

# How to Use Cisco Cable SDN Application

These are some general instructions and information for using the Cisco Cable SDN application:

Icon	Description
0	<b>Information</b> button. Click this button to display more information.
	<b>Context Menu</b> button. Move the mouse over this button to display a context menu.
Detail	<b>Detail</b> button. Click this button to display detail information.
$\oslash$	Normal icon. Indicates there is no error.
	<b>Error</b> icon. Indicates there is error, move the mouse over this icon to check the error detail.
<b>A</b>	<b>Warning</b> icon. Indicates there is warning, move the mouse over this icon to check the warning detail.

There are three features available in this release: Inventory, Health Monitor and Spectrum Management.

- Inventory, on page 1
- Health Monitor, on page 5
- Spectrum Management, on page 49
- QAM Video, on page 55

# Inventory

Use this page to view the inventory information and configure the CMTS node.

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#### Figure 1: Inventory Page

Inventory	Connected Connecting Imported Disconnected	Platform	CBR-8 UBR10k
+ Add Node		٩	
Connectivity Status	Host Name	IP Address	Platform
<b>⊗</b> °	Boomer8	172.25.13.97	cBR-8
<b>⊗</b> °	sj-204-cbr-2	172.22.9.222	cBR-8
<b>e</b>	sj-204-cbr-1	172.22.9.221	cBR-8
<b>⊗</b> °		172.22.9.105	cBR-8
		172.22.9.104	cBR-8
() °	video-LWR-B-A8B	10.90.21.67	cBR-8
€ °		172.22.9.103	cBR-8
€ °		172.22.9.102	cBR-8
€ °		10.90.21.68	cBR-8
		172.22.9.101	cBR-8
			Previous 1 2 3 4 Next

**Table 1: Inventory Page Field Description** 

Field	Description
Connectivity Status	The working status of the CMTS node.
Host Name	The name of the CMTS node.
IP Address	The IP address of the CMTS node.
Platform	The platform of the CMTS node.

# **Adding CMTS Node**

The Cisco Cable SDN application can only display the status and statistical data of a CMTS node that has been added in this application.

To add a CMTS node, click the + Add Node button at the top left corner of the Inventory page. The Add CMTS Node window is displayed. Fill in the fields to add a new CMTS node.

### Figure 2: Add CMTS Node

Add CMTS N	ode	
IP Address		
User Name		
Password		
Enable Password		
Community String		
	Add Cancel	365192

## Table 2: Add Node Field Description

Field	Description
IP Address	The IP address of the CMTS node.
User Name	The login username of the CMTS node.
Password	The login password of the CMTS node.
Enable Password	The enable password of the CMTS node.
Community String	The SNMP community string of the CMTS node.

# **Updating CMTS Node**

To update the CMTS node, move the mouse over the **Context Menu** button to display a context menu. Choose the **Update** option to open the **Update CMTS Node** window.

Figure 3: Update CMTS Node

Update CMTS	Node
IP Address	172.22.73.96
User Name	admin
Password	•••••
Enable Password	
Community String	okcard
	Update Cancel

Update the existing field, then click Update to confirm.

# **Deleting CMTS Node**

To delete the CMTS node, move the mouse over the **Context Menu** button to display a context menu. Choose the **Delete** option to delete an existing CMTS node.

# **Searching for a CMTS Node**

To search for a specific CMTS node, type the keywords in the search box, such as host name, IP address, and platform, in partial or full, then matched CMTS node will be displayed in the **Inventory** page. For example, type **21** in the search box, the CMTS node whose host name, IP address, or platform contains **21** will be displayed in the **Inventory** page.

Figure 4: Search CMTS Node

٩			365200
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# **Viewing CMTS Node Detail**

To display the detail information of a CMTS node, click the **Information** button next to the CMTS node icon. The **Status** window is displayed.

## Figure 5: CMTS Node Status

Status 🕥	
Hardware	CBR-8-CCAP-CHASS
Description	Buzzy
Serial Number	FXS182300DZ
Manufacturer	Cisco
Software Version	cbrsup-universalk9.2015-09-23_01.59_yucgu.SSA.bin
SNMP Status	0
	Close
	Close

Table 3: CMTS Node Status Field Description

Field	Description
Hardware	The hardware used by the CMTS node.
Description	The name of the CMTS node.
Serial Number	The serial number of the CMTS node.
Manufacturer	The manufacturer of the CMTS node.
Software Version	The software version of the CMTS node.
SNMP Status	The status of the CMTS node.

# **Health Monitor**

There are 5 pages in this pane, each contains a different set of statistical information about the CMTS nodes.

# **Dashboard Page**

Use this page to view detailed information of the CMTS node.

Health	Monitor		High Availability			22 gured ls, but not Ready:					E	
Stati No Alarn Minor/M Critical A	US ajor Alarms Narms 22 5 5 6 5 6 10 5 7 6 10 5 7 10 5 7 10 10 10 10 10 10 10 10 10 10 10 10 10	10 vironment Power (	8 1 3 Core Files Inven	fory Subscribers	5 5 Redundanc	9 Sy Lie	1 cense					
Add Nor	de						Q Search					
								State	us			
atus	Host Name	IP Address	Platform	Uptime (hrs)	Fac	Env	Power	State	us Inv	Sub	Red	Lic
otus ∎	Host Name Boomer8	IP Address 172.25.13.97	Platform cBR-8	Uptime (hrs)	Fac	Env	Power	State Cores	us Inv	Sub	Red	Lic
tus IIII IIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Host Name Boomer8 sj-204-cbr-2	IP Address 172.25.13.97 172.22.9.222	Platform cBR-8 cBR-8	<b>Uptime (hrs)</b> 12 49	Fac A A	Env ③	Power	State Cores ©	Inv	Sub	Red	Lic A A
tus 0 1 0	Host Name Boomer8 sj-204-cbr-2 sj-204-cbr-1	IP Address 172.25.13.97 172.22.9.222 172.22.9.221	Platform cBR-8 cBR-8 cBR-8	Uptime (hrs) 12 49 0	Fac A A A	Env ③ ④	Power A A A	State	Inv A A ©	Sub ③ ③	Red	Lic A A A
	Host Name Boomer8 sj-204-cbr-2 sj-204-cbr-1 Ch69-tst22	IP Address 172.25.13.97 172.22.9.222 172.22.9.221 172.22.9.43	Platform cBR-8 cBR-8 cBR-8 cBR-8	Uptime (hrs) 12 49 0 140	Fac A A A A	Env ③ ③ ③ ③	Power A A A A	State	Inv A A O	Sub ② ③ ③	Red	Lic A A A A
	Host Name Boomer8 sj-204-cbr-2 sj-204-cbr-1 Ch69-tst22 mars-10k	IP Address 172 25:13:97 172 22:9:222 172 22:9:221 172 22:9:43 2:39:30:1	Platform cBR-8 cBR-8 cBR-8 cBR-8 cBR-8 UBR10k	Uptime (hrs) 12 49 0 140 1531	Fac A A A A A	Env ② ③ ③ ③ ③ ③ ③ ③ ③ ③ ③ ③ ③ ③	Power A A A A A A	Statu Cores © © A ©	Inv A A O A	Sub	Red	Lic A A A A
	Host Name Boomer8 sj-204-cbr-2 sj-204-cbr-1 Ch69-tst22 mars-10k polaris-cbr	IP Address 172.25.13.97 172.22.9.222 172.22.9.221 172.22.9.43 2.39.30.1 172.25.15.207	Platform cBR-8 cBR-8 cBR-8 cBR-8 cBR-8 UBR10k cBR-8	Uptime (hrs) 12 49 0 140 1531 236	Fac A A A A A A	Env ② ③ ③ ③ ③ ③ ③ ③ ③ ③ ③ ③ ③ ③	Power A A A A A A A	Statu Cores	Inv A C C C C C C	Sub ⊘ ⊘ ▲ ▲ ⊘	Red ⊘ ▲ ▲ ⊘ ⊘	Lic A A A A A A
	Host Name Boomer8 sj-204-cbr-2 sj-204-cbr-1 Ch69-tst22 mars-10k polaris-cbr Caprica6	IP Address 172 25.13.97 172 22.9 222 172 22.9 221 172 22.9 43 2.39.30.1 172 25.15 207 172 25.15 206	Platform cBR-8 cBR-8 cBR-8 cBR-8 UBR10k cBR-8 cBR-8	Uptime (hrs) 12 49 0 140 1531 236 46	Fac A A A A A C O	Env ② ③ ③ ③ ③ ③ ③ ③ ③ ③ ③ ③ ③ ③	Power A A A A A A A A A	Stati	IIS Inv A O O O O O O O	Sub ⊘ ⊘ ▲ ▲ ⊘ ▲	Red () () () () () () () ()	Lic A A A A A C
	Host Name Boomer8 sj-204-cbr-2 sj-204-cbr-1 Ch69-tst22 mars-10k polaris-cbr Caprica6 sj-cbr-1	IP Address 172 25:13:97 172 22:9:222 172 22:9:221 172 22:9:43 2:39:30:1 172 25:15:207 172 25:15:206 172 25:05:206	Platform cBR-8 cBR-8 cBR-8 cBR-8 UBR10k cBR-8 cBR-8 cBR-8	Uptime (hrs) 12 49 0 140 1531 236 46 538	Fac A A A A C C C	Env ② ③ ③ ③ ③ ③ ③ ③ ③ ③ ③ ③ ③ ③	Power	State		Sub ② ③ ▲ ③ ▲ ③ ▲ ③ ▲ ③ ④ ▲ ③ ④ ④ ④ ④ ④ ④ ④ ④ ④ ④ ④ ④ ④	Red ⊘ ▲ ≪ ⊘ ⊘ ⊘ ⊘ ⊘ ⊘ ⊘	Lic A A A A C C A
	Host Name Boomer8 sj-204-cbr-2 sj-204-cbr-1 Ch69-tst22 mars-10k polaris-cbr Caprica6 sj-cbr-1	IP Address 172.25.13.97 172.22.9.222 172.22.9.221 172.22.9.43 2.39.30.1 172.25.15.207 172.25.15.206 172.22.69.16 10.90.21.77	Platform cBR-8 cBR-8 cBR-8 cBR-8 UBR10k cBR-8 cBR-8 cBR-8 cBR-8	Uptime (hrs) 12 49 0 140 1531 236 46 538 5	Fac	Env ② ③ ③ ③ ③ ③ ③ ③ ③ ③ ③ ③ ③ ③	Power A A A A A A A A A A A A	Statu Cores		Sub ② ③ ④ ▲ ④ ③ ④ ▲ ③ ④ ▲ ③ ④ ▲ ④ ④ ▲ ④ ④ ▲ ▲ ④ ④ ▲ ▲ ④ ▲ ▲ ④ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲	Red ⊘ ▲ ≪ ⊘ ⊘ ⊘ ⊘ ⊘ ⊘ ↓	
	Host Name Boomer8 sj-204-cbr-2 sj-204-cbr-1 Ch69-tst22 mars-10k polaris-cbr Caprica6 sj-cbr-1 CBR-ch25	IP Address 172.25.13.97 172.22.9.222 172.22.9.221 172.22.9.43 2.39.30.1 172.25.15.207 172.25.15.206 172.22.69.16 10.90.21.77 172.22.10.22	Platform cBR-8 cBR-8 cBR-8 cBR-8 UBR10k cBR-8 cBR-8 cBR-8 cBR-8 cBR-8 cBR-8	Uptime (hrs) 12 49 0 140 1531 236 46 538 5 2256	Fac	Env (2) (2) (2) (2) (2) (2) (2) (2)	Power A A A A A A A A A A A A A	Statu Cores		Sub ② ③ ④ ▲ ④ ③ ▲ ④ ④ ▲ ④ ④ ▲ ▲ ④ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲	Red () () () () () () () () () ()	
	Host Name Boomer8 sj-204-cbr-2 sj-204-cbr-1 Ch69-tst22 mars-10k polaris-cbr Caprica6 sj-cbr-1 CBR-ch25	IP Address 172 25 13 97 172 22 9 222 172 22 9 221 172 22 9 231 172 22 9 43 2 39 30 1 172 25 15 207 172 25 15 206 172 25 15 206 172 22 69 16 10 90 21 77 172 22 10 22	Platform cBR-8 cBR-8 cBR-8 UBR10k cBR-8 cBR-8 cBR-8 cBR-8 cBR-8	Uptime (hrs) 12 49 0 140 1531 236 46 538 5 2256	Fac	Env (2) (2) (2) (2) (2) (2) (2) (2)	Power A A A A A A A A A A A A A	Statu Cores	US	Sub ② ③ ④ ▲ ④ ④ ④ ④ ④ ④ ● ● ● ● ● ● ● ● ● ● ● ● ●	Red	Lic A A A A A C C A A A A A A A A A A A A A
	Host Name Boomer8 sj-204-cbr-2 sj-204-cbr-1 Ch69-tst22 mars-10k polaris-cbr Caprica6 sj-cbr-1 CBR-ch25	IP Address 172.25.13.97 172.22.9.222 172.22.9.23 172.22.9.43 2.39.30.1 172.25.15.207 172.25.15.206 172.22.69.16 10.90.21.77 172.22.10.22	Platform cBR-8 cBR-8 cBR-8 UBR10k cBR-8 cBR-8 cBR-8 cBR-8 cBR-8 cBR-8	Uptime (hrs) 12 49 0 140 1531 236 46 538 5 2256	Fac ▲ ▲ ▲ ▲ ▲ ▲ ● ○ ○ ●	Env (2) (2) (2) (2) (2) (2) (2) (2)	Power A A A A A A A A A A A A A	Statu Cores	IIS Inv	Sub	Red           Image: Image of the second sec	Lic A A A A C A A A A A A A A A A A A A
	Host Name Boomer8 sj-204-cbr-2 sj-204-cbr-1 Ch69-tst22 mars-10k polaris-cbr Caprica6 sj-cbr-1 CBR-ch25	IP Address 172.25.13.97 172.22.9.222 172.22.9.221 172.22.9.43 2.39.30.1 172.25.15.207 172.25.15.206 172.22.69.16 10.90.21.77 172.22.10.22	Platform cBR-8 cBR-8 cBR-8 UBR10k cBR-8 cBR-8 cBR-8 cBR-8 cBR-8 cBR-8	Uptime (hrs) 12 49 0 140 1531 236 46 538 5 2256	Fec	Env ② ③ ③ ③ ③ ③ ③ ③ ③ ③ ③ ③ ③ ③	Power A A A A A A A A A A A A A	Statu Cores	IIS Inv	Sub	Red           Image: Constraint of the second secon	Lic A A A A C C A A A A A A A A A A A A A
	Host Name Boomer8 sj-204-cbr-2 sj-204-cbr-1 Ch69-ts122 mars-10k polaris-cbr Caprica6 sj-cbr-1 CBR-ch25	IP Address           172.25.13.97           172.22.9.222           172.22.9.221           172.22.9.30           2.39.30.1           172.25.15.207           172.25.45.206           172.25.45.206           172.25.15.206           172.22.0.21	Platform cBR-8 cBR-8 cBR-8 UBR10k cBR-8 cBR-8 cBR-8 cBR-8 cBR-8 cBR-8	Uptime (hrs) 12 49 0 140 1531 236 46 538 5 2256	Fec	Env (2) (2) (2) (2) (2) (2) (2) (2)	Power A A A A A A A A A A A A A	Statu Cores	IIS INV	Sub	Red           Image: Image of the second sec	Lic A A A A C C A A A A A A A A A A A A A

#### Figure 6: Dashboard Page

# **Health Monitor**

This section displays the number of CMTS nodes with different alarm status: no alarm, major/minor alarm, and critical alarm.

Figure 7: Health Monitor



# **High Availability**

This section displays the number of CMTS nodes with different SSO status: SSO configured, SSO not configured, and SSO configured but not ready.

Figure 8: High Availability



# **Software Version**

This section displays the number of CMTS nodes with different software versions.

Figure 9: Software Version



# Status

This section displays the number of CMTS nodes with different type of alarms: Facility, Environment, Power, Core Files, Inventory, Subscribers, Redundancy, and License.

## Figure 10: Status



# Alarm

In this section, there is a table listing the CMTS node basic information with their alarm details. Move the mouse over the alarm status icon to get the detailed alarm information.

The same actions can also be executed as described in the Inventory section.

