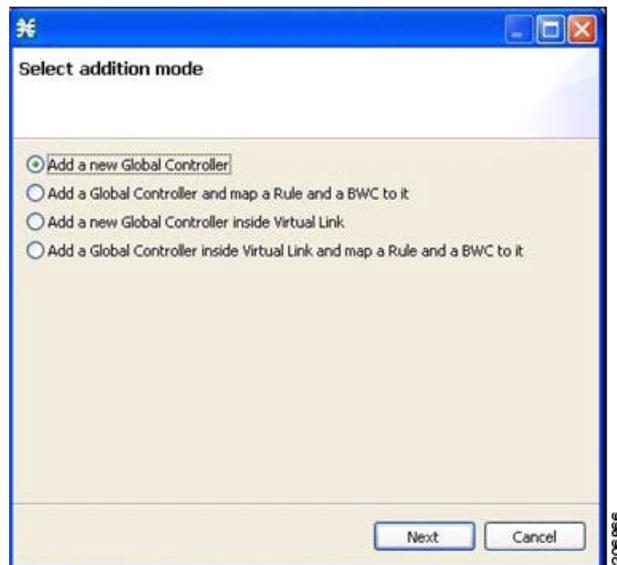


### Note

You can edit the default global controller settings, however, the default instance of global controller cannot be deleted.

- Step 1** In the Policies tab, click **Global Policy**.  
The Global Bandwidth Settings dialog box is displayed in the right (Rule) pane.
- Step 2** Above the area (Upstream or Downstream) of the desired interface, click **+** (**Add**).  
The Select Addition mode dialog box appears (Figure 4-4).

**Figure 4-4** Select Addition Mode



- Step 3** To add a new global controller within a virtual link, choose the **Add a new Global Controller inside Virtual Link** radio button.
- Step 4** Click **Next**.  
The Global Controller Settings dialog box appears (Figure 4-5).



**Note**

The display of Figure 4-5 depends on the global controller mode setting.

Figure 4-5 Upstream Global Controller Settings

**Global Controller Settings**  
Configure the rate limit that this global controller should enforce.

Name:

The global controller enforces a L1 rate limit on traffic that is mapped to it. The global controller enforces an aggregate rate limit across all SCE links belonging to the same virtual link.

In virtual links mode, rate limits for each virtual link are provisioned dynamically to the SCE, yet 'Template' and 'Default' values allow static provisioning:  
 'Template' rate limits apply to newly-created virtual links.  
 'Default' rate limits apply to the default virtual link (virtual link 0).

**Template Virtual Link**

The global controller can enforce a different rate limit per time frame.

The same rate limit for all time frames  
 A different rate limit per time frame

Single Rate Limit (Kbps)

Virtual Link	Rate Limit
Template	Unlimited

**Default Virtual Link**

The global controller can enforce a different rate limit per time frame.

The same rate limit for all time frames  
 A different rate limit per time frame

Single Rate Limit (Kbps)

