DEPI/UEPI/L2TP integration with Cisco Remote PHY Device

This document describes how to configure the DEPI/UEPI/L2TP integration with RPD on the Cisco cBR Series Converged Broadband Router.

Finding Feature Information

Your software release may not support all the features that are documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release. The Feature Information Table at the end of this document provides information about the documented features and lists the releases in which each feature is supported.

Hardware Compatibility Matrix for Cisco Remote PHY Device

Note   Unless otherwise specified, the hardware components introduced in a given Cisco Remote PHY Device Software Release are supported in all subsequent releases.

Table 1: Hardware Compatibility Matrix for the Cisco Remote PHY Device

Cisco HFC Platform	Remote PHY Device
Cisco GS7000 Super High Output Node	**Cisco 1x2 / Compact Shelf RPD Software 2.1 and Later Releases** Cisco Remote PHY Device 1x2 • PID—RPD-1X2= **Cisco 1x2 / Compact Shelf RPD Software 2.1a and Later Releases** Cisco Remote PHY Device 1x2 • PID—RPD-1X2-PKEY=
Cisco GS7000 Super High Output Intelligent Node (iNode)	**Cisco 1x2 / Compact Shelf RPD Software 4.1 and Later Releases** Cisco Intelligent Remote PHY Device 1x2 • PID—iRPD-1X2= • PID—iRPD-1X2-PKEY=

Note The -PKEY suffix in the PID indicates units that enable the SCTE-55-2 Out-of-Band protocol support.

Information about DEPI/UEPI/L2TP integration with RPD

DEPI

Downstream External PHY Interface (DEPI) is the downstream interface between the CCAP Core and the RPD. R-DEPI is based on DEPI. More specifically, it is an IP pseudowire between the MAC and PHY in an MHAv2 system that contains both a data path for DOCSIS frames, video packets, and OOB packets, as well as a control path for setting up, maintaining, and tearing down sessions.

UEPI

Upstream External PHY Interface (UEPI) is the upstream interface between the RPD and the CCAP Core. Like DEPI, it is an IP pseudowire between the PHY and MAC in an MHAv2 system that contains both a data path for DOCSIS frames, and a control path for setting up, maintaining, and tearing down sessions.

How to Configure DEPI/UEPI/L2TP integration with RPD

This section describes how to configure DEPI/UEPI/L2TP integration with RPD.

Configuring depi-class/l2tp-class Pair

It's not permitted to change the default l2tp-class configuration (rphy-l2tp-global-class) for R-DEPI by user, because the parameter values are fine tuned to accommodate most common cases.

If user wants to use parameter values other than the default ones, they can use manually defined depi-class/l2tp-class pair. To do so, follow the example below:

```
Router# configure terminal
Router(config)# l2tp-class l2tp_demo
Router(config-l2tp-class)#exit
Router(config)# depi-class depi_demo
Router(config-depi-class)#l2tp-class l2tp_demo
Router(config-depi-class)#exit
Router(config)#cable rpd node
Router(config-rpd)#core-interface Te1/1/7
Router(config-rpd-core)#depi depi_demo /* Be sure to configure when the RPD core is offline*/
Router(config-rpd-core)#end
```

Verifying depi-class/l2tp-class Pair Configuration

To verifying depi-class/l2tp-class pair configuration, use the **show running-config** command as shown in the example below:

```
Router# show running-config | section rpd
alias exec scr show cable rpd
cable rpd node
identifier 0004.9f00.0901
core-interface Te1/1/7
  principal
  rpd-ds 0 downstream-cable 1/0/31 profile 155
  rpd-us 0 upstream-cable 1/0/63 profile 100
  depi depi_demo
r-dti 1
rpd-event profile 0
rpd-55d1-us-event profile 0
```

When the RPD core is online, use the **show l2tp tunnel** command as shown in the example below:

```
Router# show l2tp tunnel
LocTunID    RemTunID    Remote Name    State   Remote Address   Sessn  L2TP Class/
                                                               Count  VPDN Group
2375973187  4191827509  OpenRPD        est     120.100.1.20     86     l2tp_demo
2982856686  2223617345  OpenRPD        est     120.100.1.20     86     l2tp_demo
```

Verifying the RPD Status

To verify the RPD status, use the **show cable rpd** command as shown in the example below:

```
Router# show cable rpd
Load for five secs: 6%/1%; one minute: 5%; five minutes: 5%
No time source, *04:52:03.936 UTC Tue Jan 17 2017

MAC Address    IP Address    I/F      State      Role  HA    Name
0004.9f00.0901 91.0.10.10    Te1/1/0  init(l2tp) Pri   Act   node
```