## Figure 11: Alarm

	+ Add Node													
Host Namo	ID Addross	Platform	Untime (brs)				Untime (hrs)			State	15			
HUST Maine	IF Address	Flation	opune (ms)	Fac	Env	Power	Cores	Inv	Sub	Red	Lic			
Boomer8	172.25.13.97	cBR-8	1	A	$\oslash$	A	A	A	$\oslash$	$\odot$	$\oslash$			
video-LWR-B-A7T	10.90.21.64	cBR-8	48	$\odot$	$\oslash$	A	<b>A</b>	A	A	A	A			
Ch69-tst22	172.22.9.43	cBR-8	554	$\odot$	$\odot$	A	<b>A</b>	A	▲	▲	A			
mars-10k	2.39.30.1	UBR10k	1854	A	$\odot$	A	$\odot$	$\odot$	A	$\odot$	A			
video-LWR-B-A3	10.90.21.28	cBR-8	1	$\odot$	$\odot$	<b>A</b>	<b>A</b>	▲	A	▲	A			
polaris-cbr	172.25.15.207	cBR-8	45	A	$\odot$	A		A	$\odot$	$\odot$	A			
Caprica6	172.25.15.206	cBR-8	47	$\odot$	$\odot$	A	A	A	▲	$\odot$	$\odot$			
PSG-Golden-2	1.9.100.16	cBR-8	41	A	$\odot$	A		A	A	$\odot$	A			
sj-cbr-1	172.22.69.16	cBR-8	951	$\odot$	$\oslash$	A	$\oslash$	A	$\odot$	$\odot$	A			
CBR-ch25	172.22.10.22	cBR-8	2667	$\odot$	$\oslash$	A		A	A	A	A			
	Host Name Boomer8 video-LWR-B-A7T Ch69-tst22 mars-10k video-LWR-B-A3 polaris-cbr Caprica6 PSG-Golden-2 sj-cbr-1 CBR-ch25	Host Name         IP Address           Boomer8         172.25.13.97           video-LWR-B-A7T         10.90.21.64           Ch69-1st22         172.22.9.43           mars-10k         2.39.30.1           video-LWR-B-A3         10.90.21.28           polaris-cbr         172.25.15.207           Caprica6         172.25.15.206           PSG-Golden-2         1.9.100.16           aj-cbr-1         172.22.69.16           CBR-ch25         172.22.10.22	Host Name         IP Address         Platform           Boomer8         172.25.13.97         cBR-8           video-LWR-B-A7T         10.90.21.64         cBR-8           Ch69-Ist22         172.22.9.43         cBR-8           mars-10k         2.39.30.1         UBR10k           video-LWR-B-A3         10.90.21.28         cBR-8           polaris-cbr         172.25.15.207         cBR-8           Caprica6         172.25.15.206         cBR-8           PSG-Golden-2         1.9.100.16         cBR-8           aj-cbr-1         172.22.69.16         cBR-8           CBR-ch25         172.22.10.22         cBR-8	Host Name         IP Address         Platform         Uptime (hrs)           Boomer8         172.25.13.97         cBR-8         1           video-LWR-B-A7T         10.90.21.64         cBR-8         48           Ch69-tsi22         172.22.9.43         cBR-8         554           mars-10k         2.39.30.1         UBR10k         1854           video-LWR-B-A3         10.90.21.28         cBR-8         1           polaris-cbr         172.25.15.207         cBR-8         45           Caprica6         172.25.15.206         cBR-8         47           PSG-Golden-2         1.9.100.16         cBR-8         41           sj-cbr-1         172.22.69.16         cBR-8         951           GBR-ch25         172.22.10.22         cBR-8         2667	Host Name         IP Address         Platform         Uptime (hrs)         Fac           Boomer8         172.25.13.97         cBR-8         1         A           video-LWR-B-A7T         10.90.21.64         cBR-8         48         O           Ch69-tst22         172.22.9.43         cBR-8         554         O           mars-10k         2.39.30.1         UBR10k         1854         A           video-LWR-B-A3         10.90.21.28         cBR-8         1         O           polaris-cbr         172.25.15.207         cBR-8         45         A           Caprica6         172.25.15.206         cBR-8         47         O           PSG-Golden-2         1.9.100.16         cBR-8         41         A           sj-cbr-1         172.22.69.16         cBR-8         951         O           CBR-ch25         172.22.10.22         cBR-8         2667         O	Host Name         IP Address         Platform         Uptime (hrs)         Fac         Env           Boomer8         172.25.13.97         cBR-8         1 $\blacktriangle$ $\bigcirc$ video-LWR-B-A7T         10.90.21.64         cBR-8         48 $\bigcirc$ $\bigcirc$ Ch69-tsi22         172.22.9.43         cBR-8         554 $\bigcirc$ $\bigcirc$ mars-10k         2.39.30.1         UBR10k         1854 $\triangle$ $\bigcirc$ video-LWR-B-A3         10.90.21.28         cBR-8         1 $\bigcirc$ $\bigcirc$ polaris-cbr         172.25.15.207         cBR-8         45 $\triangle$ $\bigcirc$ Caprica6         172.25.15.206         cBR-8         47 $\bigcirc$ $\bigcirc$ PSG-Golden-2         1.9.100.16         cBR-8         41 $\triangle$ $\bigcirc$ sj-cbr-1         172.22.69.16         cBR-8         951 $\bigcirc$ $\bigcirc$	Host Name         IP Address         Platform         Uptime (hrs)         Fac         Env         Power           Boomer8         172.25.13.97         cBR-8         1 $\triangle$ $\bigcirc$ $\triangle$ video-LWR-B-A7T         10.90.21.64         cBR-8         48 $\bigcirc$ $\bigcirc$ $\triangle$ ch69-tst22         172.22.9.43         cBR-8         554 $\bigcirc$ $\bigcirc$ $\triangle$ mars-10k         2.39.30.1         UBR10k         1854 $\bigcirc$ $\bigcirc$ $\triangle$ video-LWR-B-A3         10.90.21.28         cBR-8         1 $\bigcirc$ $\bigcirc$ $\triangle$ polaris-cbr         172.25.15.207         cBR-8         45 $\bigcirc$ $\triangle$ $\triangle$ cSprica6         172.25.15.206         cBR-8         47 $\bigcirc$ $\bigcirc$ $\triangle$ PSG-Golden-2         1.9.100.16         cBR-8         41 $\triangle$ $\bigcirc$ $\triangle$ sj-cbr-1         172.25.05.206         cBR-8         51 $\bigcirc$ $\bigcirc$ $\triangle$ GBR-8.02         cBR-8         41 $\triangle$ $\bigcirc$ $△$ $△$ sj-cbr-1	Host Name         IP Address         Platform         Uptime (hrs)         Frac         Env         Power         Cores           Boomer8         172.25.13.97         cBR-8         1         A         Ø         A         A           video-LWR-B-A7T         10.90.21.64         cBR-8         48         Ø         Ø         A         A           ch69-tsi22         172.22.9.43         cBR-8         554         Ø         Ø         A         A           mars-10k         2.39.30.1         UBR10k         1854         A         Ø         A         Ø           video-LWR-B-A3         10.90.21.28         cBR-8         1         Ø         Ø         A         Ø           video-LWR-B-A3         10.90.21.28         cBR-8         1         Ø         Ø         A         Ø           video-LWR-B-A3         10.90.21.28         cBR-8         45         A         Ø         A         Ø           polaris-chr         172.25.15.207         cBR-8         47         Ø         Ø         A         A           PSG-Golden-2         1.9.100.16         cBR-8         951         Ø         Ø         A         Ø         Ø           sj-cbr-1	Host Name         IP Address         Platform         Uptime (hrs)         Trac         Env         Power         Cores         Inv           Boomer8         172.25.13.97         cBR-8         1         A         ©         A	Heat Name         IP Address         Platform         Uptime (hrs)         Tere         Env         Power         Cores         Inv         Sub           Boomer8         172.25.13.97         cBR-8         1 $\triangle$ $\bigcirc$ $\triangle$ </td <td>Heat Name         IP Address         Platform         Uptime (hrs)         Fac         Env         Cores         Inv         Sub         Red           Boomer8         172.25.13.97         cBR-8         1         <math>\triangle</math> <math>\bigcirc</math> <math>\triangle</math> <math>\triangle</math></td>	Heat Name         IP Address         Platform         Uptime (hrs)         Fac         Env         Cores         Inv         Sub         Red           Boomer8         172.25.13.97         cBR-8         1 $\triangle$ $\bigcirc$ $\triangle$			

# System Page

Use this page to view the system related information of the CMTS nodes.

### Figure 12: System Page



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# **License State**



This section displays the license state for all the CMTS nodes added in the Cisco Cable SDN application. *Figure 13: License State* 

# **License Usage**

This section displays the license used in all the CMTS nodes added in the Cisco Cable SDN application. *Figure 14: License Usage* 



# **Supervisor FPGA Versions**

This section displays the supervisor FPGA version used in all the CMTS nodes added in the Cisco Cable SDN application.

#### Figure 15: Supervisor FPGA Versions



# **Smart License**

This section contains license related information.



Note

The information in **Smart License**, **System Overview**, **SUP**, and **Line Cards Installed** is node dependent. It means that you must choose the node in the drop down list in the middle of the **System** page to view these information of that specific node.

#### Figure 16: Smart License

Smart License	-+		▲
Name	Consumed	Reported	
Downstream	256	256	
Upstream	64	64	
WAN	4	4	
			Detail

#### Table 4: Smart License Field Description

Field	Description	
Name	The name of the license.	
Consumed	The number of consumed license.	

Field	Description
Reported	The number of consumed license that reported to SmartAgent.

Click the Detail button at the bottom right corner to open the System License Detail window.

#### Figure 17: System License Detail

System License Detail				Back		
Registration:	UNREGISTERED					
Authorization:	EVALUATION PERIO	D EXPIRED on Mar 31 01:43	:55 2012 UTC			
UDI Smart License Portal	PID: Serial Number:					
License Usage Stats						
	Concurrent	Penowted	Enforcement	Postwiated	Shut Channel List	
Decement	Consumed	Reported	Enforcement	Restricted	Shut Channel List	
Downstream	256	<b>Reported</b> 256 64	Enforcement None	Restricted	Shut Channel List	
Downstream Upstream WAN	Consumed           256         64           4         4	Reported           256           64           4	Enforcement None None None	Restricted	Shut Channel List	
Downstream Upstream WAN	Consumed 256 64 4	Reported           256           64           4	Enforcement None None None	Restricted	Shut Channel List	
Downstream Upstream WAN	Consumed 256 64 4	Reported           256           64           4	Enforcement None None None	Restricted	Shut Channel List	

Table 5: System License Detail Field Description

Field	Description			
Registration	The license registration status.			
Authorization	The license authorization status.			
PID	Product identification number.			
Serial Number	Used to identify an individual, specific instance of product.			
License Usage Stats				
Licenses	The name of the license.			
Consumed	The number of consumed license.			
Reported	The number of consumed license that reported to SmartAgent.			
Enforcement	Shows whether license enforcement exists or not.			

Field	Description
Restricted	Indicates if restrictions are in effect due to out of compliance licensing.
Shut Channel List	Indicates the channels that are shut due to out of compliance licensing.
License Server Reporting Status	
Message Type	License operation type.
Success Count	Number of successful license operation.
Failed Count	Number of failed license operation.
Inqueue Count	Number of license operation to be performed.
Dropped Count	Number of license notifications that are dropped.
Last Sent	Last time the message was sent to license server.

# System Overview

This section contains system overview information.

## Figure 18: System Overview

ower Consu	med:	880W	Power B	udgeted:	0W	
Power Statu	S					
Ū	Ū	U	U	Û	Ċ	
440W	0W	440W	0W	0W	0W	
Fan Status						
$\bigcirc$	<b>&gt;</b>	$\mathbf{\mathfrak{s}}$	(	2	$\bigcirc$	
0%	0%	0%	(	)%	0%	

Table 6: System Overview Field Description

Field	Description
Power Consumed	Power used by the CMTS node.

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Field	Description
Power Budgeted	Power allocated to the CMTS node.
Power Status	Working status of the power.
Fan Status	Fan utilization rate.

Click the Detail button at the bottom right corner to open the Sensor Reading and Facility Alarm Details.

## Figure 19: Facility Alarm

Facility Alarm			
Time	Source	Severity	Description
Dec 31 2011 18:43:44	Power Supply Bay 1	Critical	Power Supply/FAN Module Missing [0]
Dec 31 2011 18:43:44	Power Supply Bay 3	Critical	Power Supply/FAN Module Missing [0]
Dec 31 2011 18:43:44	Power Supply Bay 4	Critical	Power Supply/FAN Module Missing [0]
Dec 31 2011 18:43:44	Power Supply Bay 5	Critical	Power Supply/FAN Module Missing [0]
Dec 31 2011 18:43:44	Fan Slot 0	Critical	Fan Tray Module Missing [0]
Dec 31 2011 18:43:44	Fan Slot 0	Critical	System shutdown will occur in few min [1]
Dec 31 2011 18:43:44	Fan Slot 1	Critical	Fan Tray Module Missing [0]
Dec 31 2011 18:43:44	Fan Slot 1	Critical	System shutdown will occur in few min [1]
Dec 31 2011 18:43:44	Fan Slot 2	Critical	Fan Tray Module Missing [0]
Dec 31 2011 18:43:44	Fan Slot 2	Critical	System shutdown will occur in few min [1]
Dec 31 2011 18:43:44	Fan Slot 3	Critical	Fan Tray Module Missing [0]
Dec 31 2011 18:43:44	Fan Slot 3	Critical	System shutdown will occur in few min [1]
Dec 31 2011 18:43:44	Fan Slot 4	Critical	Fan Tray Module Missing [0]
Dec 31 2011 18:43:44	Fan Slot 4	Critical	System shutdown will occur in few min [1]
Dec 31 2011 18:44:52	TenGigabitEthernet4/1/3	Info	Physical Port Administrative State Down [36]
Dec 31 2011 18:44:52	TenGigabitEthernet4/1/5	Info	Physical Port Administrative State Down [36]
Dec 31 2011 18:44:52	TenGigabitEthernet4/1/6	Info	Physical Port Administrative State Down [36]
Dec 31 2011 18:44:52	TenGigabitEthernet4/1/7	Info	Physical Port Administrative State Down [36]
Dec 31 2011 18:43:45	sup 1	Major	Unknown state [0]

Table	9 7:	Facility	Alarm	Field	Des	cription
-------	------	----------	-------	-------	-----	----------

Field	Description
Time	The time when alarm occurred.
Source	The equipment that triggered alarm.
Severity	The severity of the alarm.
Description	Alarm detail information.

### Figure 20: Sensor Readings

Sensor Readings			
Slot	Name	State	Value
4/1	Temp: INLET	Normal	31 Celsius
4/1	Temp: OUTLET	Normal	31 Celsius
4/1	Temp: INLET PD	Normal	30 Celsius
4/1	Temp: OUTLETPD	Normal	35 Celsius
P0	Temp: INLET	Normal	24 Celsius
P0	Temp: OUTLET	Normal	46 Celsius
P2	Temp: INLET	Normal	23 Celsius
P2	Temp: OUTLET	Normal	53 Celsius
R0	Temp: Y0_DIE	Normal	38 Celsius
R0	Temp: VP_DIE	Normal	27 Celsius
R0	Temp: RT-E_DIE	Normal	39 Celsius
R0	Temp: INLET_1	Normal	25 Celsius
R0	Temp: INLET_2	Normal	24 Celsius
R0	Temp: OUTLET_1	Normal	27 Celsius
3	Temp: CAPRICA	Normal	37 Celsius
3	Temp: BASESTAR	Normal	52 Celsius
3	Temp: RAIDER	Normal	48 Celsius
3	Temp: CPU	Normal	33 Celsius
3	Temp: INLET	Normal	23 Celsius
3	Temp: OUTLET	Normal	37 Celsius
3	Temp: DIGITAL	Normal	34 Celsius
3	Temp: UPX	Normal	29 Celsius
3	Temp: LEOBEN1	Normal	33 Celsius
3	Temp: LEOBEN2	Normal	37 Celsius

#### Table 8: Sensor Readings Field Description

Field	Description
Slot	Slot where the sensor resides.
Name	Sensor name.
State	Sensor status.
Value	Sensor reading.

# **SUP Information**

This section contains supervisor related information.

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### Figure 21: SUP



Click the Detail button at the bottom right corner to open the Supervisor Card window.

#### Figure 22: Supervisor Card Stats

Supervisor Card	Back
Forwarding Plane Stats	>
Forwarding Plane Punt/Inject Stats	>
FPGA/CPLD Info	>
Redundancy Info	>
CPU, Mem and Processes Stats	>
IPC Stats	>

## **Forwarding Plane Stats**

This section contains hardware packet forwarding statistics.

#### Figure 23: Forwarding Plane Stats

Forwarding Plane Stats	*
CPP State	>
CPP Load	>
Global Drops	>
Packet Buffer Usage	>
Queue Usage	>
ESI State	>
TCAM Memory Stats	>

# **CPP** State

This section contains CPP state information.

#### Figure 24: CPP State

CPP State	~	0
CPP State : ENABLE		265230

# **CPP** Load

This section contains CPU utilization information.

## Figure 25: CPP Load

CPP Load					*
Subdev	5 Seconds	1 Minute	5 Minutes	60 Minutes	
CPP 0: Subdev 0	0	0	0	0	

#### Table 9: CPP Load Field Description

Field	Description
Subdev	Core in the CPP.
5 Seconds	Average CPU utilization in 5 seconds.
1 Minute	Average CPU utilization in 1 minute.
5 Minutes	Average CPU utilization in 5 minute.
60 Minutes	Average CPU utilization in 60 minute.

# **Global Drops**

This section contains dropping packets information.

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#### Figure 26: Global Drops

Global Drops		~
Туре	Drop Count	Drop Rate (p/s)
BadAdj	3	0.0000
BadUidbSubIdx	408107	0.0000
CblBfNullRepllist	425	0.0000
CblBfReplicationStart	67	0.0000
InjectErr	67	0.0000
InvL2Hdr	7944	0.0000
IpTtlExceeded	401729645	0.0000
Ipv4NoAdj	22980	0.0000
Ipv4NoRoute	403023069	0.0000
Ipv6Badhop	178377	0.0000
Ipv6Badsource	51	0.0000
Ipv6NoAdj	238	0.0000
Mpls	356669900	0.0000
MplsNoRoute	27	0.0000
MplsUnclassified	53	0.0000
NoDefJib	44	0.0000
PuntPerCausePolicerDrops	8422	0.0000
UnconfiguredFia	5599955	0.5968
UnconfiguredIpv4Fia	6308	0.0000

#### Table 10: Global Drops Field Description

Field	Description
Туре	The reason for dropping packets.
Drop Count	Number of packets that are dropped.
Drop Rate (p/s)	Number of packets that are dropped in one second.

# **Packet Buffer Usage**

This section contains packet buffer memory utilization details.

## Figure 27: Packet Buffer Usage

Packet Buffer Usage		~
Yoda	Utilization	
Yoda: 0	0 %	

#### **Table 11: Global Drops Field Description**

Field	Description
Yoda	Yoda module number.
Utilization	Packet buffer memory utilization.

# Queue Usage

This section contains user queue information.

#### Figure 28: Queue Usage

Queue Usage				*
Yoda	Active Queues	Total Queues	Percent Used	
Yoda: 0	4045	128000	3.1602	

Table 12: Queue Usage Field Description

Field	Description
Yoda	Yoda module number.
Active Queue	The active user queue.
Total Queue	The maximum user queue supported.
Percent Used	The percentage of the queue being used.

## **ESI State**

This section contains ESI link statistical information.

## Figure 29: ESI State

ESI State						~
Link Name	Link Status	High (p/s)	Low (p/s)	Bad (p/s)	Dropped (p/s)	Error (p/s)
SUP0	ok, active					
Slot R1-Link A	RX link down	0.0000	0.0000	0.0000	0.0000	0.0000
Slot R0-Link A	RX link locked	0.0000	0.0000	0.0000	0.0000	0.0000
Slot F1-Link A	RX link Init	0.0000	0.0000	0.0000	0.0000	0.0000
Slot 3-Link A	RX link locked	0.0000	0.0000	0.0000	0.0000	0.0000
Slot 4-Link A	RX link locked	0.0000	0.0000	0.0000	0.0000	0.0000
Slot 4-Link B	RX link locked	0.0000	0.0000	0.0000	0.0000	0.0000
Slot 4-Link C	RX link locked	0.0000	0.0000	0.0000	0.0000	0.0000
Slot 4-Link D	RX link locked	0.0000	0.0000	0.0000	0.0000	0.0000
Slot 4-Link E	RX link Init	0.0000	0.0000	0.0000	0.0000	0.0000
Slot 4-Link F	RX link Init	0.0000	0.0000	0.0000	0.0000	0.0000
Slot 4-Link G	RX link Init	0.0000	0.0000	0.0000	0.0000	0.0000
Slot 4-Link H	RX link Init	0.0000	0.0000	0.0000	0.0000	0.0000
SUP1	unknown					
Slot R1-Link A	RX link down	0.0000	0.0000	0.0000	0.0000	0.0000
Slot R0-Link A	RX link down	0.0000	0.0000	0.0000	0.0000	0.0000
Slot F0-Link A	RX link down	0.0000	0.0000	0.0000	0.0000	0.0000
Slot 3-Link A	RX link down	0.0000	0.0000	0.0000	0.0000	0.0000
Slot 5-Link A	RX link down	0.0000	0.0000	0.0000	0.0000	0.0000
Slot 5-Link B	RX link down	0.0000	0.0000	0.0000	0.0000	0.0000
Slot 5-Link C	RX link down	0.0000	0.0000	0.0000	0.0000	0.0000
Slot 5-Link D	RX link down	0.0000	0.0000	0.0000	0.0000	0.0000
Slot 5-Link E	RX link down	0.0000	0.0000	0.0000	0.0000	0.0000
Slot 5-Link F	RX link down	0.0000	0.0000	0.0000	0.0000	0.0000
Slot 5-Link G	RX link down	0.0000	0.0000	0.0000	0.0000	0.0000
Slot 5-Link H	RX link down	0.0000	0.0000	0.0000	0.0000	0.0000

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## Table 13: ESI State Field Description

Field	Description
Link Name	ESI Link connection.
Link Status	Status of the link to the other component.
High (p/s)	Maximum packets per second to the other component.
Low (p/s)	Minimum packets per second to the other component.
Bad (p/s)	Number of uncorrectable packets per second.
Dropped (p/s)	Number of dropped packets per second.
Error (p/s)	Number of error packets per second.