Virtual Link	Rate Limit
Default	Unlimited

OK Cancel

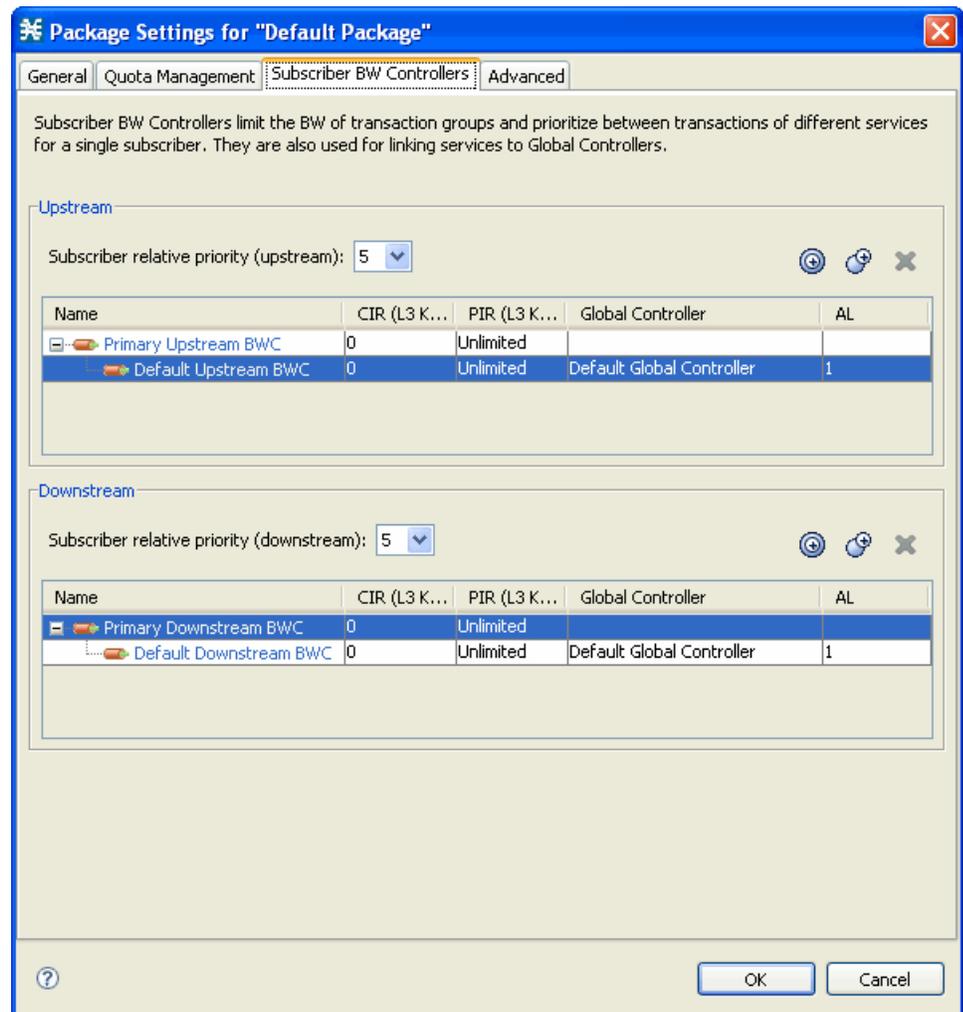
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- Step 5** In the **Name** field enter a meaningful name.
- Step 6** Edit the maximum bandwidth of the template and the default values rate limit
- Step 7** Click **OK**.
- Your changes are saved.
- The Global Controller Settings dialog box closes.

## How to Edit Package Subscriber BWCs

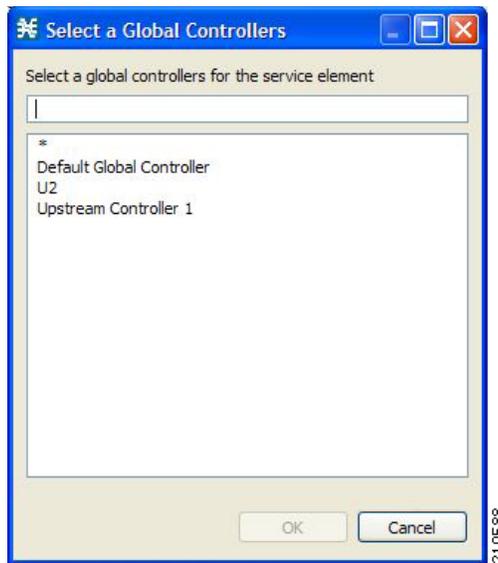
- Step 1** In the Policies tab, click **Global Policy**.  
The Global Bandwidth Settings dialog box in the right (Rule) pane.
- Step 2** In the right (Rule) pane, select a BWC and click  (**Edit**).  
The Package Settings dialog box appears.
- Step 3** In the Package Settings dialog box, click the **Subscriber BW Controllers** tab.  
The Subscriber BW Controllers tab opens ([Figure 4-6](#)).