Display DEPI Ralated Information

To display the Downstream External PHY Interface (DEPI) related information, use the command as shown in the following example:

```
Router#show cable rpd depi

DEPI Tunnel and Session Information Total tunnels 1 sessions 26
LocTunID    RemTunID    Remote Device   State   Remote Address   Sessn L2TP Class
                                                                 Count
338514820   671581873   0004.9f00.0901  est     10.10.10.11      26    rphy-l2tp-gl...

LocID       RemID       Pseudowire      State   Last Chg Uniq ID   Type Mode RemSt
0x41040008  0x00000B02  US1/0/0:2(R)    est     00:34:57 21        P    PSP  UP
0x41010000  0x00000600  US1/0/0:0(D)    est     00:34:57 11        P    PSP  UP
0x00002006  0x00000405  DS1/0/0:5       est     00:34:57 6         P    PSP  UP
0x00002004  0x00000403  DS1/0/0:3       est     00:34:57 4         P    PSP  UP
0x4100000C  0x00000D03  US1/0/0:3(M)    est     00:34:57 23        P    PSP  UP
0x00002002  0x00000401  DS1/0/0:1       est     00:34:57 2         P    PSP  UP
0x00002007  0x00000406  DS1/0/0:6       est     00:34:57 7         P    PSP  UP
0x00002008  0x00000407  DS1/0/0:7       est     00:34:57 8         P    PSP  UP
0x4101000C  0x00000603  US1/0/0:3(D)    est     00:34:57 24        P    PSP  UP
0x41000004  0x00000D01  US1/0/0:1(M)    est     00:34:57 15        P    PSP  UP
0x00002001  0x00000400  DS1/0/0:0       est     00:34:57 1         P    PSP  UP
0x41080008  0x00000F02  US1/0/0:2(S)    est     00:34:57 22        P    PSP  UP
0x41010004  0x00000601  US1/0/0:1(D)    est     00:34:57 16        P    PSP  UP
0x41020000  0x00000800  US1/0/0:0(B)    est     00:34:57 12        P    PSP  UP
0x00002009  0x00000408  DS1/0/0:8       est     00:34:57 9         P    PSP  UP
0x41010008  0x00000602  US1/0/0:2(D)    est     00:34:57 20        P    PSP  UP
0x41000008  0x00000D02  US1/0/0:2(M)    est     00:34:57 19        P    PSP  UP
0x4108000C  0x00000F03  US1/0/0:3(S)    est     00:34:57 26        P    PSP  UP
0x00002003  0x00000402  DS1/0/0:2       est     00:34:57 3         P    PSP  UP
0x41080000  0x00000F00  US1/0/0:0(S)    est     00:34:57 14        P    PSP  UP
0x41040004  0x00000B01  US1/0/0:1(R)    est     00:34:57 17        P    PSP  UP
0x41080004  0x00000F01  US1/0/0:1(S)    est     00:34:57 18        P    PSP  UP
0x41000000  0x00000D00  US1/0/0:0(M)    est     00:34:56 10        P    PSP  UP
0x00002005  0x00000404  DS1/0/0:4       est     00:34:56 5         P    PSP  UP
0x4104000C  0x00000B03  US1/0/0:3(R)    est     00:34:56 25        P    PSP  UP
0x41040000  0x00000B00  US1/0/0:0(R)    est     00:34:56 13        P    PSP  UP

outer#show cable rpd 0004.9f03.0214 te7/1/0 depi tunnel

Load for five secs: 7%/2%; one minute: 6%; five minutes: 6%
No time source, *12:41:44.228 CST Mon Mar 20 2017

LocTunID    RemTunID    Remote Device   State   Remote Address   Sessn L2TP Class
                                                                 Count
3388764998  1054297851  0004.9f03.0214  est     10.10.10.11      29    rphy-l2tp-gl...
```

Table 2: show cable rpd depi Field Descriptions

Field	Description
LocID	Local session ID.
RemID	Remote session ID.
US1/0/0:2(R)	US means UEPI session, DS means DEPI session. This string means UEPI session on line card slot 1, controller 0, rf-channel 2.

Field	Description
est in State	Established state.
P in Type	On primary line card.

Feature Information for DEPI/UEPI/L2TP integration with RPD

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Table 3: Feature Information for DEPI/UEPI/L2TP integration with RPD

Feature Name	Releases	Feature Information
DEPI/UEPI/L2TP integration with RPD	Cisco 1x2 / Compact Shelf RPD Software 3.1	This feature was integrated into the Cisco Remote PHY Device.