## **TCAM Memory Stats**

This section contains TCAM memory statistical information.

## Figure 30: TCAM Memory Stats

TCAM Memory Stats	~
Memory Threshold Status :	]
TCAM Errors :	

#### Table 14: TCAM Memory Stats Field Description

Field	Description
Memory Threshold Status	Top utilization of the TCAM.
TCAM Errors	Errors detected in TCAM memory.

# Forwarding Plane Punt/Inject Stats

This section contains statistics for the packets that forwarded to/from the Supervisor card.

#### Figure 31: Forwarding Plane Punt/Inject Stats

Forward	orwarding Plane Punt/Inject Stats						~
a 1	1						
Subscr	iber CPP Punts						
ID	Punt Cause	CPP Punt	CPP Punt Rate (p/s)	CoPP Drop	SBRL Drop	Per-Cause	Global
105	Cable DHCP	764745	0.0333	0	0	0	0
060	IP subnet or broadcast packet	47664886	0.0000	0	0	0	0
055	For-us control	359	0.0000	0	0	0	0
011	For-us data	66931	0.0000	0	0	0	0
007	ARP request or response	72233	0.0000	0	0	0	0
WAN (	WAN CPP Punts						
ID	Punt Cause	CPP Punt	CPP Punt Rate (p/s)	CoPP Drop	SBRL Drop	Per-Cause	Global
105	Cable DHCP	1418650	0.0000	0	0	8422	0
060	IP subnet or broadcast packet	12557799	0.0000	0	0	0	0
055	For-us control	17542299	1.3000	0	0	0	0
030	RP injected For-us data	20	0.0000	0	0	0	0
029	RP handled ICMP	294	0.0000	0	0	0	0
026	QFP ICMP generated packet	402155242	0.0000	0	0	0	0
024	Glean adjacency	7300	0.0000	0	0	0	0
011	For-us data	2427661	0.1333	0	0	0	0
010	Incomplete adjacency	71	0.0000	0	0	0	0
007	ARP request or response	14623761	0.0000	0	0	0	0
003	Layer2 control and legacy	38928824	0.0000	0	0	0	0

Field	Description
ID	Priority identifier.
Punt Cause	Reason for punting the packet to the local CPU.
CPP Punt	Number of packets punted for this reason.
CPP Punt Rate (p/s)	Punt rate for this reason.
CoPP Drop	Number of packets of this type dropped due to CoPP policy.
SBRL Drop	Number of packets dropped due to SBRL enforcement.
Pre-Cause	Specifies the aggregate per cause punt statistics.
Global	Specifies the aggregate drop statistics.

# **FPGA/CPLD** Info

This section contains firmware versioning information.

#### Figure 32: FPGA/CPLD Info

FPGA/CPLD Info		*
Slot 4		
Name	Version	
CPLD version	14121111	
Rommon version	15.5(2r)S	
Blackbird version	00000112	
Raptor ESI version	00010035	
Raptor MAC version	0001002D	
SUP-PIC CPLD version	14071504	
SUP-DC CPLD version	mm	
DTI Client FPGA version	00000005	
DTI Firmware version	00000A03	
Cortina PHY version	201402061607	
Slot 5		
Name	Version	
CPLD version	N/A	
Rommon version	N/A	
Blackbird version	N/A	
Raptor ESI version	N/A	
Raptor MAC version	N/A	
SUP-PIC CPLD version	N/A	
SUP-DC CPLD version	N/A	
DTI Client FPGA version	N/A	
DTI Firmware version	N/A	
Cortina PHY version	N/A	

## Table 16: FPGA/CPLD Info Field Description

Field	Description
Name	The firmware name.
Version	The firmware version.

# **Redundancy Info**

This section contains the information about the redundancy configuration and statistics.

#### Figure 33: Redundancy Info

Redundancy Info	*
Name	Information
Switchovers	0
Standby Failures	0
Switchover Reason	none
Hardware Mode	Simplex
Configured Redundancy Mode	550
Operating Redundancy Mode	Non-redundant
Maintenance Mode	Disabled
Communications	
Location	slot 4
Software State	ACTIVE
Configuration Register	0x0
Crash Directory	Directory of bootflash:/crash* cbr>No such file br>7800705024 bytes total (3098939392 bytes free)

# **CPU, Mem and Processes Stats**

This section contains CPU, memory and process statistics.

## Figure 34: CPU, Mem and Processes Stats

CPU, Mem and Process	ses Stats			*
CPU/Mem Utilizatio	on Stats			
Slot	CPU %	Mam Lead (Khytas)	Mam Free (Khytee)	
3101	CFU 70	Meni-Osed (Roytes)	Mem-Free (KDytes)	
4	99%	7796032	41421300	
CPU Utilization - IO	S Processes			
Slot	IOS Process	CPU %		
CDU Utilization DI	NOS Brossess			
CPU Utilization - BI	NOS Processes			
Slot	BINOS Process	CPU %		
4	cmand	0%		
	emd	7%		
	fman_rp	4%		
	hman	2%		
	imand	6%		
	linux_tosd-imag	0%		
	smand	0%		
	cman fp	0%		
	fman fp image	0%		
	hman	2%		
	emee	7%		
	emd	3%		
	hman	2%		
	iomd	3%		

Table 17: CPU, Mem and Processes Stats Field Description

Field	Description
CPU/Mem Utilization Stats	

Field	Description
Slot	The slot where the SUP resides.
CPU %	CPU utilization.
Mem-Used (Kbytes)	The memory used by the SUP.
Mem-Free (Kbytes)	Free memory.
CPU Utilization-IOS Processes	
Slot	The slot where the SUP resides.
IOS Process	IOS process name.
CPU %	CPU utilization of the process.
CPU Utilization-BINOS Processes	
Slot	The slot where the SUP resides.
BINOS Process	BINOS process name.
CPU %	CPU utilization of the process.

# **IPC Stats**

This section contains communication statistics between the supervisor card and cable line cards.

### Figure 35: IPC Stats

IPC Stats								~
IPC Port	Stats							
SUP	LC	UP	Outstanding Packets	Max Outstanding Packets	Pending Packets	Max Pending Packets	Error Type	Error Count
SUP0	3	True	0	10000	0	0	EAgain	0

Table 18: IPC Stats Field Description

Field	Description
SUP	The SUP that is communicating.
LC	The line card that is communicating with this SUP.
UP	Indicates if the communication is operational.
Outstanding Packets	The number of packets that is not sent.
Max Outstanding Packets	The maximum number of packets that is not sent.
Pending Packets	The number of packets that is to be sent.

Field	Description
Max Pending Packets	The maximum number of packets that is to be sent.
Error Type	Type of error.
Error Count	The number of the error packets.

# **Line Cards Installed**

This section contains line card related information.

### Figure 36: Line Cards Installed

	Slot	Redundancy	Device	Version	S/N	
	2	Active	clc 2	V01	CAT1927E1WL	
	3	Active	clc 3	V01	CAT1927E1UL	
0	6	Active	clc 6	V01	CAT1830E0QN	

#### Table 19: Line Cards Installed Field Description

Field	Description
Slot	Slot where the line card resides.
Redundancy	Line card state.
Device	Line card name.
Version	Line card version.
S/N	Line card serial number.

To view the Inventory Information for a line card, click the **Information** button corresponding to the specific line card, the **Inventory Info for Line Card** window is displayed, containing the line card name, version and S/N.

	Inventory Info For Line Card		
10	CLC Downstream PHY Module 1/0		
	CAT1010E1R5		
10	CLC Downstream PHY Module 1/1		
	V01		
	CAT1919E1LD		
<b>1</b>	CLC Upstream PHY Module 1/2		
	V01		
	CAT1918E13J		
		Close	365233

Figure 37: Inventory Info for Line Card

To view the summary information for a line card, move the mouse over the **Context Menu** button corresponding to the specific line card, then select **Summary** in the pop up menu, the **Summary for Line Card in Slot x** is displayed, containing the line card up time, CPU and memory utilization, temperature state and redundancy state.

#### Figure 38: Summary for Line Card in Slot x



Click the Detail button at the bottom right corner to open the Cable Line Cards page.

#### Figure 39: Cable Line Cards

'able Line Cards Back	
Slot 0 - Standby	~
FPGA/CPLD Info	>
Redundancy Info	>
CPU, Mem and Processes Stats	>
IPC Stats	>
Slot 1 - Active	>
Slot 2 - Active	>
Slot 3 - Active	>
Slot 6 - Active	>
Slot 7 - Active	>
Slot 8 - Active	>
Slot 9 - Active	>

## **FPGA/CPLD** Info

This section contains firmware versioning information.

## Figure 40: FPGA/CPLD Info

FPGA/CPLD Info		~	
Name	Version		
CPLD version	0001011C		
Rommon version	2011.03.12		
Basestar version	00020035		
Raider version	00010009		
Caprica version	00000017		26
			3652

#### Table 20: FPGA/CPLD Info Field Description

Field	Description
Name	The firmware name.
Version	The firmware version.

# **Redundancy Info**

This section contains the information about the redundancy configuration and statistics.

#### Figure 41: Redundancy Info

Redundancy Info		*
Name	Information	
Slot	3	
Role	Active	
Mode	None	
LC Group		
Peer Slot		
Peer State		

# **CPU, Mem and Processes Stats**

This section contains CPU, memory and process statistics.

#### Figure 42: CPU, Mem and Processes Stats

CPU, Mem and Proces	ses Stats			~
CPU/Mem Utilizatio	on Stats			
Slot	CPU %	Mem-Used (Kbytes)	Mem-Free (Kbytes)	
3	22	2216168	22361320	
CPU Utilization - IC	OS Processes			
Slot	IOS Process	C	PU %	
3	DOCSIS Load ba	ancing Task 4		
	UBR_INFRA_ST	ATS 1		
CPU Utilization - Bl	NOS Processes			
CPU Utilization - Bl	NOS Processes BINOS Process	s CPU (	%	
CPU Utilization - Bl	INOS Processes BINOS Process edman	s CPU -	%	
CPU Utilization - Bl Slot	INOS Processes BINOS Process cdman emee	s CPU ( 9 0	%	
CPU Utilization - Bl Slot 3	INOS Processes BINOS Process edman emec hman	5 <b>CPU</b> 9 9 0 20	%	
CPU Utilization - Bl Slot 3	INOS Processes BINOS Process edman emec hman lehaman	s CPU 0 9 0 20 0	%	

Table 21: CPU, Mem and Processes Stats Field Description

Field	Description
CPU/Mem Utilization Stats	
Slot	The slot where the line card resides.
CPU %	CPU utilization.
Mem-Used (Kbytes)	The memory used by the line card.
Mem-Free (Kbytes)	Free memory.
CPU Utilization-IOS Processes	

Field	Description				
Slot	The slot where the line card resides.				
IOS Process	IOS process name.				
CPU %	CPU utilization of the process.				
CPU Utilization-BINOS Processes					
Slot	The slot where the line card resides.				
BINOS Process	BINOS process name.				
CPU %	CPU utilization of the process.				

## **IPC Stats**

This section contains communication statistics between cable line cards.

## Figure 43: IPC Stats



#### Table 22: IPC Stats Field Description

Field	Description
SUP	The SUP that is communicating.
LC	The line card that is communicating with each other.
UP	Indicates if the communication is operational.
Outstanding Packets	The number of packets that is not sent.
Max Outstanding Packets	The maximum number of packets that is not sent.
Pending Packets	The number of packets that is to be sent.
Max Pending Packets	The maximum number of packets that is to be sent.
Error Type	Type of error.
Error Count	The number of the error packets.

# **Subscribers Page**

Use this page to view the subscribers related information of the CMTS node.



#### Figure 44: Subscribers Page

# **Cable Modem Summary**

This section displays the number of cable modem with different status for all the CMTS nodes added in the Cisco Cable SDN application.

#### Figure 45: Cable Modem Summary



#### Table 23: Cable Modem Field Description

Field	Description
Online	Total number of online cable modems.
Connecting	Total number of cable modems that are connecting.
Offline	Total number of offline cable modems.

Click the **Detail** button at the bottom right corner of the IPv4 ARP Statistics and IPv6 Neighbor Statistics section to open the **Subscriber Group Detail** page.

#### Figure 46: Modems

Modems											
Slot	Total	Registered	Ranging	DHCP	TFTP	IPv4	IPv6	Dual Stack	Rejected	Flapcount	
7	522	519	0	0	1	447	42	31	0	120	
Total	522	519	0	0	1	447	42	31	0	120	

#### Table 24: Modems Field Description

Field	Description
Slot	Slot where the line card resides.
Total	Total number of cable modems.
Registered	Total number of cable modems that have registered with the Cisco CMTS.
Ranging	Total number of cable modems that are ranging.
DHCP	Total number of cable modems that use DHCP address assignment.

Field	Description
TFTP	Total number of cable modems that download the configuration file via TFTP.
IPv4	Total number of cable modems that use IPv4 addressing.
IPv6	Total number of cable modems that use IPv6 addressing.
Dual Stack	Total number of cable modems that support both IPv4 and IPv6 addressing modes.
Rejected	Number of rejected modems.
Flapcount	Number of modems flapping on this line card.

# **CPE Summary**

This section displays the number of CPE with different status for all the CMTS nodes added in the Cisco Cable SDN application.

## Figure 47: CPE Summary



## Table 25: CPE Field Description

Field	Description
eRTR	Total number of CPE on this interface that have reported the device class as an embedded router.
eMTA	Total number of CPE on this interface that have reported the device class as an embedded multimedia terminal adapter.
eSTB	Total number of CPE on this interface that have reported the device class as an embedded set-top box.

Field	Description
ePS	Embedded Portal Service Element. A CableHome-compliant eSAFE that provides management and network address translation functions between the DOCSIS network and the home network.
Other	Total number of PC or other nondescript devices.

Click the **Detail** button at the bottom right corner of the IPv4 ARP Statistics and IPv6 Neighbor Statistics section to open the **Subscriber Group Detail** page.

## Figure 48: CPE Detail

CPE											
Slot	Total	Connected	eRTR	eMTA	eSTB	ePS	Other	IPv4	IPv6	Dual Stack	
7	208	0	0	206	0	0	2	0	0	0	
Total	208	0	0	206	0	0	2	0	0	0	

#### Table 26: CPE Detail Field Description

Field	Description
Slot	Slot where the line card resides.
Total	Total number of CPE.
Connected	Total number of CPE that are connected to cable modem.
eRTR	Total number of CPE on this interface that have reported the device class as an embedded router.
eMTA	Total number of CPE on this interface that have reported the device class as an embedded multimedia terminal adapter.
eSTB	Total number of CPE on this interface that have reported the device class as an embedded set-top box.
Other	Other device type such as Host, CPE, etc.
IPv4	Total number of CPE that use IPv4 addressing.
IPv6	Total number of CPE that use IPv6 addressing.
Dual Stack	Total number of CPE that support both IPv4 and IPv6 addressing modes.
# **Modem History**

L

This section contains a chart illustrating the modem number in a past few days. There are 3 types of chart to choose from: stacked chart, stream chart, and expanded chart. You can also filter the modems with different status displayed in the chart.



The information in **Modem History**, **CPE History**, **Voice**, **IPv4 ARP Statistics**, and **IPv6 Neighbor Statistics** is node dependent. It means that you must choose the node in the drop down list in the middle of the **Subscribers** page to view these information of that specific node.

Figure 49: Modem History



# **CPE History**

This section contains a chart illustrating the CPE number in a past few days. There are 3 types of chart to choose from: stacked chart, stream chart, and expanded chart. You can also filter the CPE with different status displayed in the chart.



#### Figure 50: CPE History

# Voice

This section contains voice call information.

#### Figure 51: Voice





Field	Description
Voice	Total number of voice calls.
High Priority	Total number of high priority voice calls (911 calls).

Click the Detail button at the bottom right corner to open the Subscriber Group Detail - Voice page.

		System -	Subscribers	ServiceGroup	Reports	
Subscriber Group Detail - Voice			Back			
Voice Calls						
Slots	Calls	High Pri Calls	Total Gates	Committed Gates	Uncommitted Gates	
1	0	0	0	0	0	
2	0	0	0	0	0	
3	0	0	0	0	0	
6	0	0	0	0	0	
7	0	0	0	0	0	
8	0	0	0	0	0	
9	0	0	0	0	0	
Total	0	0	0	0	0	
COPS Serv	/ers					
COPS Serv	/ers	Port	State	Keepalive Timeou	t	
COPS Serv Address 4.3.2.151	/ers	Port 64139	State Up	Keepalive Timeou 10	t	
COPS Serv Address 4.3.2.151 4.3.3.151	/ers	Port 64139 64140	State Up Up	Keepalive Timeou 10 10	t	
COPS Serv Address 4.3.2.151 4.3.3.151 4.3.0.145	/ers	Port 64139 64140 34020	State Up Up Up	Keepalive Timeou 10 10 60	t	
COPS Serv Address 4.3.2.151 4.3.3.151 4.3.0.145 4.3.0.146	/ers	Port 64139 64140 34020 54512	State Up Up Up Up	Keepalive Timeou 10 10 60 60	t	
COPS Serv Address 4.3.2.151 4.3.0.145 4.3.0.146 Call Manag	vers	Port 64139 64140 34020 54512 ervers	State Up Up Up Up	Keepalive Timeou 10 10 60 60	t	
COPS Serv Address 4.3.2.151 4.3.0.145 4.3.0.146 Call Manag	Jerrs	Port 64139 64140 34020 54512 ervers ress	State Up Up Up Up	Keepalive Timeou 10 10 60 60 Client Address	t Versions	
COPS Serv Address 4.3.2.151 4.3.0.145 4.3.0.146 Call Manag	yers gement Si Add 4.3.2	Port 64139 64140 34020 54512 ervers 24512	State Up Up Up Up Up Port 64139	Keepalive Timeou 10 10 60 60 Client Address 5.10.0.94	t Versions 4	
COPS Serv Address 4.3.2.151 4.3.3.151 4.3.0.145 4.3.0.146 Call Manag	yers jement So Add 4.3.2 4.3.3	Port 64139 64140 34020 54612 ervers 2.151 3.151	State Up Up Up Up Port 64139 64140	Keepalive Timeou 10 10 60 60 Client Address 5.10.0.94 5.10.0.104	t Versions 4 4	
COPS Serv Address 4.32.151 4.33.151 4.30.145 Call Manag	vers gement Sr Add 4.3.2 4.3.3 4.3.0	Port 64139 64140 34020 54512 ervers 2151 2.151 2.145	State Up Up Up Up Vp 407 64139 64140 34020	Keepalive Timeou           10           10           60           60           50           Client Address           5.100.94           5.100.94	t Versions 4 4 3	

#### Figure 52: Subscriber Group Detail - Voice

D

Table 28: Subscriber Group Detail - Voice Field Description

Field	Description			
Voice Calls	· · · ·			
Slot	Slot where the line card resides.			
Calls	Total number of voice calls.			
High Pri Calls	Total number of high priority voice calls.			
Total Gates	Total number of open transactions.			
Committed Gates	Total number of committed but not activated transactions.			
Uncommitted Gates	Total number of transactions that have not been committed.			
COPS Servers				
Address	COPS server IP address.			
Port	COPS server port number.			