**Figure 4-6** Subscriber BW Controllers Tab



- Step 4** Set your requirements for upstream bandwidth control in the Upstream area of the dialog box.
- a. Select a value from the Subscriber relative priority drop-down list.
  - b. Set the parameters for the Primary Upstream BWC.
    - In the CIR field, enter the BWC CIR in Kbps.
    - In the PIR field, select **Unlimited** from the drop-down list, or enter the BWC PIR in Kbps.
  - c. To add BWCs to the package, click  (**Add a sub BW Controller**) once for each additional BWC.
  - d. To add Extra BWCs to the package, click  (**Add an extra BW Controller**) once for each additional BWC.
  - e. Set the parameters for each BWC (including the Primary and Default BWCs).
    - (Optional) In the Name field, enter a meaningful name for each BWC. (You cannot rename the Primary or Default BWCs.)
    - In the CIR field, enter a value for the BWC CIR in Kbps.
    - In the PIR field, select **Unlimited** from the drop-down list, or enter a value for the BWC PIR in Kbps.
    - To set the global controller with which this BWC is associated:
      - Click in the Global Controller cell of the BWC, and then click the **Browse** button that appears.
      - The Select a Global Controller dialog box appears ([Figure 4-7](#)).

**Figure 4-7** Select a Global Controller



- Select a global controller and click **OK**.
  - Select a value from the AL drop-down list.
- Step 5** Repeat [Step 3](#) for downstream bandwidth control in the Downstream area of the dialog box.
- Step 6** Click **OK**.

The Package Settings dialog box closes.

All changes to the BWC settings are saved.

## Applying Service Configurations to SCE Platforms

**Step 1** Using the Network Navigator tool, in the Site Manager tree, right-click an SCE device. A popup menu appears.

**Step 2** From the menu, choose **Apply Service Configuration**.

The Choose Policy dialog box appears, listing all service configurations that are open in the Service Configuration Editor.



**Note** If only one service configuration is open in the Service Configuration Editor, a Password Management dialog box appears. Go to [Step 5](#).



**Note** If the open policy is a virtual links policy, the Apply Template Virtual Links Values dialog box prompts you to apply the template virtual links value to the existing virtual links. Go to [Step 4](#).

**Step 3** Select a service configuration from the list.

**Step 4** Click **OK**.

If the policy is a virtual links policy, the Apply Template Virtual Links Values dialog box prompts you to apply the template virtual links value to the existing virtual links.

To apply the template virtual links value to the existing virtual links, click **Yes**.

A Password Management dialog box appears.

**Step 5** Enter the appropriate password.

**Step 6** Click **Apply**.

The Password Management dialog box closes. An Applying service configuration to SCE progress bar appears. The service configuration is applied to the selected SCE platform.

## Configuring the Virtual Links Manager

**Step 1** On the subscriber manager machine, open the p3sm.cfg configuration file, which is located in the `~pcube/sm/server/root/config/` directory.

For details about making configuration changes in the p3sm.cfg file, see the “Configuration Files Options” chapter of *Cisco Service Control Management Suite Subscriber Manager User Guide*.

- a. Create a section for any SCE devices and define the IP address and optionally the port values of the SCE devices. The following example shows the SCE sections created for two SCE devices named SCE1 and SCE2:

```
[SCE.SCE1]
ip=209.165.201.2
[SCE.SCE2]
ip=209.165.201.3
```

- b. (Optional) Create a section for the collection manager and define the IP address and the connected SCE devices. Defining the CM port value is optional; if a value is not defined, the default value of 14375 is used.

The following example shows the CM section created that receives the RDRs for two SCE devices named SCE1 and SCE2:

```
[CM.CM1]
ip=209.165.202.129
port=14375
sce_list=SCE1,SCE2
```




---

**Note** Using a collection manager is optional and is not required for the solution to work. However, if you do not use a collection manager, all the virtual link reports can be selected only by the virtual link index and not by the virtual link name.

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**Step 2** Save and close the p3sm.cfg configuration file.

**Step 3** On the subscriber manager machine, open the dhcpsnif.cfg configuration file which is located in the ~pcube/sm/server/root/config/ directory.