Field	Description		
State	Availability state.		
Keepalive Timeout	A period of idle time after which the connection will terminate.		
Call Management Servers			
Address	Call management server IP address.		
Port	Call management server port number.		
Client Address	Call management client IP address.		
Versions	Call manager COPS version.		

# **IPv4 ARP Statistics**

This section contains IPv4 ARP statistics.

## Figure 53: IPv4 ARP Statistics



#### Table 29: IPv4 ARP Statistics Field Description

Field	Description
Request Packets	The number of ARP requests sent/received per second.
Reply Packets	The number of ARP reply packets send/received per second.

Click the **Detail** button at the bottom right corner of the IPv4 ARP Statistics and IPv6 Neighbor Statistics section to open the **Subscriber Group Detail** page.

Figure 54: IPv4 ARP Status

IPv4 ARI	Status			
Total: 1059	Incomplete: 0			
	Packet	Sent	Received	$ \geq $
	Request	0.00 pps	0.00 pps	2
	Reply	0.00 pps	0.00 pps	36
				•••

Table 30: IPv4 ARP Status Field Description

Field	Description
Total	Total number of ARP packets.
Incomplete	The number of unresolved ARP packets.
Send	The number of ARP packets sent per seconds.
Received	The number of ARP packets received per seconds.

# **IPv6 Neighbor Statistics**

This section contains IPv6 neighbor statistics.

Figure 55: IPv6 Neighbor Statistics



#### Table 31: IPv6 Neighbor Statistics Field Description

Field	Description
Solicit Packets	The number of ARP request per second.
Advertise Packets	The number of ARP response per second.

Click the **Detail** button at the bottom right corner of the IPv4 ARP Statistics and IPv6 Neighbor Statistics section to open the **Subscriber Group Detail** page.

#### Figure 56: IPv6 Neighbor Statistics Detail

IPv6 Neighbor Statistics				
Total: 1245 Incomplete: 0				
Packet	Sent	Received	c	<u>6</u>
Solicit	0.00 pps	0.00 pps		ġ
Advertise	0.00 pps	0.00 pps		ä

#### Table 32: IPv6 Neighbor Statistics Detail Field Description

Field	Description
Total	Total number of ARP packets.
Incomplete	The number of unresolved ARP packets.
Send	The number of ARP packets sent per seconds.
Received	The number of ARP packets received per seconds.

# **Service Group Page**

Use this page to view the service group related information of a CMTS node. The information displayed in this page is node dependent. It means that you must choose the node in the drop down list to view the information of that specific node.

hboard	System	Subscribers	ServiceGroup	Reports	
Device: 17	2.25.15.207 - polaris-cbr	<u> </u>			
Service (	Group	MD DS SG Utilization	DS Channel Utilization		
40 0 0-25% 26-50 Num of FN wi utilization ran	1% 51-75% 76-100% ith specific DS ge	10 5 0 -25% 26-50% 51-75% 76-100% Num of ND DS SG with specific utilization range	500         0           0-25%         26-50%         51-75%         76-100%           Num of DS Channels with specific utilization range         1000000000000000000000000000000000000		
Fiber Nod	le US Utilization	AD US SG Utilization	US Channel Utilization		
0-25% 28-50*     Num of FN with     utilization rang	% 51.75% 76-100% h specific US le	D-25% 26-50% 51-75% 76-100%     Num of MD US SG with     specific utilization range	0-25% 26-50% 51-75% 78-100%		Detail
Line Car	d Utilization				
Line C	Card 3 DS 🎢 📔	2%	Line Card 3 US 🏠	1	%
Line (	Card 6 DS 🏠	3%	Line Card 6 US 🏠	1	96

#### Figure 57: Service Group Page

# **Service Group**

This section contains service group related information.

#### Figure 58: Service Group



Table 33: Service Group Field Description

Field	Description
Fiber Node DS Utilization	Current utilization of the Fiber Node Downstream.
MD DS SG Utilization	Current utilization of the MAC Domain Downstream Service Group.
DS Channel Utilization	Downstream channel utilization.
Fiber Node US Utilization	Current utilization of the Fiber Node Upstream.
MD US SG Utilization	Current utilization of the MAC Domain Upstream Service Group.
US Channel Utilization	Upstream channel utilization.

Click the **Detail** button at the bottom right corner of the Service Group section to open the **Utilization** page. *Figure 59: Utilization* 

Device: 172.25.15.207 - polaris-cbr	•
Utilization	Back
Fibernode Utilization	>
MD DS SG Utilization	>
MD US SG Utilization	× .
Controller Utilization	>

### **Fibernode Utilization**

This section contains fibernode utilization information.

							Q Search fo		
ibernode	DS Throughput (Mbps)	÷	Max DS Capacity (Mbps)	¢	DS Utilization \$	U (N	JS Throughput Mbps)	Max US Capacity (Mbps)	US Utilization
ibernode 1	1397		3600		39%	4	14	122	36%
ibernode 10	1398		3600		39%	4	14	122	37%
ibernode 11	1397		3600		39%	4	14	122	36%
ibernode 12	1398		3600		39%	4	14	122	36%
ibernode 13	1398		3600		39%	4	14	122	36%
ibernode 14	1398		3600		39%	4	14	122	37%
ibernode 15	1398		3600		39%	4	14	122	36%
ibernode 16	1398		3600		39%	4	14	122	37%
ibernode 2	1398		3600		39%	4	14	122	36%
ibernode 21	30		3600		1%	0	)	122	0%
w 10 • entries								Previous 1 2	3 4 Next

#### Figure 60: Fibernode Utilization

Table 34: Fibernode Utilization Field Description

Field	Description
Fibernode	Fibernode serving the area.
DS Throughput (Mbps)	Downstream Thoughput in Mbps.
Max DS Capacity (Mbps)	Downstream Capacity in Mbps.
DS Utilization	Downstream utilization in %.
US Throughput (Mbps)	Upstream Thoughput in Mbps.
Max US Capacity (Mbps)	Upstream Capacity in Mbps.
US Utilization	Upstream utilization in %.

## **MD DS SG Utilization**

This section contains MD DS SG utilization information.

## Figure 61: MD DS SG Utilization

ND DS SG Utilization				*
			Q Search for	
MD DS SG	<ul> <li>Throughput(Mbps)</li> </ul>	Max Capacity	Utilization	\$
C1/0/0#11	1397	3600	39%	
C1/0/1#9	1398	3600	39%	
C1/0/10#8	1397	3600	39%	
C1/0/11#7	1398	3600	39%	
C1/0/12#7	1398	3600	39%	
C1/0/13#8	1398	3600	39%	
C1/0/14#7	1398	3600	39%	
C1/0/15#15	1398	3600	39%	
C1/0/2#10	1397	3600	39%	
C1/0/3#8	1398	3600	39%	
Show 10 • entries			Previous 1 2 3	4 Next

#### Table 35: MD DS SG Utilization Field Description

Field	Description
MD DS SG	MAC Domain Downstream service group number.
Throughput (Mbps)	MAC domain downstream service group throughput in Mbps.
DS Capacity (Mbps)	Maximum MAC domain downstream service group bandwidth in Mbps.
Utilization	Maximum MAC domain downstream service group bandwidth utilization.

## **MD US SG Utilization**

This section contains MD US SG utilization information.

#### Figure 62: MD US SG Utilization

			Q. Search for	
ID US SG	<ul> <li>Throughput(N</li> </ul>	/lbps)	s)	(
1/0/0#1	44	122	36%	
1/0/1#1	44	122	36%	
1/0/10#1	44	122	36%	
1/0/11#1	44	122	37%	
1/0/12#1	44	122	37%	
1/0/13#1	44	122	36%	
1/0/14#1	44	122	36%	
1/0/15#1	44	122	36%	
1/0/2#1	44	122	36%	
1/0/3#1	44	122	37%	
v 10 • entries			Previous 1	2 3 4 Nex

## Table 36: MD US SG Utilization Field Description

Field	Description
MD US SG	MAC domain upstream service group number.
Throughput (Mbps)	MAC domain upstream service group throughput in Mbps.
Max Capacity (Mbps)	Maximum MAC domain upstream service group bandwidth in Mbps.
Utilization	Maximum MAC domain upstream service group bandwidth utilization.

### **Controller Utilization**

This section contains controller utilization information.

## Figure 63: Integrated Cable

Controller Utilization				*
Integrated Cables				*
Integrated-Cable 0/0/0				*
Channel	Throughput(Mbps)	Max Capacity (Mbps)	Utilization	

Table 37: Integrated Cable Field Description

Field	Description
Channel	Downstream channel number referencing a frequency.
Throughput (Mbps)	Downstream channel throughput in Mbps.

Field	Description
Max Capacity (Mbps)	Maximum downstream channel bandwidth in Mbps.
Utilization	Downstream channel bandwidth utilization.

#### Figure 64: Upstream Cable

Controller Utilization				*	
Integrated Cables				>	
Upstream Cables				*	
Upstream-Cable 0/0/0				♥	
Channel	Throughput(Mbps)	Max Capacity (Mbps)	Utilization	DEG DEG	056
				222	85

#### Table 38: Upstream Cable Field Description

Field	Description
Channel	Upstream channel number referencing a frequency.
Throughput (Mbps)	Upstream channel throughput in Mbps.
Max Capacity (Mbps)	Maximum upstream channel bandwidth in Mbps.
Utilization	Upstream channel bandwidth utilization.

# **Line Card Utilization**

This section contains line card utilization related information.

### Figure 65: Line Card Utilization

Line Card Utilization							
Line Card 3 DS 🎢	2	% Lin	ne Card 3 US 🎢		1%		
		‰ ⊑⊪			1%		
						Detail	385048

Move the mouse over the icon next to the line card name, a port list will be displayed, listing each port utilization. Then move the mouse over one of the ports and click, you can see the spectrum view of the line card utilization. Red means high unitization, yellow means medium utilization, and green means low utilization.

#### Figure 66: Spectrum View



# **Spectrum Management**

Use this page to generate spectrum chart, spectrogram, and signal SNR, CNR, data SNR chart of a cable modem.

# **General Instructions**

These are some general instructions and information used in this feature:

lcon	Description
$\bigcirc$	Start generating the chart according to the defined parameters.
(1)	Pause generating the chart.
۲	Stop generating the chart.
Ð	Add Single Channel or Modem.
Θ	Save the data for a specific period.
۵	Take snapshot of the screen.
۲	Playback the data saved using <b>Timing Video</b> button.

Icon	Description
	Save the data to your local computer.
Î	Delete the data.

# **Adding Single Channel or Modem**

In order to generate chart in the Spectrum Management feature, you must add single channel or modem first. To add single channel or modem, follow the steps below:

 Click the Add Modem button, Add Single Channel or Modem window is displayed. Figure 67: Add Single Channel or Modem

Line Card	0	•	
Mac Domain	0	•	
US		▼ Get U	s
CM	please input or select get CM	Get C	М

- 2. Choose the line card and MAC domain from the drop down list.
- 3. Click the Get US button to get the upstream channel.
- 4. Click the Get CM button to get the cable modem belongs to the upstream channel.
- 5. Select a cable modem from the cable modem list.
- 6. Click the Add button to add the cable modem. Then the cable modem will be displayed on the page.

# **Spectrum US**

Use this page to monitor power and noise levels for a selected modem.

#### Figure 68: Spectrum US



In this page, you can set the following parameters:

- Interval The interval to gather the data.
- Step It is related to the resolution of the chart. The bigger this value is, the more accurate the chart will be.
- Max Displays the chart that shows the maximum power level.
- Min Displays the chart that shows the minimum power level.
- Average Displays the chart that shows the average power level.
- Smooth Displays the chart that shows the power on a frequency based on its own value and neighboring power values.

To generate the spectrum chart for a specific cable modem, follow the steps below:

- 1. Add a cable modem following the instructions in the Adding Single Channel or Modem.
- 2. Set the interval and step for the data collection.
- 3. Check the Max, Min, Average, and Smooth check box as needed.
- 4. Click the Start button to start generating the chart.

# Spectrogram

Use this page to monitor power and noise levels, while viewing the added dimension of time for a selected modem.



#### Figure 69: Spectrogram

In this page, you can set the following parameters:

- Interval The interval to gather the data.
- Step It is related to the resolution of the chart. The bigger this value is, the more accurate the chart will be.

To generate the spectrogram for a specific cable modem, follow the steps below:

- 1. Add a cable modem following the instructions in the Adding Single Channel or Modem.
- 2. Set the interval and step for the data collection.
- 3. Click the Start button to start generating the spectrogram.

# Signal

Use this page to monitor the Carrier-to-Noise Ratio (CNR), Signal-to-Noise Ratio (SNR), and data SNR for a specific cable modem.

#### Figure 70: Signal



In this page, you can set the following parameter:

• Interval - The interval to gather the data.

To generate the CNR, SNR, or data SNR chart for a specific cable modem, follow the steps below:

- 1. Add a cable modem following the instructions in the Adding Single Channel or Modem.
- 2. Set the interval.
- 3. Select the CNR, SNR or data SNR in the drop down list.
- 4. Click the Start button to start generating the chart.

# **Spectrum DS**

Use this page to view the detailed information for a specific cable modem. But first, you must add a cable modem following the instructions in the Adding Single Channel or Modem section.

#### Figure 71: Address

Address		*
Item	Value	
Ethernet IPV4 Address	5.135.1.116	
Ethernet IPV6 Address	0587:0174	
HFC MAC Address	c8fb.26a3.8d4c	
Interface Name	C3/0/3	
Modem Index	835597	

#### Table 39: Address Field Description

Field	Description
Ethernet IPv4 Address	IPv4 address of the cable modem.

Field	Description
Ethernet IPv6 Address	IPv6 address of the cable modem.
HFC MAC Address	MAC address of the cable modem.
Interface Name	Interface of the cable modem.
Modem Index	Index of the cable modem.

## Figure 72: Cable Modem Status

Cable Modem Status	*
Task	Status
DOCSIS Downstream Scanning	Done
DOCSIS Ranging	Done
DOCSIS DHCP	Done
DOCSIS Data Reg Complete	Done

## Table 40: Cable Modem Status Field Description

Field	Description
DOCSIS Downstream Scanning	Modem is scanning for usable DOCSIS downstream channel.
DOCSIS Ranging	Modem is ranging on the DOCSIS channel.
DOCSIS DHCP	Modem is using DHCP to get an IP address assigned.
DOCSIS Data Reg Complete	Modem completed ranging and is online.

#### Figure 73: Downstream Channels

Downstream Channels			*
Channel ID	Power Level(dBmV)	SNR(dB)	

## Table 41: Downstream Channels Field Description

Field	Description
Channel ID	Downstream channel ID.
Power Level (dBmV)	Downstream power level in dBmV.
SNR (dB)	Signal to noise ratio.

# **QAM Video**

There are 6 pages in this pane, each contains a different set of video related statistical information about the CMTS nodes.

# **Dashboard Page**

Use this page to view overall video information of the CMTS node. The pie chart represents the statistics for all the CMTS node in the inventory. And the status of the individual CMTS node is listed in the table below.



Figure 74: Dashboard Page

## **Logical Edge Devices**

This section displays the number of logical edge device with different session status: with active sessions, no active sessions, and with errored sessions.

#### Figure 75: Logical Edge Devices



Table 42: Logical Edge Devices Field Description

Field	Description
With active sessions	The number of logical edge devices with active sessions.
With no active sessions	The number of logical edge devices with inactive sessions.
With errored sessions	The number of logical edge devices with sessions in errored state.

# Sessions

This section displays the number of session with different status: active, inactive, blocked, and so on.

Figure 76: Sessions



Table 43: Sessions Field Description

Field	Description
Active	The number of active sessions across the controller. The input to these sessions are valid and there is no issue in the output side. These sessions have valid input and output bitrate.
Inactive	The number of inactive sessions across the controller. Inactive sessions are sessions for which there is problem with the input or output QAM Channel.
Error	The number of pending sessions across the controller. This scenario occurs when there is issue in the encryption.

# Alarms

This section displays the number of CMTS with critical, warning, and no alarms.

### Figure 77: Alarms



#### Table 44: Alarms Field Description

Field	Description
Info	Number of info alarms across all the cBR-8 routers managed by the controller.
Warning	Number of warning alarms across all the cBR-8 routers managed by the controller.
Critical	Number of critical alarms across all the cBR-8 routers managed by the controller.

# **Overall Statistics**

In this section, there is a table listing the CMTS node basic information with their video details. Move the mouse over the status icon to get the detailed information.

## Figure 78: Overall Statistics

			+ 0	🗷 🗵 Q. Search				
11141-	A Hard Name		Distance			Status		
Health	<ul> <li>Host Name</li> </ul>	IP Address		SDG ¢	VCG 🔶	LED 💠	Session	Alarm
<b>⊗</b> <sup>0</sup> ≣	video-LWR-B-A2B	10.90.82.223	cBR-8	A	A	0	0	0
show 10	<ul> <li>entries</li> </ul>						Prev	rious 1 Next

Table 45: Overall Statistics Field Description

Field	Description
Health	Indicates the status of the CMTS node.

Field	Description
Host Name	The name of the CMTS node.
IP Address	The IP address of the CMTS node.
Platform	The platform of the CMTS node.
Status	
SDG	The status of service distribution groups in the CMTS node.
VCG	The status of virtual carrier groups in the CMTS node.
LED	The status of logical edge devices in the CMTS node.
Session	The status of session in the CMTS node.
Alarm	The status of alarm in the CMTS node.

## **Export and Import Inventory**

User can export inventory before doing upgrade or other operations that may clear the node information in the Dashboard page. Then import inventory that exported before the operation to recover the node information in the Dashboard page.

Click the 🚢 button to open Export Inventory window.

Figure 79: Export Inventory

		٩
Re-enter Passphrase		(1)
<b>D</b>		
Passphrase must cont At least one numeric	ain: digit,	
At least one upper c At least one lower c	ase letter, ase letter, and	
it must be 6 or more	characters in length	

User has to fill in passphrase to export the inventory. The passphrase must comply with the rules listed.

Then click **Export**, the exported inventory will be saved as a file with "inventory" as the suffix.