For details about making configuration changes in the dhcpsnif.cfg file, see the “SCE-Sniffer DHCP LEG” section in “Configuring the SCE-Sniffer DHCP LEG” chapter of *Cisco SCMS SM LEGs User Guide*.

- a. In the [SCE-Sniffer DHCP LEG] section, set the start value to **yes**.

```
[SCE-Sniffer DHCP LEG]
start=yes
```

All other values can be left at default values.

- b. In the [Subscriber ID] section, set the dhcp\_option to the DHCP option that contains the subscriber ID and set the dhcp\_option\_type to binary. For example:

```
[Subscriber ID]
dhcp_option=82:2
dhcp_option_type=binary
```

All other values can be left at default values.

**Step 4** Save and close the dhcpsnif.cfg configuration file.

**Step 5** On the subscriber manager machine, open the dhcp\_pkg.cfg configuration file which is located in the ~pcube/sm/server/root/config/ directory.

For details about modifying configuration in the dhcp\_pkg.cfg file, see the “SCE-Sniffer DHCP LEG” section, in “Configuring the SCE-Sniffer DHCP LEG” chapter of *Cisco SCMS SM LEGs User Guide*.

- a. Define a downstream virtual link policy by setting the parameters:

```
[DHCP.Policy.VirtualLinkDownstream]
policy_property_name=downVlinkId
options_order_for_policy_name=giaddr,82:1
options_type=integer,binary
allow_login_with_no_policy=true
use_default=false
default_policy=0
```




---

**Note** Do not define the mapping\_table parameter.

---

- b. Define an upstream virtual link policy by setting the parameters:

```
[DHCP.Policy.VirtualLinkUpstream]
policy_property_name=upVLinkId
options_order_for_policy_name=giaddr,82:1
options_type=integer,binary
allow_login_with_no_policy=true
use_default=false
default_policy=0
```



**Note** Do not define the mapping\_table parameter.

- c. Detect if the subscriber is related to the DOCSIS 3.0 wideband interface

- The attribute related to [DHCP.Policy.VirtualLinkUpstream] and [DHCP.Policy.VirtualLinkDownstream] parameters is docsis\_3\_cm\_detection. The value of attribute is Modem\_Type.DOCSIS3.0.



**Note** It is mandatory to enter values for the Modem\_Type.DOCSIS3.0 field.

```
docsis_3_cm_detection=Modem_Type.DOCSIS3
```

- d. Define the rules to define DHCP data coming from the DOCSIS 3.0 cable modem interface

- To identify if the cable modem type is DOCSIS 3.0

```
[Modem_Type.DOCSIS3.0]
```

This parameter has two attributes option and option\_type

The format of the parameter is the option number itself

or

For DHCP options which have sub-options the format is the DHCP option and sub-option type separated by a colon.

For example:

```
# 43:123 or 61
(default option 67, "Boot filename")
option=67
```

- The format type of DHCP option is defined by the 'dhcp\_option' parameter. Optional values are 'binary' (binary string that is converted to an ASCII hexadecimal string) or 'string' (ASCII string). The default value is string.

```
option_type=string
```

- The parameter to define the search pattern to verify that the cable modem belongs to DOCSIS 3.0 is option\_pattern. The value for this parameter is a single regular expression pattern per dhcp\_option. If there are more than one dhcp\_option, then the values for option\_pattern is a list of regular expression patterns (one pattern per option) separated by comma. The default value is 3.0.

```
option_pattern=3.0
```

**Step 6** Save and close the dhcp\_pkg.cfg configuration file.




---

**Note** When the VLM is activated, the DHCP sniffer adds a custom property to each subscriber with the value of the giaddr option, which is one of the CMTS IP addresses.

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**Step 7** On the subscriber manager machine, open the vlink.cfg configuration file which is located in the ~pcube/sm/server/root/config/ directory.

a. In the [General] section, configure the following parameters:

- start—Setting the start parameter to yes instructs the SM to start the Virtual Link Manager (VLM) when the SM starts. Possible values for this parameter are yes and no.