If the user wants to import the inventory, click the <sup>4</sup> button to open the Import Inventory window. *Figure 80: Import Inventory* 

Inventory File Type	Encrypted	
Inventory File	Choose File No file chosen	
Passphrase		

There are two Inventory File Types: Encrypted, which is the file type exported using Export Inventory button, and Clear (CSV).

• For the Encrypted file type, choose the exported inventory file from local computer, and fill in the correct passphrase used to export the inventory.

Click **Preview** button to display the information of the node to be imported in the Import Inventory window.

• For the Clear (CSV) file type, choose the CSV file which is made by the user from local computer. The file must follow the format listed in the Import Inventory window as shown in the following picture.

#### Figure 81: Import Inventory CSV File

Import Inven	tory						
Inventory File Type	Clear (CSV) \$						
Inventory File	Choose File No file chosen						
<pre>Inventory CSV File #Lines starting wi #cmts-ip-address,c tring #204-cbr-1 172.22.9.221,CBR8, #204-cbr-2 172.22.9.222,CBR8,</pre>	<pre>Inventory CSV File Format: #Lines starting with # would be considered as comments. #cmts-ip-address,cmts-type,username,password,enable-password,community-s tring #204-cbr-1 172.22.9.221,CBR8,lab,lab,lab,public #204-cbr-2 172.22.9.222,CBR8,lab,lab,lab,public</pre>						
	Import Cancel	367492					

Click **Import** button to import the inventory. A note saying **Nodes are being imported into Inventory. Please refresh the Inventory Table after a few minutes.** appears. Click **OK** to return to the Dashboard page.

## **Export CVEx**

User can use this feature to export the XML file and then import this file into the headend, in order to get the LED information imported into the headend.

To export CVEx, move the mouse over the **Context Menu** button to display a context menu. Choose the **Export CVEx** option to export XML file containing LED configuration.

Figure 82: Export CVEx Topology

Expor	t CVEx Top	ology			
Select the	Logical Edge De	vices for wh	nich XML file has to b	e generated:	
			Search:		
	LED Name	ld 🔺	Management IP Address	Status	÷
		No LED:	s configured		
		Submit	Cancel		101730

User can select or search for which LED to export. Then click Submit to export.

# **Configurations Page**

Use this page to view detailed video configurations of the CMTS node.

### Figure 83: Configurations Page

Dashboard	Configurations	Channels	Sessions	Analysis	Alarms	
Device:	10.90.82.224 - video-LWR-B-A	J2T	•			
Cable Video	o Configurations					>
Virtual and	Physical Configurations					>
Encryption	Configurations					>
DVB Config	jurations					>
Table Based	d Video Configurations					>
Video Filter	s					>

# **Cable Video Configurations**

This section displays the basic video configuration information and virtual port groups.

Figure 84: Cable Video Configurations

board	Config	urations	Channels	3	Sessions	Analysis	Alarms			
Device:	10.90.82.217	- video-LWR-B-	A7B		•					
able Vide	o Configuratio	ns								*
Confid	urations								1	C
	Default ONID			0		Multicast Uplink Ir	nterrace			
	Default PSI Int	erval		100 ms		Multicast Uplink A	ccess List	-		
	Management I	nterface		Virtual Po	ort Group 0	Multicast Uplink V	RF	-		
1	Management I	Р		1.25.2.1		Multicast Uplink N	lext Hop	-		
	Source Switch	Delay		4 ms		Reserved PID Ra	nge	1		
Timeo	ut and Jitter				10	Virtual Port G	roup I Port Group	IP Address	Subnet Mask	C
Id	le Session	Init Sessio	n Of	ff Session	Low Bitrate		VPG 0	1.25.2.1	255.255.255.0	
Jitter	2000 ms	2000 ms		60 ms	5000 ms					
Т	able based	SDV	VOD	Gaming	Broadcast					
	100 ms	200 ms	200 ms	10 ms	200 ms					
irtual and	Physical Conf	igurations								>
ncryption	Configurations	5								>
VB Config	gurations									>
able Base	ed Video Config	gurations								>
ideo Filter	rs									>

Table 46: Cable Video	Configuration	Field Description
-----------------------	---------------	-------------------

Field	Description
Configurations	
Default ONID	The Default ONID used for output programs.
Default PSI Interval	The Default MPEG PSI interval used on output programs.
Management Interface	The interface between the Logical Edge Devices (LED) and the connection to external servers.
Management IP	The IP Address of the Management Interface.
Source Switch Delay	The delay that is used for performance management of Multicast Source-Switching (default = 4 msec).
Multicast Uplink Interface	The hardware interface of the multicast uplink.
Multicast Uplink Access List	Indicates the additional multicast addresses for use with SSM.
Multicast Uplink VRF	Video Multicast Uplink VRF.
Multicast Uplink Next Hop	Head end router next hop IP address associated with VRF.
Reserved PID Range	Specifies a range of PIDs that will not be used as output for remapped sessions. A range of up to 4000 PIDs from 1-8190 can be reserved.
Timeout and Jitter	
Idle Session	Indicates a period of time after which a previously active session with no data will be declared Idle.
Init Session	Indicates a period of time after which a new session will go Active before being declared Off.
Off Session	Indicates a period of time after which an Idle session with no data will be declared Off.
Low Bitrate	A longer timeout for low-bitrate and intermittent data streams.
Table Based	Indicates the jitter allowed in table based session.
SDV	Indicates the jitter allowed in SDV session.
VOD	Indicates the jitter allowed in VOD session.
Gaming	Indicates the jitter allowed in gaming session.
Broadcast	Indicates the jitter allowed in broadcast session.

Field	Description
Virtual Port Group	·
Virtual Port Group	Interface that is used for communication with the external servers.
IP Address	IP address of the interface.
Subnet Mask	Subnet mask of the interface.

Click the **Pencil** button to open the Update Chassis Configuration window.

Figure 85: Update Chassis Configuration

Dashboard	Configu	ations Channels	s Sessions	Analysis	Alarms	
Device:	10.90.82.217 - 1	rideo-LWR-B-A7B	•			
Cable Vide	eo Configurations	Update Chassis	Configuration			× ` / 0
	Default ( Default F	Default ONID Default PSI Internal	0	Reserved PID Range Source Switch Delay		
	Managei Source S	Management Interface	Virtual Port Group 0	,	4 🐨 ms	
Timeo	out and J	Multicast Uplink	Session Timeouts Jitter			= C
Session	n Timeout Ie Sessio	Access List	TenGigabitEthernet4/1/0	<ul><li>▼</li><li>▼</li></ul>		ubnet Mask 36.256.255.0
Jitter	2000 ms	VRF Next Hop	Mgmt-intf	▼		
	100 ms				Prest Arro	
Virtual and	Physica				Reset	y Cancer
Encryption	Configurations					· · · ·
DVB Config	gurations					>
Table Base	ed Video Configu	rations				>
Video Filter	rs					>

Make the necessary update in this window, then click **Apply** to commit the update. To restore to the existing configuration, click the **Reset** button.

## **Virtual and Physical Configurations**

This section displays the virtual and physical configurations.

#### Figure 86: Virtual and Physical Configurations

Upen SDN Co	ontroller			
itions 🔤	Summary VCG SDG BIND-VCG	LED GQI		
Inventory Manager Model Explorer	Logical Edge Devices	C Virtual Carrier Groups	Service Distribution Groups	C
OpenFlow Manager Tag Manager	No LEDs configured	No VCGs configured	No SDGs configured	
3GPLS Manager				
Cable		×	×	×
	View all LEDs	> View all VCGs	View all SDGs	>
	Sessions in VCG 🙄	Show 10 • entries Q Show all	Sessions	
	Session RF Freque Id Channel (MHz	ncy Processing Session Input / UDP ) Type Type Multicast Port IP(S,G)	Input Output Encryption Encrypt State State Type Status	on <sub>\$</sub> Status ∳
		Please select the VCG		

#### Summary

This tab displays the summary information of logical edge device, virtual carrier groups, and service distribution groups.

Click the **Information** button beside the logical edge device, virtual carrier groups, or service distribution groups, the details will display. See the description of other tabs for more information.

Click View all LEDs, View all VCGs, or View all SDGs, the LED, VCG, or SDG tab will display.

Select one virtual carrier group under Virtual Carrier Groups in this tab, all the sessions in this virtual carrier group will display in a list.

Field	Description
Session ID	The video session ID.
RF Channel	The RF channel that the video session belongs to.
Frequency (MHz)	The video session frequency.
Processing Type	Processing type of the session (Remap/Passthru/Data).
Session Type	Indicates the session type.
Virtual Edge Input/Multicast IP (S, G)	IP address of the input to the CMTS node.
UDP Port	UDP port number of the input to the CMTS node.
Input State	Indicates the programmed state of the input and if data is flowing into it.
Output State	Indicates if the output is ON, OFF or in an error state.
Encryption Type	Indicates the encryption type of the video session.

#### Table 47: Summary Tab Field Description

Field	Description
Encryption Status	Indicates the encryption status.
Status	Session status based on input and output states.

Click the session ID, the Session Details window will display. There are three parts in this window: Basic Session Information, Input Details, and Output Details.

#### Figure 87: Basic Session Information

ic Session Informatio	n			*
Session Name	: vcg1_20-35.1.0.1.20.49152	Output Port Number	: 1	
Session Id	: 1048576	Output Program Number	: 1	
Creation Time	: Sat Dec 31 20:08:14 2011	Idle Timeout	: 2000 ms	
Configured Bitrate	: Not Configured	Init Timeout	: 2000 ms	
Jitter	: 120 ms	Off Timeout	: 60 s	
Processing Type	: Remap	Number of Sources	: 1	
Stream Rate	: VBR	Destination IP	: 174.101.1.1	
Encryption Type	: PME	UDP Port	: 49152	
Encryption Status	: Encrypted			
TSID	: 1			
ONID	: 0			
Low Latency	: Disabled			

**Table 48: Basic Session Information Field Description** 

Field	Description
Session Name	The video session name.
Session Id	The video session ID.
Creation Time	The time when the video session is created.
Configured Bitrate	Predicted max bitrate. Used to calculate remaining bandwidth on a QAM.
Jitter	Dejitter buffer depth for the session.
Processing Type	Processing Type of the session ( Remap/Data/Passthru)
Stream Rate	Rate of input stream. Constant Bitrate (CBR) or Variable Bitrate (VBR).
Encryption Type	Indicates the encryption type of the video session.
Encryption Status	Indicates the encryption status.

Field	Description
TSID	Transport stream ID assigned to this session.
ONID	Original network ID assigned to this session.
Low Latency	Indicates if the low latency is enabled or disabled.
Output Port Number	Output port assigned to this session.
Output Program Number	QAM output program number.
Idle Timeout	Time after which an idle input will be ignored.
Init Timeout	Time after which an input in the Init state will be ignored.
Off Timeout	Time after which an input in the off state will be ignored.
Number of Sources	Number of input streams.
Destination IP	The IP address of each input source.
UDP Port	The UDP port number of each input stream.

### Figure 88: Input Details

asic Session Info	ormation					
put Details						
Session		Bitrate			Errors	
Input State Uptime	: ACTIVE-PSI 🥑 : 1	Measured : 1. PCR : 1.	676 Mbps 800 Mbps	di.	CC : 0 PCR Jumps : 0	۵
PAT Details			PMT Deta	ails		
Program 1	: PMT 8020		Program 1: Version : 0 , PCR :8000			
Other Details	: Version 0, TS	SID 0	PID	Туре	Info Length	Details
			8000	Video(2)	2	2
			8001	Audio(3)	3	3
Packet Informati	on					
IP Packets	: Input 1347799, R	TP 0, Drop 0				
TP Packets	: Input 7623124, P	CR 96096, PSI 112727, Null	463670, Unre	ferenced 0		
Errors	: Discontinuity 140,	Sync Loss 0, CC Errors 0, F	PCR Jumps 0			

#### Table 49: Input Details Field Description

Field	Description
Session	
Input State	Indicates the programmed state of the input and if data is flowing into it.
Uptime	Indicates the duration that the input has been in the ACTIVE-PSI state.
Bitrate	
Measured	Actual bitrate of the session.
PCR	Bitrate of PCR PID.
Errors	<u>.</u>
CC	Continuity error counter.
PCR Jumps	Program clock reference jump counter.
PAT Details	
Program 1	Displays the PMT PID for this session.
Other Details	Displays the version and TSID for the program allocation table.
PMT Details	
PID	Stream PID.
Туре	Stream type (Video, Audio, etc.).
Packet Information	
IP Packets	Number and type of IP packets received.
TP Packets	Number and type of Transport Protocol (MPEG) packets received.
Errors	Discontinuity, sync loss, CC and PCR Jump.

## Figure 89: Output Details

sion Details									Back
asic Session In	formation								>
put Details									>
utput Details									~
Session			Bitrate			Errors			
Output State	: PENDING	Δ	Measured	: 1.649 Mbps	di i	Info Overrun	: 0		
Uptime	: 1					Info Error	: 0		
8000	Output PID 49	PID Type 49	e	Progra	n 2000 : Versi	ion : 0 , PCR :49 , Info	Length :49	ataile	
8001	50	50		49	Video(2)	2	2	tans	-
	48	48		FO	Audia(2)	2	2		
8020				50	Audio(3)	3	5		
8020				50	Audio(3)	3	5		
8020 Packet Informa	ation			50	Audio(3)	3	5		
8020 Packet Informa TP Packets	ation	ıt 7679320, PC	R 96092, PSI 1126	50 592, Drop 56572, For	Audio(3) ward 7510056,	JINSERT 0			

Table 50: Output Details Field Description

Field	Description				
Session					
Output State	Display whether an output is on, off, waiting or has a conflict.				
Uptime	Indicates the duration that an output has been in the ON state.				
Bitrate					
Measured	Actual bit rate for this program.				
Errors					
Info Overrun	Number of info overrun errors that have occurred in the stream.				
Info Error	Number of info error packets.				
Output PID Map					
Input PID	PID of this stream on input to the chassis.				
Output PID	PID of stream on the output.				

	· · · · · · · · · · · · · · · · · · ·
Field	Description
PID Type	Stream type (Video, Audio, etc.).
PMT Details	
PID	PID of this output stream.
Туре	Stream type (Video, Audio, etc.).
Packet Information	
TP Packets	Number and type of MPEG packets sent.
Errors	Counters for Info overrun/error, blocked, invalid rate, underflow and overflow errors.

VCG

This tab displays the virtual carrier groups configured in the CMTS node.

## Figure 90: VCG Tab

Dashboard		Configurations	Cha	nnels	Sessions	Analysis	Alarms					
Device:	10.90	).82.214 - video-LWF	R-B-A7T		•							
Cable Vide	o Conf	igurations										>
Virtual and	Physic	al Configurations										*
Summary	VC	G SDG BI	ND-VCG									
Vir	tual C	arrier Groups	0			+	Add Q					
		Name	≑ Id ▲	RF Channels	Virtual Edge Inputs	♦ Service type ♦	Low Latency	Encrypted	Sessions 🖨	Status	÷	
	≡	vcg1	1	0 - 55	-	Narrowcast	0	â	0	No active sessions		
		vcg2	2	0 - 55	2	Narrowcast	0	6	0	No active sessions		
		vcg3	3	0 - 55	-	Narrowcast	0	â	0	No active sessions		
		vcg4	4	0 - 55	-	Narrowcast	0	â	0	No active sessions		
		vcg5	5	0 - 55	-	Narrowcast	0	â	1120	No active sessions		
		vcg6	6	0 - 55		Narrowcast	0	â	1120	No active sessions		
		vcg7	7	0 - 55	-	Narrowcast	0	â	1120	No active sessions		
		vcg8	8	0 - 55	-	Narrowcast	0	â	480	No active sessions		
									Previo	ous 1	Next	
Encryption	Config	urations										>
DVB Config	guratio	ns										>
Table Base	d Vide	o Configurations										>
Video Filter	rs											>

I

Table 51:	VCG	Tab	Field	Description
-----------	-----	-----	-------	-------------

Field	Description
Name	The virtual carrier group name.
Id	The virtual carrier group ID.
RF Channels	The RF channels configured in this virtual carrier group.
Virtual Edge Inputs	The virtual edge inputs assigned to this virtual carrier group.
Service type	VCG service type (Broadcast/Narrowcast). This is used for licensing of QAMs.
Low Latency	Indicates whether the VCG is configured as low latency.
Encrypted	Indicates the encryption status. If a VCG is encrypted, all sessions created under this VCG will be encrypted.
Sessions	The number of video sessions in this virtual carrier group.
Status	Indicates if there is error on the VCG.

Click the **Add** button to open the Add VCG window.
Figure 91: Add VCG

configurations		Features	
Virtual Carrier Group		Low Latency	
Service Type narrowcast	•		
Encryption			
Virtual Edge Inputs RF Channeis	l		
IP address	Input Port	VRF	
No Vir	tual Edge Inputs configured		
+ Add VEI			

Fill in the information, including adding virtual edge input and RF channels when necessary. Then click Add to confirm.

Move the mouse over the **Context Menu** button before the virtual carrier group name to display a context menu. Choose the **Delete** option to delete the virtual carrier group. Choose the **Update** option to update the virtual carrier group.

Make the necessary updates, including adding/deleting virtual edge input and RF channels, then click **Update** to commit the update.

Click the virtual carrier group name to get the details of the virtual carrier group.

# Figure 92: VCG Details

oen SDN Cor	ntroller					0	0
Ef	unt						
Manager	Vcg11						
plorer	Virtual Carrier Grou	n <del>A</del>		Virtual Edge	Innuts		
		P 🖬		Virtual	Edge Input IP	Input Port Number	VRF
Manager	VCG Id	: 11		· · · · · · ·	No VEI c	onfigured	••••
	Service Type	: NARRO	WCAST				
er	Low Latency	: <b>Ø</b>					
nager	Bound SDG	: sdg11					
ager	Logical Edge Device	: led1					
	RF Channels						
	Start Channel	End Channel	TSID Start	TSID End	Output Port Number Start	Output Port Number End	
	40	63	11001	11024	1	24	
	Sessions						
	Total Sessions : 0 C			Show 10 • entries	Q Search fo		
			ession Virtual Edge Input			Input Output	
	Session Id 🔺 RF Channel ≬	(MHz) Processing (MHz) Type	Type Multicast IP(S,G	UDP Port      Input	State   Output State	Mbps Mbps	ion o Status o

Table 52: VCG Details Field Description

Field	Description
Virtual Carrier Group	
VCG Id	The virtual carrier group ID.
Service Type	The video service type.
Low Latency	Specifies whether the low latency is enabled on this virtual carrier group.
Bound SDG	The service distribution group that bound to this virtual carrier group.
Logical Edge Device	The logical edge device that this virtual carrier group is provisioned on.
Virtual Edge Inputs	
Virtual Edge Input IP	Destination IP address for unicast video IP packets.
Input Port Number	IP port number used for this input.
VRF	Virtual Routing and Fowarding IP address.
RF Channels	
Start Channel	First RF channel in a range. Each channel corresponds to a QAM.
End Channel	Last channel in a range. Each channel corresponds to a QAM.