---

**Note** When the start parameter is set to no, the data stored in the database for all CMTS devices is deleted.

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- monitoring\_period—Determines the interval in minutes at which the VLM queries the CMTS devices for any interface changes. Setting this parameter to 0 stops the VLM querying the CMTS devices, but does not stop the VLM. The default value is 60.
- upstream\_vlink\_factor—Determines the percentage of the interface bandwidth that the SCE allows to be sent from the CMTS device to the Internet. The default value is 95.




---

**Note** downstream\_vlink\_factor—Determines the percentage of the interface bandwidth that the SCE allows to be sent from the Internet to the CMTS device. The default value is 95.

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**Note** When defining the upstream\_vlink\_factor and downstream\_vlink\_factor parameters, take precaution. Setting a value too low causes bandwidth capacity to be wasted. Setting a value too high causes data to be lost because of dropped packets.

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- log\_all—Setting the log\_all parameter to true causes the system to dump log messages to the user log.
- upstream\_global\_controller\_list—Determines the list of non default upstream global controllers, which are defined in the template and managed by VLM.
- downstream\_global\_controller\_list—Determines the list of non default downstream global controllers, which are defined in the template and managed by VLM.

For more information, see the [“Configuring Virtual Links Global Controllers”](#) section on page 4-4.




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**Note** Every global controller defined in the configuration file should exist in the policy configuration.

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- upstream\_global\_controller\_pir\_percentage—(Optional) Determines the percentage of the PIR values of the wideband interfaces. One or more PIR values can be configured, each value corresponds to the global controller that belongs to the global controller list.




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**Note** If the PIR values are not configured, then the default PIR values are used to determine the percentage.

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- `downstream_global_controller_pir_percentage`—(Optional) Determines the percentage of the PIR values of the wideband interfaces. One or more PIR values can be configured, each value corresponds to the global controller that belongs to the global controller list.
- `enable_dynamic_giaddr_learning`—(Optional) Avoids learning new giaddr while login. If this value is set to false, if SM identifies during the login that the relay agent does not belong to a known CMTS, then SM ignores the query and continues with the login. This functionality is applicable only for static device configuration. The default value is true.



**Note** Setting `log_all` to true can cause performance degradation.

The following example shows the [General] section of the `vlink.cfg` configuration file:

```
[General]
start=true
monitoring_period=60
upstream_vlink_factor=95
downstream_vlink_factor=95
log_all=false
upstream_global_controller_list=agc_a, agc_b
downstream_global_controller_list=agc_d, agc_e
upstream_global_controller_pir_percentage=80,90
downstream_global_controller_pir_percentage=85,85
enable_dynamic_giaddr_learning=true
```

- Modify the SCE container such that it load all SCE IP addresses specified in `vlink.cfg` as `sceIPs` in cache. This confirms that VLM integration is done for the DHCP packets only if it comes from those SCEs that are part of the VLM configuration (`vlink.cfg`).
- For each CMTS device, configure a [Device.<device name>] section with the following parameters:



**Note** The <device name> of the section is used as part of the virtual link name for all virtual links associated with this CMTS device. The name of the CMTS device also appears in the reporter.

- `ip`—Specifies the IP address of the CMTS device.
- `sce_name`—Specifies the name of the SCE to which the CMTS device is connected. The `sce_name` must match an SCE section defined in the `p3sm.cfg` configuration file.
- `upstream_vlink_factor`—(Optional) Determines the percentage of the interface bandwidth that the SCE allows to be sent from this CMTS device to the Internet. Setting this parameter overrides the setting in the [General] section. If it is not configured, the value defined in the [General] section is used. The default value is 95.
- `downstream_vlink_factor`—(Optional) Determines the percentage of the interface bandwidth that the SCE allows to be sent from the Internet to this CMTS device. Setting this parameter overrides the setting in the [General] section. If it is not configured, the value defined in the [General] section is used. The default value is 95.
- `log_all`—Setting the `log_all` parameter to true causes the system to dump log messages to the user log for this CMTS device. If the `log_all` parameter in the [General] section is true, setting this parameter to false has no effect; if the `log_all` parameter in the [General] section is false, setting this parameter to true enables logging for operations related only to this CMTS device; such as, CMTS device creation and deletion.