Field	Description
TSID Start	First TSID. TSIDs must be unique per CMTS node.
TSID End	Last TSID.
Output Port Number Start	First output port number for this VCG. These must be unique per linecard.
Output Port Number End	Last output port number.
Sessions	-
Session Id	The video session ID.
RF Channel	The RF channel that the video session belongs to.
Frequency (MHz)	The video session frequency.
Processing Type	Processing type of the session (Remap/Passthru/Data).
Session Type	Indicates the session type.
Virtual Edge Input / Multicast IP(S,G)	VEI IP address (If present).
UDP Port	Input IP port number.
Input State	Indicates the programmed state of the input and if data is flowing into it.
Output State	Displays whether an output is on, off, waiting or has a conflict.
Input Bitrate Mbps	Actual bitrate of input.
Output Bitrate Mbps	Actual bitrate of output.
Encryption	Indicates the encryption status.
Status	Indicates the session status.

SDG

This tab display the service distribution groups configured in the CMTS node.

# Figure 93: SDG Tab

Cisco Open SDN	l Controller								0	0	8	?
Applications 🔆 <	Dashboard Device:	Configurations 10.90.82.232 - video-LWR-S-E	Channels	Sessions	Analysis •	Alarms						
OpenFlow Manager     Tag Manager     BCBLS Manager	Cable Vide Virtual and	o Configurations Physical Configurations										> ~
PCEP Manager     Cable	Summary	VCG SDG BIND-VC	G LED GQI S <b>C</b>	Show 10 • entries		+ Add Q						
		Name 🔶 Id	▲ Туре ¢	RF Ports ONID	¢	PSI Interval ms	¢	Sessions		\$ Statu	s ¢	
					No data available				Previo	ous Ne	xt	
	Encryption	Configurations										>
	Table Based Video Configurations Video Filters								>			
							Version 1.2.1-25007	All contents are Cop	right © 2015	Cisco and/or i	ts affiliates. Al	rights reserved

# Table 53: SDG Tab Field Description

Field	Description
Name	The service distribution group name.
Id	The service distribution group ID.
Туре	RF port or RPD.
RF Ports	The RF ports that contained in the service distribution group.
ONID	Original network ID.
PSI Interval ms	Rate at which PSI data is sent.
Sessions	The number of sessions in this service distribution group.
Status	Indicates the status of the SDG.

Click the Add button to open the Add SDG window.

#### Figure 94: Add SDG

Apploators Centered Sessions Analysis Aterms  Centered Manager  Cable Video Ca Sof Name Cable Video Cable Video Cable Video Cable Cable Video Cable Video Cable Video Cable Cable Video Cable Video Cable Cable Video Cable Video Cable Video Cable Cable Video Cable Video Cable Cable Video Ca	Open SDN	Controller								0	$\odot$	8	?
Important Status	pplications 🔤	Dashboard	Configurations	Channels	Sessions	Analysis	Alarms						-
1       Opurflow Manager       SDD Name       RP Ports       SDD Name       SDD Name       RP Ports       SDD Name       <	Inventory Manager Model Explorer	Device: 10	Add SDG										
Table Manager   Monager	OpenFlow Manager	Cable Video Co	SDG Name	ne	RF Ports			- 1					>
B PC2F Maragar     C Cable     Servic     Point     Previous	🏷 Tag Manager	Virtual and Phys	SDG ld		No Linecar	ds with RF-PIC found				_	_	_	*
C cate Servic ONID OND PREPART SOG Type RF.Part Sog Type RF.Part Providue Not	PCEP Manager	Summary	PSI Interval	ms S Use default									
Encryption Cor Table Based Vo Video Filters	DC Cable	Servic		S Use default				_					
Table Based Vic Add Cancel			SDG Type RF-	Port				S	lessions S	itatus Pre			
		Table Based Vic Video Filters			Add Cancel								> > >

The RF ports of the linecards that are present in the chassis are displayed. The RF ports of the primary linecard are displayed and the RF ports of the backup linecard are not displayed.

Fill in the information. Then click Add to confirm.

Move the mouse over the **Context Menu** button before the service distribution group name to display a context menu. Choose the **Delete** option to delete the service distribution group. Choose the **Update** option to update the service distribution group.

Make the necessary update, then click Update to commit the update.

Click the service distribution group name to get the details of the distribution group name.

#### Dashboard Configurations Channels Sessions Analysis Alarms Device: 10.90.82.217 - video-LWR-B-A7B • Cable Video Configurations ۶ SDG Service Distribution Group Details Back test ~ **RF** Ports Service Distribution Group SDG Id 1 7/0/0 7/0/1 7/0/2 ONID 1 7/0/3 7/0/4 7/0/5 PSI Interval 100 ms 7/0/6 7/0/7 1 0 # Virtual Carrier Groups Sessions View Details > View Details > ¥ Virtual Carrier Groups Virtual Edge Inputs Logical Edge Device Name . ld **RF Channels** Encrypted Sessions ô 1.2.3.4 test 1 1 - 10 led1 0 ¥ Sessions Total Sessions : 0 C Q Virtual Edge Input / Multicast IP(S,G) Output Bitrate Mbps Input Bitrate Mbps Session 🛓 RF Channel 🔶 Processing Type UDP Port Input State Output State Session Encryption Status 🖕 Id Туре No sessions found in Service Distribution Group Next Previous Encryption Configurations > > DVB Configurations > > Table Based Video Configurations 366418 Video Filters

#### Figure 95: SDG Details



Field	Description
Service Distribution Group	
SDG Id	The service distribution group ID.
ONID	Original network ID.
PSI Interval	Rate at which PSI data is sent.

Field	Description
Virtual Carrier Groups	
Name	The virtual carrier group name.
ID	The virtual carrier group ID.
RF Channels	The RF channels configured in this virtual carrier group.
Virtual Edge Inputs	The virtual edge inputs assigned to this virtual carrier group.
Logical Edge Device	The logical edge device that this virtual carrier group is provisioned on.
Encrypted	Indicates the encryption status.
Sessions	The number of video sessions in this virtual carrier group.
Sessions	
Session Id	The video session ID.
RF Channel	The RF channel that the video session belongs to.
Frequency (MHz)	The video session frequency.
Processing Type	Processing Type of the session (Remap/Data/Passthru).
Session Type	Indicates the session type.
Virtual Edge Input / Multicast IP(S,G)	VEI or Multicast IP address if present.
UDP Port	UDP Port of the Session.
Input State	Indicates the programmed state of the input and if data is flowing into it.
Output State	Displays whether an output is on, off, waiting or has a conflict.
Input Bitrate Mbps	Actual bitrate of input.
Output Bitrate Mbps	Actual bitrate of output.
Encryption	Indicates the encryption status.
Status	Indicates the session status.

# BIND-VCG

This tab display the VCG to SDG bindings configured in the CMTS node.

# Figure 96: BIND-VCG Tab

Dashboard	Configurations Channels	Sessions	Analysis	Alarms	
Device:	10.90.82.224 - video-LWR-B-A2T	•			
Cable Vide	eo Configurations				>
Virtual and	Physical Configurations				*
Summary					
VC	CG to SDG Binding		+	Add Q Search for	
Se	ipand All Collapse All		RF Ports	RF Channels	
+	sdg1		7/0/0		
Encryption	Configurations				>
DVB Config	gurations				>
Table Base	ed Video Configurations				* س
Video Filter	rs				36594

# Table 55: BIND-VCG Tab Field Description

Field	Description
Service Distribution Group	The name of the service distribution group.
RF Ports	The RF ports in this service distribution group.
RF Channels	The RF channels in this virtual carrier group.

Click Expand All or Collapse All to display or hide the VCG bonded to the SDG.

Click the Add button to open the Add Bind window.

#### Figure 97: Add Bind

Dashboard				·	
Device: 10.90.8	Add Bind				
-					
Cable Video Config	SDG to Bind	Select Sdg	•	>	
vitual and Physica	VCG's to Bind	Select Vcg's	•		
Summary					
VCG to S					
Expand All					
Service Di					
+ sdg1					
Encryption Configu				>	
DVB Configurations			Cancel	>	
Video Filters	_				996
					365

Choose the SDG and VCG to bind, then click Add to confirm. Multiple VCGs can be bound to a single SDG.

LED

This tab display the logical edge devices configured in the CMTS node.

SDG BIND-VC	GLE	D GQI						
ge Devices 💈					+ Add Q			
lame 🔶	Id <sup>▲</sup>	Configuration Status	Protocol 🛊	Management IP	Virtual Edge Inputs		Session Status	Sessions ≑
ED_SDV	1	Inactive	GQI	172.16.16.11	192.168.2.1	0	No active sessions	0
ED_VOD	2	Active	GQI	172.16.16.12	192.168.2.2	0	No active sessions	0
ED_BCast	3	Inactive	GQI		10.253.0.1	0	No active sessions	0
ED_TABLE	4	Inactive	TBV	N/A	192.168.2.4	1	No active sessions	0
ED_BCAST	5	Active	GQI	172.16.16.2	172.18.20.1	1	Active sessions	18
CG_Test	6	Inactive	GQI		-	0	No active sessions	0
ED_IP_TEST	9	Active	GQI	172.16.16.22	192.169.2.122	0	No active sessions	0
	ge Devices C ame ED_SDV ED_VOD ED_BCast ED_BCAST CG_Test ED_IP_TEST CG	ge Devices     C       ame     Id*       ED_SDV     1       ED_VOD     2       ED_BCAST     3       ED_BCAST     5       CG_Test     6       ED_P_TEST     9	ge Devices     Id     Configuration       ame     Id     Inactive       ED_SDV     1     Inactive       ED_VOD     2     Active       ED_TABLE     3     Inactive       ED_BCAST     5     Active       CG_TEST     6     Inactive       ED_IP_TEST     9     Active	ge Devices     Id     Configuration     Protocol       name     Id     Inactive     GQI       ED_SDV     1     Inactive     GQI       ED_VOD     2     Active     GQI       ED_TABLE     3     Inactive     TBV       ED_BCAST     5     Active     GQI       ED_TABLE     6     Inactive     GQI       ED_TABLE     9     Active     GQI	ge Devices     Id     Configuration Status     Protocol     Management       ame     Id     Inactive     GQI     172.16.16.11       ED_SDV     1     Inactive     GQI     172.16.16.12       ED_VOD     2     Active     GQI     172.16.16.12       ED_BCast     3     Inactive     GQI     172.16.16.12       ED_TABLE     4     Inactive     GQI     N/A       ED_BCAST     5     Active     GQI     172.16.16.22       CG_Test     6     Inactive     GQI     172.16.16.22	ge Devices         Image: Configuration status         Protocol (mission status)         Management (mission status)         Virtual Edge Inputs           ame         (mission status)         Protocol (mission status)         Management (mission status)         Virtual Edge Inputs           ED_SDV         1         Inactive         GQI         172.16.16.11         192.168.2.1           ED_VOD         2         Active         GQI         172.16.16.12         192.168.2.2           ED_RCAST         3         Inactive         GQI         172.16.16.2         192.168.2.4           ED_TABLE         4         Inactive         GQI         172.16.16.2         172.16.82.4           ED_TABLE         5         Active         GQI         172.16.16.2         172.18.20.1           ED_BCAST         5         Active         GQI         172.16.16.2         172.18.20.1           ED_IP_TEST         9         Active         GQI         172.16.16.2         192.169.2.122	ge Devices         Configuration Status         Protocol         Management IP         Virtual Edge Inputs         Total Vccs           eD_SDV         1         Inactive         GQI         172.16.16.11         192.168.2.1         0           ED_SDV         2         Active         GQI         172.16.16.12         192.168.2.2         0           ED_VOD         2         Active         GQI         172.16.16.12         192.168.2.4         0           ED_VAD         3         Inactive         GQI         172.16.16.22         192.168.2.4         0           ED_TABLE         4         Inactive         GQI         172.16.16.2         192.168.2.4         1           ED_TABLE         4         Inactive         GQI         172.16.16.2         192.168.2.4         1           ED_TABLE         4         Inactive         GQI         172.16.16.2         192.168.2.4         1           ED_TABLE         5         Active         GQI         172.16.16.2         172.18.20.1         1           ED_TABLE         6         Inactive         GQI         172.16.16.22         192.169.2.122         0	ge Devices         Configuration Status         Protocol         Management IP         Virtual Edge Inputs         Total         Session           eD_SDV         1         Inactive         GQI         172.16.16.11         192.168.2.1         0         No active sessions           ED_VOD         2         Active         GQI         172.16.16.12         192.168.2.2         0         No active sessions           ED_VOD         2         Active         GQI         172.16.16.2         192.168.2.4         0         No active sessions           ED_TABLE         3         Inactive         GQI         172.16.16.2         192.168.2.4         1         No active sessions           ED_TABLE         4         Inactive         GQI         172.16.16.2         192.168.2.4         1         No active sessions           ED_TABLE         4         Inactive         GQI         172.16.16.2         172.18.0.1         1         Active sessions           ED_TABLE         6         Inactive         GQI         172.16.16.2         172.18.0.1         1         Active sessions           ED_TEST         9         Active         GQI         172.16.16.2         192.169.2.122         0         No active sessions

# Figure 98: LED Tab

# Table 56: LED Tab Field Description

Field	Description
Name	Name of the logical edge device.
Id	ID of the logical edge device.
Configuration Status	Activity status of the logical edge device. Active or Inactive.
Protocol	Protocol used by the logical edge device.
Management IP	IP address external programs use to manage LED.
Virtual Edge Inputs	The virtual edge inputs assigned within this logical edge device.
Total VCGs	The number of virtual carrier group that is provisioned on this logical edge device.
Session Status	Displays if LED is active based on the session status.

Field	Description
Sessions	The number of sessions in this service distribution group.

Click the Add button to open the Add LED window.

#### Figure 99: Add LED

Configurations				Features	
Logical Edge Device	Name	4		PMV (Pid Multiplier Value)	
Protocol	Table Based	•		D6 Discovery	
Statue	Inactive			10-6 UDP Port Mapping	
Sidius	inactive				
Virtual Edge Input Virt	ual Carrier Group	VEI Bundle	D6 Discovery		
IP address		Input Port	VRF		
	No Virtual Edge Ir	nputs configure	d		
+ Add VEI					

User can add virtual edge input and virtual carrier group. Depending on the protocol assigned to the LED, user can add VEI bundle with table based protocol, and configure GQI with GQI protocol.

In GQI Config window, check the **Auto MAC Config** to automatically assign MAC address to the LED when it is active. Fill in other fields as necessary to add GQI.

### Figure 100: GQI Config

Logical Edge Device	Name	D6 Discovery		
Protocol	GQI 🗸			
Status	Inactive -			
Virtual Edge Input Vir	tual Carrier Group GQI Config	D6 Discovery		
Management IP *	Mgmt IP	Auto MAC Config	0	
GQI Servers *		MAC Address		
		KeepAlive Retry / Interval	3 5 sec	
		Reset Indication Interval	5 sec	

Check the D6 Discovery checkbox to enable the D6 Discovery configuration. Fill in other fields as necessary to add D6 discovery.

Under table based protocol, check the PMV (Pid Multiplier Value) checkbox to enable the PMV feature, check 10-6 UDP Port Mapping to enable 10-6 UDP port mapping method to simplify the provisioning. Then click **Add** to confirm adding LED.

Move the mouse over the **Context Menu** button before the logical edge device name to display a context menu. Choose the **Delete** option to delete the logical edge device. Choose the **Update** option to update the logical edge device. Choose **Reload** to delete and recreate all the sessions.

Make the necessary update in this window, then click Update to commit the update.

Click the logical edge device name to get the details of the logical edge device.

Figure 101: LED Details



Table 57: LED Details Field Description

Field	Description
Logical Edge Device	
LED Id	The logical edge device ID.
Protocol	The protocol used by this logical edge device.

I

Field	Description
Status	The status of this logical edge device.
D6 Discovery	Status of D6 Configuration in the LED.
Virtual Edge Inputs	
Virtual Edge Input IP	Destination IP address for unicast video IP packets.
Input Port Number	IP port number used for this input.
VRF	Virtual Routing and Fowarding (VRF) name that is used for Video Traffic.
Virtual Carrier Groups	
Name	The virtual carrier group name.
Id	The virtual carrier group ID.
RF Channels	The RF channels configured in this virtual carrier group.
Virtual Edge Inputs	The virtual edge inputs assigned to this virtual carrier group.
Logical Edge Device	The logical edge device that this virtual carrier group is provisioned on.
Encrypted	Indicates the encryption status.
Sessions	The number of video sessions in this virtual carrier group.
RF Channels	
RF Channel	RF port and channel number.
Physical QAM Id	ID number of the physical QAM.
Admin State	Desired state of channel.
Operational State	Actual state of channel.
TSID	Transport stream ID assigned to this channel.
ONID	Original network ID assigned to this channel.
Output Port Number	Output port assigned to this channel.
VCG id	Virtual carrier group that contains this channel.
SDG id	Service distribution group that contains this channel.
Encryption	Indicates the encryption type of the video session.

LED

Field	Description
Virtual Edge Input Bundles	
Bundle Id	Configured bundle ID of the VEI bundle.
Virtual Edge Input	VEI configured in the bundle.
Input Port Number	Input port number configured in the bundle.
Slot/Bay	Slot/Bay to which the VCG in the LED is bound. This is used to forward the packets to a given line card.
Gateway IP	Internal gateway IP of the VEI bundle. All the VEIs flows configured in the VEI bundle will be merged at this gateway IP address and there will be only one flow out of this gateway IP address.
Sessions	
Session Id	The video session ID.
RF Channel	The RF channel that the video session belongs to.
Processing Type	Processing Type of the session (Remap/Passthru/Data).
Session Type	Indicates the session type.
Virtual Edge Input / Multicast IP(S,G)	VEI or Multicast IP address (if present).
UDP Port	UDP port number of the session.
Input State	Indicates the programmed state of the input and if data is flowing into it.
Output State	Displays whether an output is on, off, waiting or has a conflict.
Input Bitrate Mbps	Actual bitrate of input.
Output Bitrate Mbps	Actual bitrate of output.
Encryption	Indicates the encryption type and status.
Status	Indicates the session status.

Click **View Details** in the D6 Discovery pane of the Logical Edge Device Details window, D6 Details window will display.

Video Configuratio	ons						
I and Physical Con	figurations						
nmary VCG s		LED GQI					
6 Details							Back
06 Configurations				D6 Configurations			
VREP Version		2		D6 server FQDN			
D6 State		Idle		D6 Server IP		1.200.221	.11
Management IP		1.34.2.112		D6 Server Port		6069	
Source Port		6073		Keep Alive Interval		3 s	
Timeout		20 s		Streaming Zone		chn	
Hold Time		10 s		Failure Reason		Connect I	Err: Timed out
Component Name		cbr8					
.ED Input Groups VEI Input G	roup Name	Bandw (Mbps)	idth	VCG Input Groups VCG Id Inp	ut Group Name	B4 (N	andwidth Ibps)
.ED Input Groups VEI Input G	roup Name No LED Input Gro	Bandw (Mbps) ups configured	idth	VCG Input Groups VCG Id Inp	ut Group Name No VCG Input Group	Ba (N bs configured	andwidth Ibps)
ED Input Groups VEI Input G	roup Name No LED Input Gro Transfer	Bandw (Mbps) ups configured Open	idth	VCG Input Groups VCG Id Inp	ut Group Name No VCG Input Group	Ba (M os configured	andwidth lbps) Unknown
LED Input Groups VEI Input G D6 Statistics Duration	roup Name No LED Input Gro Transfer Type	Bandw (Mbps) ups configured Open Messages	idth	VCG Input Groups VCG Id Inp	ut Group Name No VCG Input Group /e Notific es Mess	Ba (M bs configured	andwidth Ibps) Unknown Messages
ED Input Groups VEI Input G D6 Statistics Duration 0	roup Name No LED Input Gro Transfer Type RX	Bandw (Mbps) ups configured Open Messages 0	idth Update Messages 0	VCG Input Groups VCG Id Inp Keepalin Messagi	ut Group Name No VCG Input Group Ve Notific es Mess	Ba (N os configured cation cages	andwidth lbps) Unknown Messages 0
ED Input Groups VEI Input G  36 Statistics  Duration  0  0  0	roup Name No LED Input Gro Transfer Type RX TX	Bandw (Mbps) ups configured Open Messages 0 0	idth Update Messages 0 0	VCG Input Groups VCG Id Inp Keepalin Messag 0 0	ut Group Name No VCG Input Group re Notific es Mess	Ba (M bs configured cation sages	andwidth hbps) Unknown Messages 0 0

# Figure 102: D6 Details

# Table 58: D6 Details Field Description

Field	Description
D6 Configurations	
VREP Version	VREP protocol version.
D6 State	D6 Connection state.
Management IP	The source IP address used to establish connection with the external D6 server (ERM).

Field

Source Port

Timeout

Hold Time

Component Name

**D6** Configurations

D6 server FQDN

D6 Server IP

D6 Server Port

Keep Alive Interval

**LED Input Groups** 

Input Group Name

Streaming Zone

Failure Reason

VEI

Description
Source port from which the D6 Server is connected.
Time to wait for the connection in socket call.
This value decides the interval of the keepalive message exchange between the client and the server
The name of the LED for the ERM to associate the subsequent update messages.
D6 server fully qualified domain name.
Remote D6 server (ERM) IP address.
Listening port used by the D6 client in LED to setup connection with the peer.
The interval at which keepalive message will be sent
The streaming zone within which the LED operates.
 Connection failure reason.
Virtual edge input IP address under the LED.
The name of the input group to which the virtual edge input (VEI) IP address is assigned.
Bandwidth allocated to the LED Input Group.

	input (VEI) IP address is assigned.
Bandwidth (Mbps)	Bandwidth allocated to the LED Input Group.
VCG Input Groups	
VCG Id	The virtual carrier group ID.
Input Group Name	The name of the input group to which the virtual carrier group (VCG) is assigned.
Bandwidth (Mbps)	Bandwidth allocated to the VCG Input Group.
D6 Statistics	
Duration	Time duration after the connection is established.
Transfer Type	Tx/Rx (Transfer/Receive).
Open Messages	Number of open Messages sent.
Update Messages	Number of update messages sent.
Keepalive Messages	Number of keepalive messages sent to D6 server.

Field	Description
Notification Messages	Number of notificaiton messages sent to D6 server.
Unknown Messages	Number of unknown messages sent to D6 server.

# GQI

This tab display the GQI connections configured in the CMTS node.

# Figure 103: GQI Tab

ashboard	Configuration	ns Cha	nnels	Sessions	Analysi		Alarms			
Device:	10.90.82.224 - vide	D-LWR-B-A2T			•					
Cable Vide	eo Configurations									>
Virtual and	l Physical Configura	tions								*
Summary		BIND-VCG	LED GQI							
	lan a lan lan									
GC	QI Connection D	etails 🖸					Q Search for			
:	SRM IP	Management IP	♦ LED ♦	LED Name	Connection Status	Version \$	Event Pending	Reset Indication	Encryption Discovery	
1.	.200.23.11	1.34.2.2	2	led-test1	۵	0	0	NotSent	NotSent	
								Previo	us 1 Next	
Encomption	Configurations	_	_	_		_	_			
Table Deer	ad Video Configurations									
Table Base	eu video Contigurati	UIIS								>
Video Filte	ers									>

# Table 59: GQI Tab Field Description

Field	Description
SRM IP	Session resource manager IP address.
Management IP	IP used by the SRM.
LED ID	The ID of the logical edge device configured with GQI protocol.
LED Name	The name of the logical edge device configured with GQI protocol.
Connection Status	The status of the connection with session resource manager.
Version	GQI version.
Event Pending	Indicates the number of the pending GQI event.
Reset Indication	Indicates whether reset indication is sent or not.

Field	Description
Encryption Discovery	Display if the encryption capabilities of this device has be sent to the SRM.

# **Encryption Configurations**

This section displays the video encryption configurations of the CMTS node.

# Figure 104: Encryption Configurations

ashboard	Configurations	Channels	Sessions	Analysis	Alarms	
Device:	10.90.82.224 - video-LWR-B-A	2T	•			
Cable Video	Configurations					>
Virtual and F	Physical Configurations					>
Encryption C	Configurations					*
Linecard Co	onfiguration PME					
Line	card Encryption Sumn	nary C			Show only available LineCards	
Slot		CA System		Scrambling Algor	ithm	
Line	card 0	PME	-	DVS042	1	
Line	card 1	PME	-	DVS042	1	
Line	card 2		-	2	1	
Line	card 3	121	-	2	1	
Line	card 6	-	-	4	1	
Line	card 7	DVB	-	DVB-CSA	1	
Line	card 8	6	-	1	1	
Line	card 9	4	-	4	1	
DVB Configu	urations					>
Table Based	Video Configurations					>
Video Filters						>

# **Linecard Configuration**

This tab displays the summary information of the linecard encryption.

### Table 60: Linecard Configuration Tab Field Description

Field	Description
Slot	Linecard slot.
CA System	The conditional access system used for encryption.
Scrambling Algorithm	The scrambling algorithm used by CA system.

Check the **Show only available LineCards** box to hide unavailable linecards. Click the **Pencil** button to update the CA system and scrambling algorithm. Be aware that changing encryption will remove all the sessions and cause service interruption.

# PME

PME

This tab displays the summary information of the privacy mode encryption.

#### Figure 105: PME Tab

hboard	Configurations	Channels	Sessions		Analysis	Alarms	
Device:	10.90.82.224 - video-LWR-B-	A2T		•			
able Video	Configurations						>
firtual and P	Physical Configurations						>
Encryption C	Configurations						*
Linecard Co	onfiguration PME						
Privacy	Mode Encryption Sur	mmary		10			
CEM IP			: 0.0.0.0				
CEM FQE	N						
CEM Port	t		: 0				
Managem	nent IP		0.0.0				
Local Por	t		: 0				
VODS Id			: 0				
No of ECI	Ms received		: 0				
Connectio	on Status		Δ				
	irations		_	_			
Table Des -							-
Table based	video Configurations						>
Video Filters							>

Table 61: PME Tab Field Description

Field	Description
CEM IP	IP address of the Windows/Linux system through which the CEM can be reached by Cisco cBR-8.
CEM FQDN	Fully Qualified Domain Name of the Windows/Linux system through which the CEM can be reached by Cisco cBR-8.
CEM Port	Port number on which the CEM listens for connections from the Cisco cBR-8.
Management IP	Source IP address of the cBR-8 virtual interface through which the connection must be established with the CEM server.

Field	Description
Local Port	IP port number of the CMTS used to communicate with the CEM server.
VODS Id	IDs assigned by CCAD/ARRIS to the MSO site.
No of ECMs received	Total number of PME ECMs received.
Connection Status	Indicates whether there is a connection to a CEM server.

Click the Pencil button to open Configure PME Parameters window.

#### Figure 106: Configure PME Parameters

Device: 10.90.82.224 - video-LWR-B-A2T		-		
able Video Configurations				
irtual and Physical Configurations				
ncryption Configurations				
Linecard Configuration PME	Configure PMI	E Parameters		
	5			
Privacy Mode Encryption Summa	CEM IP			
CEM IP	CEM FQDN			
CEM FQDN	CEM Port	CEM Port		
CEM Port	Management IP			
Management IP	VODS Id	VODS Id		
Local Port				
VODS Id				
No of ECMs received				
Connection Status				
VB Configurations				
		Reset	Apply Cancel	

Make the necessary update in this window, then click Apply to commit the update.

# **DVB Configurations**

This section displays the details of the DVB configuration.

I

# Figure 107: DVB Configurations

Configurations EIS ECMG Tier	Based				
Configurations		10	CA Interfaces		10
Management IP	1.34.2.10		Line Card	IP Address	VRF
Check SCG at provision	: 0		7/0	1.34.10.108	2
Scramble only Audio and Video PIDs	. 0				
ECMG Routes					/0
Server IP	NetMask		Interface	Forward Router IP	
1.200.1.0	255.255.255.0	Tent	GigabitEthernet4/1/2	1.200.1.1	

# Configurations

This tab displays the overview of the DVB configurations.

# Table 62: Configurations Tab Field Description

Field	Description
Configurations	
Management IP	IP address used to manage DVB.
Check SCG at provision	Indicates whether Check SCG is enabled at provision time.
Scramble only Audio and Video PIDs	Indicates whether scrambling only video and audio pids is enabled.
Strong Pairing Enforcement	Indicates whether the NDS strong pairing enforcement is switched on.
CA Interfaces	
Line Card	Line card through which CA data is transferred.
IP Address	IP Address for the CA interface.
VRF	VRF in which the CA Interface is present.
ECMG Routes	
Server IP	IP address of the external ECMG server.
NetMask	Net mask of the external ECMG server.

Field	Description
Interface	The interface of the line card on which the connection with the external ECMG server is established.
Forward Router IP	

Click the Pencil button to open the Update DVB Configs window.

#### Figure 108: Update DVB Configs

Dashboard Configuratio	ns Channels	Sessions	Analysis	Alarms	
Device: 10.90.82.224 - video-	LWR-B-A2T		•		
Cable Video Configurations					>
Virtual and Physical Configuration	IS				>
Encryption Configurations					>
DVB Configurations Configurations EIS ECN Configurations Management IP Check SCG at provision Scramble only Audio and Vide Stream Dense Sciencement	Update DVB Co Management IP Check SCG at provision CA Interfaces EGM	onfigs 1.34.2.10	Scramble only Audio a Strong Pairing Enforce	nd Video	VRF
ECMQ Routes ECMQ Routes 1,200,1.0	Linecard 7/0 + Add Interface	IP Address	VRF None •	Ŷ	5 d Router IP 200.1.1
Table Based Video Configurations	5				>
Video Filters					>

Make the necessary update in this window, then click Apply to commit the update.

EIS

This tab displays the EIS information.

# Figure 109: EIS Tab

Ishboard	Configurations	Channels	Sessions	Analysis	Alarms			
Device:	10.90.82.224 - video-LWR-B-A21	r		•				
Cable Video C	Configurations							>
Virtual and Ph	hysical Configurations							>
Encryption Co	onfigurations							>
DVB Configur	irations							•
Configuration	ns EIS ECMG Tier Ba	ased rs <b>C</b>			+ Add Q			
Configuration	ns EIS ECMG Tier B Int Information Scheduler Name	ased rs 🗘	d ▲ PeerIP ≑	Management IP 🔶	+ Add Q Listening Port + CP (s	Search for	CG ∳ Connection ∲ Status ∲	
Configuration	ns EIS ECMG Ter B nt Information Scheduler Name eis1	ased rs C 4 In	d Peer IP 🔶 1 1.200.1.81	Management IP	+ Add Q Listening Port   CP (5 6789	Search for	CG 👌 Connection of Status	
Configuration	ns EIS ECMG Ter B Int Information Scheduler Name eist	ised rs C + k	d • Peer IP 0 1 1.200.1.81	Management IP 🔶 1.34.2.10	+ Add Q Listening Port + CP (5 6789	Search tor Poverrule  overwrite Si seconds)	CG (Connection ) Status (Previous 1 Next	
Configuration Ever	ns EIS ECMG Ter B nt Information Scheduler Name eis1 Video Configurations	ns C	d ▲ PeeriP ∲ 1 1.200.1.81	Management IP 🔅 1.34.2.10	+ Add Q Listening Port (s 6789	Search for P Overrule seconds) 4	CG Connection Status Previous 1 Next	>

# Table 63: EIS Tab Field Description

Field	Description
Name	Event information scheduler name.
ID	Event information scheduler ID.
Peer IP	IP Address of the EIS server.
Management IP	IP address used to manage EIS server.
Listening Port	The listening port that is configured to establish the connection from the EIS Server.
CP Overrule (seconds)	Specifies the crypto period duration in seconds.
Overwrite SCG	Indicates whether the scrambling control group overwrite is enabled.
Connection Status	The status of the connection with the EIS.

Click the Add button to open the Add EIS window.

#### Figure 110: Add EIS

Dashboard Config	urations Channels	Sessions Analysis Alarms	
Device: 10.90.8	Add EIS		
Cable Video Config	Configurations	EIS Binding	>
Virtual and Physica	EIS Name	Name ID 🗟 EIS Binding disabled	>
Encryption Configu	Listening Port	Port	>
DVB Configurations	CP Overrule	Overnule tel sec	~
Configurations	Fail to Clear Duration	Duration I&I sec	
Event Info	Overwrite SCG		
	EIS Binding		
Na			nection tatus
		Add Cancel	rious Next
	_		
Table Based Video Config	gurations		<b>,</b>
Video Filters			>

Table 64: Add EIS Field Description

Field	Description
Fail to Clear Duration	Specifies a duration in second for which a configured DVB-encrypted sessions is allowed to function without encryption.
EIS Binding	Check to enable EIS binding.
Туре	Specifies the EIS binding is made to an LED or a specific management IP.
LED Binding Type	LED Name or LED ID.
LED Name	The name of the LED to bind with EIS.
LED ID	The ID of the LED to bind with EIS.
IP Address	Management IP address to with the EIS is bound.

Fill in the information. Then click Add to confirm.

Move the mouse over the **Context Menu** button before the EIS name to display a context menu. Choose the **Delete** option to delete the EIS. Choose the **Update** option to update the EIS.

Make the necessary update in this window, then click Update to commit the update.

# ECMG

This tab displays the ECMG information.

#### Figure 111: ECMG Tab



#### Table 65: ECMG Tab Field Description

Field	Description
Name	Entitlement control message generator (ECMG) name.
ID	ECMG ID.
Туре	Type of ECMG. Hitachi, Irdeto, Nagra, PowerKey, or standard.
CA System	CA system ID for the associated ECM stream in Hex.
CA Subsystem	CA subsystem ID in Hex.
ECM PID Source	Source of ECM PID.
Mode	ECMG mode. Broardcast, Tier based, or VOD.
Connections	Number of ECMG connections.
Descriptor Rules	Number of descriptor rule.
Auto Channel ID	Specifies if the automatic channel ID selection is enabled.

Click the Add button to open the Add ECMG window.

#### Figure 112: Add ECMG

Dashboard	Configurations	Channels	Sessions	Analysis	Alarms				
Device: 10.	Add E	ECMG							Î.
Cable Video Conf	igura ECMG N	lame / ID	Name	÷	Auto Channel ID	<b>V</b>			>
	urati		Standard		ECM PID Source	SID PID Range	•		>
DVB Configuratio	ns. Mode		Broadcast						<b>~</b>
Configurations	EIS CA Sys	D / Subsys ID ections Descript	CA Sys ID CA SubSys or Rules Overrule Settings						
ECM G	ene	D.L. M.	10.4.11	D. 1					=
	la	Phoney	No ECMG Connections configured	Polt				Auto	
=	+ Av	dd Connection						Channel Id	
								1 Next	
Table Based Vide	o Co								
Video Filters				Add Cancel					>

There are three tabs in this window: Connections, Descriptor Rules, and Overrule Settings. Each has several parameters to configure.

Table 66: Add ECMC	Window Tabs	Field Description
--------------------	-------------	-------------------

Field	Description
Connections	
ID	ECMG connection ID.
Priority	Priority of the ECMG connection.
IP Address	IP address of the external ECMG.
Port	Port number.
Descriptor Rules	
Name	Descriptor rule name.
ID	Descriptor rule ID.
Rule Type	There are two descriptor rule types:
	• Add private data: Specifies that private data is inserted to the standard descriptor.
	• Do not insert: Specifies that no standard descriptor rules are inserted.

Field	Description
Insertion Level	There are two insertion levels:
	• As per EIS: Specifies that EIS determines the private data insertion level.
	• ES level: Specifies that the private data is inserted at the elementary stream level.
Rule	All ECM ID, or ECM ID List.
ECM ID List	ECM IDs to which the rules must be applied, in decimal, separated by commas.
Private Data	Private data in Hexadecimal without the 0x prefix.
Overrule Settings	
Access Criteria Start Delay	Specifies the delay between the start of first CP after a change in access criteria and ECM broadcast.
Access Criteria Stop Delay	Specifies the delay between the end of last CP preceding a change in access criteria and ECM broadcast.
Start Delay	Specifies the delay between the start of CP and ECM broadcast in milliseconds.
Stop Delay	Specifies the delay between the end of CP and ECM broadcast in milliseconds.
Transition Start Delay	Specifies the transition start delay in milliseconds.
Transition Stop Delay	Specifies the transition stop delay in milliseconds.
Repetition Period	Specifies the repetition period of ECM packets in milliseconds.
Minimum CP Duration	Specifies the minimum crypto period (CP) in milliseconds.
Maximum Computation Time	Specifies the maximum time needed by ECMG to compute an ECM in milliseconds.
Maximum Streams	Specifies the maximum number of simultaneous open streams supported by the ECMG on a channel.

Fill in the information. Then click Add to confirm.

Move the mouse over the **Context Menu** button before the ECMG name to display a context menu. Choose the **Delete** option to delete the ECMG. Choose the **Update** option to update the ECMG.

Make the necessary update in this window, then click Update to commit the update.

### **Tier Based**

This tab displays the Tier Based Scrambling information.

# Figure 113: Tier Based Tab

SIDUCIU	Configurations	Channels	Sessions	Analysis	Alarms		
Device:	10.90.82.224 - video-LWR-B-A2T		•				
Cable Vide	eo Configurations						>
Virtual and	Physical Configurations						>
Encryption	Configurations						>
DVB Config	igurations						~
	ations EIS ECMG Tier Bas	sed					
Tie	ier Based Scrambling 🛆 🗧	;		Enable/Disable Tier	BasedScrambling	+ Add Q Search for	
Tie	ier Based Scrambling 🛆 🏾 🕻	e	٨	Enable/Disable Tier	BasedScrambling	+ Add Q Search for.	
Tie	ier Based Scrambling 🛆 🎗 ECMG Nan	le	۸.	Enable/Disable Tierl	BasedScrambling	+ Add Q Search foc.	
Tie	ier Based Scrambling 🛆 🏾 🤇	le	۵.	Enable/Disable Tier	BasedScrambling ¢	+ Add Q Search foc.	
Tie Table Base	ier Based Scrambling 🛆 📿 ECMG Nam ed Video Configurations	e	. ,	Enable/Disable Tierl	BasedScrambling	+ Add Q Search for	>

Table 67: Tier Based Tab Field Description

Field	Description
ECMG Name	The name of the tier based ECMG.
ECMG ID	The ID of the tier based ECMG.
Access Criteria	The access criteria per ECMG.