- `upstream_global_controller_list`—(Optional) Determines the list of non default upstream global controllers, which are defined in the template and managed by VLM. If it is not configured, the value defined in the [General] section is used.
- `downstream_global_controller_list`—(Optional) Determines the list of non default downstream global controllers, which are defined in the template and managed by VLM. If it is not configured, the value defined in the [General] section is used.




---

**Note** Every global controller defined in the configuration file should exist in the policy configuration.

---

- `upstream_global_controller_pir_percentage`—(Optional) Determines the percentage of the PIR values of the wideband interfaces. One or more PIR values can be configured, each value corresponds to the global controller that belongs to the global controller list. If it is not configured, the value defined in the [General] section is used.




---

**Note** If the PIR values are not configured, then the default PIR values are used to determine the percentage.

---

- `downstream_global_controller_pir_percentage`—(Optional) Determines the percentage of the PIR values of the wideband interfaces. One or more PIR values can be configured, each value corresponds to the global controller that belongs to the global controller list. If it is not configured, the value defined in the [General] section is used.
- `snmp_community`—Specifies the SNMP community value for the VLM to communicate with the CMTS device. The default value is public.
- `giaddr_external`—For each `giaddr` value, the VLM creates a policy mapping table in the DHCP LEG without waiting for a login from the `giaddr` values. Use this parameter to insert `giaddr` values to the mapping table that was created by the VLM after querying the CMTS device. Use a comma ‘,’ delimiter between IP addresses. The default value for this parameter is empty.
- `giaddr_replace`—Specifies whether or not the VLM uses the IP addresses defined in the `giaddr_external` parameter as the only `giaddr` list of the CMTS device. When set `giaddr_replace=no`, the VLM uses the IP addresses defined in `giaddr_external` and the `giaddr` list that is found when querying the CMTS device as the CMTS `giaddr` list. Possible values for this parameter are yes and no. The default value is no.
- `giaddr_remove`—For each `giaddr` value, the VLM creates a policy mapping table in the DHCP LEG without waiting for a login from the `giaddr` values. Use this parameter to remove a list of IPs from the mapping table that was created by the VLM after querying the CMTS device. Use a comma ‘,’ delimiter between IP addresses.

The following example shows a [Device.<device name>] section of the `vlink.cfg` configuration file:

```
[Device.CMTS1]
ip=192.0.2.10
sce_name=SCE1
log_all=false
upstream_global_controller_list=agc_a, agc_b
downstream_global_controller_list=agc_d, agc_e
upstream_global_controller_pir_percentage=80,90
downstream_global_controller_pir_percentage=85,85
```

- d. Configure a device template that enables the users to define the dynamic device behavior. For more information on creating dynamic device, see [“Dynamic giaddr Learning” section on page 3-2](#).

The required parameters are:

- start—Setting the start parameter to yes instructs the Virtual Link Manager (VLM) to create a dynamic device template. Possible values for this parameter are yes and no. If the start is set to true, the VLM creates the dynamic device.  
  
If start is set to false, the VLM does not create a dynamic device. Setting the start value from true to false, disables the creation of dynamic device and the VLM deletes all the dynamic devices and their relevant data from the database.
- log\_all—Setting the log\_all parameter to true causes the system to dump log messages to the user log for this CMTS device. If the log\_all parameter in the [General] section is true, setting this parameter to false has no effect; if the log\_all parameter in the [General] section is false, setting this parameter to true enables logging for operations related only to this CMTS device; such as, CMTS device creation and deletion.
- snmp\_port—(Optional) Specifies the SNMP port value for the VLM to communicate with the CMTS device. The default value is 161.
- snmp\_community—(Optional) Specifies the SNMP community value for the VLM to communicate with the CMTS device. The default value is public.



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**Note** The ip and scc\_name are not defined instead retrieved from the DHCP data during login operations.

---

**Step 8** Save and close the vlink.cfg configuration file.

**Step 9** Load the configuration to the SM by running the following command on the SM machine from the bin directory. (Run the command as user pcube).

```
>p3sm --load-config
```