Check the Enable/Disable Tier Based Scrambling checkbox to enable the tier based scrambling.

Click the **Add** button to open the Add Tier Based ECMG window. To add tier based ECMG, make sure there is ECMG with tier based mode configured under ECMG tab.

#### Figure 114: Add Tier Based ECMG

ECMG	Access Criteria	
	Access Criteria	

Choose the available tier based ECMG, and fill in the access criteria. Then click Add to confirm.

Move the mouse over the **Context Menu** button before the ECMG name to display a context menu. Choose the **Delete** option to delete the tier based ECMG. Choose the **Update** option to update the tier based ECMG.

Make the necessary update in this window, then click Update to commit the update.

# **Table Based Video Configurations**

This section displays the details of the table based video configuration.

#### Figure 115: Table Based Video Configurations

Dashboard	Configurations	Channels	Sessions	Analysis	Alarms				
Device:	10.90.82.222 - video-LWR-B-	43	•						
Cable Vide	o Configurations								>
Virtual and	Physical Configurations								>
Encryption	Configurations								>
DVB Config	gurations								>
Table Base	d Video Configurations								2
TBV Session	Multicast Labels So Del Based Video Config	urations ${\cal C}$	Show 1	0 🗘 entries 😭	Delete +	Add Q Search			
	Session A Name	VCG   RF Channels	¢ Input ≬ Inj Type ∲ Inj	out Start UDP	Number of Sessions	UDP 0	Processing Type	View Details	
	Sess1	vcg-1 20	Input Port	1 49152	15	1	REMAP	0	
							Previous	1 Next	
Video Filter	rs and PID Remap								>

# **TBV Sessions**

This tab displays the details of the table based video sessions.

Table 68: TBV Sessions Tab Field Description

Field	Description
Session Name	The name of the video session.
VCG	The virtual carrier group that this session belongs to.
RF Channels	The RF channel that this session belongs to.
Input Type	TBV sessions can be created using multiple inputs like Input Port/VEI Bundle ID/Multicast Label/Multicast Group and source IP. This fields describes with which input the session is created.
Input	Displays the input detail. It displays the Input Port number if the input type is Input Port or similarly it displays the VEI Bundle Id, Multicast label or group IP and source IP based on the input type.
Start UDP	UDP port number of first session.
Number of Sessions	Number of sessions per RF channel.
UDP Increments	Amount port number is increased for each session.
Processing Type	Processing type of the session (Remap/Passthru/Data).

Click the Add button to open the Add TBV Sessions window.

#### Figure 116: Add TBV Sessions

Add TBV S	ession	S										
Configurations						Session Defaults						
Virtual Carrier Group	test			\$		Jitter		100		ms		
RF Channels	3 \$	4 ;				Stream Rate		VBF	1	¢		
Session Type	Unicast	;				Repeat						
Input Type	VEI/Input Pe	ort :										
+ Add Session												
Name		VEI/Input Po	ort	Processing Type	Start UDP	No. of sessions	Increme	nt by	Start Program	n Start PMV	Bitrate	
sess1		1.2.3.4 / 1	\$	Remap \$	50000	1	1		200	1	0	•
sess2		1.2.3.4 / 1	\$	Remap \$	51000	1	1		250	2	0	•
					Add	Cancel						

VCGs that are bound to SDG with RF ports and the VCGs that have an active LED is displayed in the drop down list. A group of unicast/multicast sessions can be configured all at once. Session defaults apply to all the sessions that are created using the **Add** button.

Fill in the information. Then click Add to confirm.

Click the View Details button at the end of each session to display the details of this session.

# Figure 117: Session Details

# **Session Details**

VCG Name	:	test			
RF Channel	:	1 - 4			
Session Name	:	pmv1	Start UDP Port	:	51500
Input Type	:	Input Port	Number of Sessions per QAM	:	1
Input Port	:	1	UDP Increments	:	1
Processing Type	:	REMAP	Start Output Program Number	:	2001
Configured Bitrate	:	Not configured	Repeat Output Program Numbers	:	NO
Stream Rate	:	VBR	Start PID Multiplier Value	:	21
Jitter	:	100 ms			

Close

Table 69: Session Details Field Description

Field	Description
VCG Name	The virtual carrier group that this session belongs to.
RF Channel	The RF channel that this session belongs to.
Session Name	The name of the video session.
Input Type	TBV sessions can be created using multiple inputs like Input Port/VEI Bundle ID/Multicast Label/Multicast Group and source IP. This fields describes with which input the session is created.
Input Port/Multicast Group/ Multicast Label	Displays the input detail. It displays the Input Port number if the input type is Input Port or similarly it displays the VEI Bundle Id, Multicast label or group IP and source IP based on the input type.
Processing Type	Processing type of the session (Remap/Passthru/Data).
Configured Bitrate	Predicted max bitrate. Used to calculate remaining bandwidth on a QAM.
Stream Rate	CBR/VBR
Jitter	Dejitter buffer depth for the session.

Field	Description
Start UDP Port	UDP port number of first session.
Number of Sessions per QAM	Number of sessions per RF channel.
UDP Increments	Amount that the port number is increased for each session.
Start Output Program Number	Output program number that the first session will be assigned.
Repeat Output Program Numbers	Display if output program numbers are reused across RF Channels when multiple sessions are created.
Start PID Multiplier Value	The value of first PID in a range that can be used for a specific UDP flow.

Click the Edit button at the beginning of each session to edit this session.

Select session and click the **Delete** button to delete selected session.

# **Multicast Labels**

This tab displays the details of the multicast labels. Multicast labels are typically used for source switching and multiple sources can be configured for a multicast group.

#### Figure 118: Multicast Labels Tab

Cisco Open SDN	Controller						0	0	8	?
Applications 🔤	Dashboard	Configurations	Channels	Sessions	Analysis	Alarms				
Inventory Manager	Device:	10.90.82.232 - video-LWR-S-D8			-					
OpenFlow Manager	Cable Video	Configurations								>
🄖 Tag Manager	Virtual and P	hysical Configurations								>
BGPLS Manager	Encryption C	onfigurations								>
PCEP Manager	Table Based	Video Configurations								•
Cable	TBV Session	ns Multicast Labels Sour	ce Switch							
	in a	Label Name	<ul> <li>Multic</li> </ul>	ast Group 🔶	Source 1 🔶	Source 2 Source 3	¢ So	urce 4	¢	
				No N	lulticast Labels configured					
							Prev	ious N	ext	
	Video Filters									>
						Version 1.2.1-25007 All con	tents are Copyright © 201	5 Cisco and/or	its affiliates. All	rights reserved

#### Table 70: Multicast Labels Tab Field Description

Field	Description
Label Name	Label name used to create multicast sessions.
Multicast Group	Multicast IP address that receive multicast sessions.
Source IP 1	First source IP of the multicast group.

Field	Description
Source IP 2	Second source IP of the multicast group.
Source IP 3	Third source IP of the multicast group.
Source IP 4	Fourth source IP of the multicast group.

Click the Add button to open the Add Multicast Label window.

# Figure 119: Add Multicast Label

Dashboard	Configurations	Channels	Sessions	Analysis	Alarms			
Device: 10.9	0.f	ulticast Labels						
Cable Video Cont	fig							>
Virtual and Physic								>
Encryption Config	Ju							>
DVB Configuratio	Label Name	Multicast Group	Source IP 1	Source IP 2	Source IP 3	Source IP 4	-	>
Table Based Vide	:0		No East	as configured				*
TBV Sessions								
Multicas	st							
							ce 4	
			Add	Cancel			rious Next	
Video Filters								>

Fill in the information. Then click Add to confirm.

# **Source Switch**

This tab is used to switch the source of a multicast group.

#### Figure 120: Source Switch Tab

cisco Open SDN C	iontroller	0	0	8	?
Applications 🔤	WYNW: UU,3U,02,232 - YW90-LWR-3-U0 ▼				^
Inventory Manager	Cable Video Configurations				>
Model Explorer	Virtual and Physical Configurations				>
OpenFlow Manager	Encryption Configurations				>
🍑 Tag Manager	Table Based Video Configurations				-
BGPLS Manager	TBU/ Constants I Multi-mult Jackele Courses Cullette				
88 PCEP Manager	TBV Seissions Multicast Laceis Source Switch				
⊐C Cable	Multicast Source Switch				
	Source Switch Type : From a given Multicast Group 🔹				
	Multicast Group :				
	Source IP :				
	Switch Source				
	1			_	-11
	Video Filters				>
	Version 1.2.1-29007 All conte	nts are Copyright © 201	5 Cisco and/or	its affiliates. All ri	rights reserver

# Table 71: Source Switch Tab Field Description

Field	Description		
Source Switch Type	From a given multicast group, or to a multicast group.		
Multicast Group	Multicast IP address that receive multicast sessions.		
Source IP	The destination source IP to switch to.		

Fill in the information. Then click Switch Source to switch.

# **Video Filters and PID Remap**

This section displays the details of the video filters and PID remap.
#### Figure 121: Video Filters and PID Remap

lashboard	Configurations	Channels	Sessions	Analysis	Alarms	
Device:	10.90.82.222 - video-LWR-B-A3		•			
Cable Vide	o Configurations					>
Virtual and	Physical Configurations					>
Encryption	Configurations					>
DVB Config	gurations					>
Table Base	d Video Configurations					>
Video Filter	rs and PID Remap					*
Filters	PID Remap					
Vid	deo Filters				Q Search for	
F 1	Filter LED 🔶 VCG	RF Channels	Stream Type	Destination IF	O DP Port      O PIDs / Programs	¢.
			No filte	rs configured		
					Previous Ne	xt

#### Filters

This tab displays the details of the video filters.

#### Table 72: Filters Field Description

Field	Description
Filter Type	PID filter/program filter.
LED	LED to which this filter belongs.
VCG	VCG to which this filter belongs.
RF Channels	RF Channels to which this filter applies in the VCG.
Stream Type	Unicast/Multicast.
Destination IP	Unicast destination IP address.
UDP Port	UDP port on which the filter should be applied.
PIDs/Programs	PID/Programs to be blocked.

#### **PID Remap**

This tab displays the details of the PID remap.

#### Figure 122: PID Remap

Dashboard	Configurations	Channels	Sessions	Analysis	Alarms		
Device:	10.90.82.222 - video-LWR-B-A3		•				
Cable Vide	eo Configurations						>
Virtual and	Physical Configurations						>
Encryption	Configurations						>
DVB Confi	gurations						>
Table Base	ed Video Configurations						>
Video Filte	rs and PID Remap						<b>~</b>
Filters	PID Remap						
PI	D Remap Rules $ \mathcal{C} $		Show 10	¢ entries	+ Add Q		
	VCG *	RF Channel	Input Stream Type	input 0	UDP Port	ut PID ange Output PID Range	¢
			No PID Rea	mp Rules configured			
						Previous	Next 600
							3675

#### Table 73: PID Remap Field Description

Field	Description
VCG	VCG to which this remap rule belongs.
RF Channel	RF Channels to which this remap rule applies in the VCG.
Input Stream Type	Unicast/Multicast.
Input	Destination IP to which this remap rule applies.
UDP Port	UDP port on which the remap rule applies.
Input PID Range	Original PID range.
Output PID Range	Remapped PID range.

Click the Add button to open the Add PID Remap Rule window.

#### Figure 123: Add PID Remap Rule

Add PID	кетар	Ru	lie							
Configurations						Rule List				
Virtual Carrier Group	-			\$		Input Start PID	Input End PID	Output Start PID	Output End PID	
RF Channels	-	¢	-	¢						¥
Stream Type	Unicast			¢		+ Add Rule				
Destination IP				¢						
UDP Port										
					Add	Cancel				

Fill in the information. Then click Add to add PID remap rule.

# **Channels Page**

Use this page to view QAM video channels of the CMTS node.

Dashboard	I Con	figurations	Channels	Se	ssions	Anal	lysis	e e	Alarms		
Devic	e: 10.90.82.217	- video-LWR-B-A7B			•						
QAM	Video Channels										
	Total RF Channel	s: 768							Q Search for		
	Select LED	▼Select	VCG	-Selec	SDG	- RF	Port	•	Admin State	✓OP State	- •
	RF-Channel	<b>≜</b> Type ≑	TSID \$	ONID 🔶	Admin State	OP State	VCG	≑ SDG	↓ LED	Encryption Capable	Total Sessions <sup>≑</sup>
	7/0/0:0	RF-Port	-	-	ON	UP	-	-	-	CLEAR	0
	7/0/0:1	RF-Port	-	-	ON	UP	-	-	-	CLEAR	0
	7/0/0:2	RF-Port	-	-	ON	UP	-	-		CLEAR	0
	7/0/0:3	RF-Port	-	-	ON	UP	-	-	-	CLEAR	0
	7/0/0:4	RF-Port	-	-	ON	UP	-	-	-	CLEAR	0
	7/0/0:5	RF-Port	-	-	ON	UP	-	-	-	CLEAR	0
	7/0/0:6	RF-Port	-	-	ON	UP	-	-	-	CLEAR	0
	7/0/0:7	RF-Port	-	-	ON	UP	-	-	-	CLEAR	0
	7/0/0:8	RF-Port	-	-	ON	UP	-	-	-	CLEAR	0
	7/0/0:9	RF-Port	-	-	ON	UP			-	CLEAR	0
									Previous 1 2	345	. 77 Next

#### Figure 124: Channels Page

366425

Field	Description
RF-Channel	The RF channel configured on the RF port.
Туре	Type of the medium on which the RF channel is created.
TSID	Transport stream ID.
ONID	Original network ID.
Admin State	Desired state.
OP State	Actual state.
VCG	The virtual carrier group that this RF channel belongs to.
SDG	The service distribution group that this RF channel belongs to.
LED	The logical edge device on which this virtual carrier group is provisioned.
Encryption Capable	Displays whether this channel is capable of encrypting the output.
Total Sessions	Total sessions in this RF channel.

#### Table 74: Channels Page Field Description

# **Sessions Page**

Use this page to get an overview of the video sessions.

#### Figure 125: Sessions Page

			Sessions	Analysis	Admis	
Device:	10.90.82.224 - video	D-LWR-B-A2T	•			
∕ideo Se	Sessions Overview by L	.ED				
Active Inactive Blocked Pending	e d g u					
SUOI	40					
Sess	20-					
	0		adan'		wither	
				Logical Edge Devices		
View A	All Sessions					>
Active Inactive Blocked Pending	essions Overview by S	SDG				
Active Inactive Blocked Pending	essions Overview by S	SDG				
Active Inactive Blocked Pending	essions Overview by S	SDG				
Active Inactive Blocked Pending	essions Overview by S	SDG	and Sec.	nvice Distribution Groups		
Active Inactive Blocked Pending	Sessions Overview by S	SDG	and the second sec	rvice Distribution Groups		<u> </u>

Click the View All Sessions button to view the statistical information of the video sessions.

**Analysis Page** 

#### Figure 126: Video Session Monitoring



## **Analysis Page**

Use this page to view RF channel bandwidth utilization of each RF port.

#### Figure 127: Analysis Page



## **Alarms Page**

Use this page to view video related alarms of the CMTS node.

#### Figure 128: Alarms Page

Dashboard	Configurations	Channels	Sessions	Analysis	Alarms	
Video Alarm Ce	onfigurations					>
Video Alarms						>

### **Video Alarm Configurations**

This section displays the video alarm configuration details.

Figure 129: Video Alarm Configurations

Device:	10.90.82.222 - video-LWR-B	-A3		•				
Video Alarm Cor	nfigurations			10	SNMP Hosts			10
CEM Connection	Loss		0		IP Address	UDP Port Number	Community String	
D6 Connection L	.055	:	ø		10.90.153.130	8080	public	
GQI Connection	Loss	:	0					
PME ECM Missir	ng	:	0					
QAM Oversubcri	ption	:	0					
PID Conflict		:	0					
Program Conflict	t	:	ø					
ECMG Connection	on Loss	:	0					

Table 75: LED Details Field Description

Field	Description
Video Alarm Configurations	
CEM Connection Loss	Display CEM connection loss configuration status (Enabled/Disabled). This alarm is triggered whenever there is a connection loss to CEM Server.

Field	Description
D6 Connection Loss	Display D6 connection loss configuration status (Enabled/Disabled). This alarm is triggered whenever there is a connection loss to D6 Server.
GQI Connection Loss	Display GQI connection loss configuration status (Enabled/Disabled). This alarm is triggered whenever there is a connection loss to GQI Server.
PME ECM Missing	Display PME ECM missing configuration status (Enabled/Disabled). This alarm is triggered when cBR-8 is connected to CEM but it hasn't received any ECM.
QAM Oversubcription	Display QAM oversubscription configuration status (Enabled/Disabled). This alarm is triggered whenever there is a QAM subscription.
PID Conflict	Display PID conflict configuration status (Enabled/Disabled). This alarm is triggered whenever there is output PID conflict in a QAM Channel.
Program Conflict	Display program conflict configuration status (Enabled/Disabled). This alarm is triggered whenever there is output program number conflict in a QAM Channel.
ECMG Connection Loss	Display ECMG connection loss configuration status (Enabled/Disabled). This alarm is triggered whenever there is a connection loss to ECMG Server.
SNMP Hosts	
IP Address	IP address of the SNMP host.
UDP Port Number	UDP port number of the SNMP host.
Community String	Community string of the SNMP host.

Click the Pencil button to open the Update Video Alarm Configs window.

#### Figure 130: Update Video Alarm Configs

Ideo Alarm Configurations						
CEM Connection Loss		PID	Conflict			
D6 Connection Loss		Prog	ram Conflict			
GQI Connection Loss		ECMG Connection Loss				
PME ECM Missing		EIS (	Connection Loss			
QAM Oversubscription						
NMP Hosts						
IP Address		UDP Port	Com	Community String		
10.90.153.130	8080		public	•		

Make the necessary update in this window, then click **Update** to commit the update. To restore to the existing configuration, click the **Reset** button.

### Video Alarm

This section displays the video alarm details. Use the filters to filter the displayed alarms by specific criteria. Check the Enable Auto Refresh box, the alarms displayed will refresh in a specific interval.

#### Figure 131: Video Alarms

hboard	Configurations	Channels	Sessions	Analysis	Aiarms		
/ideo Alarm Conf	figurations						>
/ideo Alarms							*
Alarms	S	Show 10	entries Filters	:Chassis	¢Type	Search for	
	-	<b>0</b> 1				Enable Auto Refresh	
	Timestamp	<ul> <li>Chassis</li> </ul>	Alarm Type	Slot	Alarm Message		
						Previous Next	

I