RPD IPv6

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.

Use Cisco Feature Navigator to find information about the platform support and Cisco software image support. To access Cisco Feature Navigator, go to the link http://tools.cisco.com/ITDIT/CFN/. An account at the http://www.cisco.com/ site is not required.

Hardware Compatibility Matrix for Cisco Smart PHY 7200

Note Unless otherwise specified, the hardware components introduced in a given Cisco Smart PHY 7200 Software Release are supported in all subsequent releases.

Table 1: Hardware Compatibility Matrix for the Cisco Smart PHY 7200

Cisco CMTS Platform	Cisco Smart PHY 7200
Cisco cBR-8 Converged Broadband Router with Cisco IOS XE Gibraltar 16.10.1 and Later Releases	**Cisco Smart PHY 7200 Software 1.x and Later Releases** Cisco Smart PHY 7200 • PID—HA-RPHY

Information about RPD IPv6

The CableLabs' MHAv2 standards requires CCAP Core and RPD must support both IPv4 and IPv6, which means the Remote PHY Signaling between the CCAP Core and RPD is able to run on both IPv4 and IPv6 networks.

Note

- CCAP Core can support IPv4/IPv6 dual stack.

- RPD can support either IPv4 or IPv6 network.

- RPD does not support IPv4/IPv6 Dual Stack at the same time.

- RPD will try IPv6 connection first. When DHCPv6 failed, RPD will try DHCPv4.

- For single RPD, all the server addresses, protocols to communicate with it must be in the same IP version.

Configure RPD IPv6 Unicast Online

This section describes how to configure RPD IPv6 Unicast Online on Cisco cBR-8.

Configure Unicast IPv6

To configure Unicast IPv6, complete the following procedure:

1. Enable IPv6 unicast routing.

   ```
   configure terminal
   ipv6 unicast-routing
   ```

2. Configure IPv6 Address on DPIC interface.

   ```
   configure terminal
   interface TenGigabitEthernet slot/1/port
   ipv6 enable
   ipv6 address ipv6_address
   ```

Configure RPD core interface

To configure RPD core interface, complete the following procedure:

```
configure terminal
cable rpd name
identifier rpd_mac
core-interface tenG_interface
principal
rpd-ds id downstream-cable controller profile id
rpd-us id upstream-cable controller profile id
```

Configure IPv6 PTP Clock Option

To configure the IPv6 PTP Clock Option, complete the following procedure:

1. Configure CBR as PTP secondary, see the configuration example below:

```
configure terminal
    interface Loopback1588
        ip address 158.158.158.5 255.255.255.255
    ptp clock ordinary domain 0
        servo tracking-type R-DTI
        clock-port slave-from-903 slave
        delay-req interval -4
        sync interval -5
        sync one-step
        transport ipv4 unicast interface Lo15888 negotiation
        clock source 10.90.3.93
```

Note   CCAP-Core as PTP secondary can only support IPv4.

2. Configure R-DTI for PTP IPv6.

configure terminal
ptp r-dti *number*
ptp-domain *domain*
clock-port *number*
ethernet *number*
transport ipv6
clock source ipv6 *address* **gateway ipv6** *geteway*

Note
- PTP domain and 1588 primary have same domain number.

- Clock source IPv6 address is 1588 primary IPv6 address.

- Gateway is next hop to 1588 primary, and it is optional.

- For RPHY Shelf 7200, user can use ethernet 1 for all 6 eRPDs in a RPD linecard, or use ethernet 1 to 6 for these eRPDs.

3. Associate R-DTI with RPD configuration.

configure terminal
cable rpd *id*
r-dti *number*

Verify IPv6 PTP Clock Option Configuration

To display the CBR PTP Status, use the **show ptp clock running** command as shown in the example below:

```
Router# show ptp clock running
Load for five secs: 6%/2%; one minute: 7%; five minutes: 8%
No time source, *05:11:13.610 UTC Sun Oct 22 2017
```

```
PTP Ordinary Clock [Domain 0]
        State         Ports        Pkts sent      Pkts rcvd      Redundancy Mode
        PHASE_ALIGNED 1               2478203        7512533        Hot standby
                              PORT SUMMARY
                                                                   PTP Master
Name            Tx Mode       Role         Transport      State      Sessions   Port Addr

slave-from-903 unicast       slave         Lo15888        Slave      1          10.90.3.93
```

To display the RPD PTP Status, use the **show ptp clock** command as shown in the example below:

```
Router# show ptp clock 0 config
Domain/Mode        :   0/OC_SLAVE
Priority 1/2/local  : 128/255/128
Profile            : 001b19000100-000000 E2E
Total Ports/Streams : 1  /1
--PTP Port  23, Enet Port   1 ----
  Port local Address :2001:120:102:70:7:1b71:476c:70ba
  Unicast   Duration :300 Sync Interval : -4
  Announce  Interval :  0 Timeout       : 11
  Delay-Req Intreval : -4 Pdelay-req    : -4
  Priority  local    :128 COS:  6   DSCP: 47
  ==Stream 0 : Port 23 Master IP: 2001:10:90:3::93


Router# show ptp clock 0 state
apr state        : PHASE_LOCK
clock state      : SUB_SYNC
current tod      : 1508640223   Sun Oct 22 02:43:43 2017
active stream    : 0
==stream    0    :
 port id         :              0
 master ip       : 2001:10:90:3::93
 stream state    :      PHASE_LOCK
 Master offset :           3490
 Path    delay :         -27209
 Forward delay :         -27333
 Reverse delay :         -27085
 Freq offset   :        6544364
 1Hz  offset   :             49


Router# show ptp clock 0 statistics
 AprState    4   :
         2@0-00:06:25.027        1@0-00:06:15.382        0@0-00:03:51.377
         4@0-00:03:32.176
 ClockState  5  :
         5@0-00:06:36.141        4@0-00:06:33.684        3@0-00:06:30.510
         2@0-00:06:25.512        1@0-00:06:24.982
 BstPktStrm  1  :
         0@0-00:06:15.987
 StepTime    1  :
   908222863@0-00:05:42.199
 AdjustTime  2589      :
       -339@1-20:18:42.949     -321@1-20:17:41.949        49@1-20:16:40.949
        145@1-20:15:39.949        6@1-20:14:38.949       261@1-20:13:37.949
        327@1-20:12:36.949       76@1-20:11:35.949       157@1-20:10:34.949
streamId  msgType           rx          rxProcessed    lost        tx
0         SYNC              2549177      2549177        4292476931  0
0         DELAY REQUEST     0            0              0           2549150
0         P-DELAY REQUEST   0            0              0           0
0         P-DELAY RESPONSE  0            0              0           0
0         FOLLOW UP         0            0              0           0
0         DELAY RESPONSE    2549144      2549144        4292476934  0
0         P-DELAY FOLLOWUP  0            0              0           0
0         ANNOUNCE          159330       159330         4294836225  0
```

```
0         SIGNALING      1662       1662         0            1663
0         MANAGEMENT     0          0            0            0
   TOTAL                 5259313    5259313      12879790090  2550813
```

Verify RPD IPv6 Configuration

To display the RPD IPv6 Status, use the **show cable rpd ipv6** command as shown in the example below:

```
Router# show cable rpd ipv6
Load for five secs: 7%/2%; one minute: 9%; five minutes: 8%
No time source, *14:03:13.622 UTC Sun Oct 22 2017
MAC Address      I/F        State       Role HA  Auth IP Address
0004.9f03.0226   Te0/1/6    online      Pri  Act N/A  2001:120:102:70:7:1B71:476C:70BA
0004.9f03.0232   Te0/1/7    online      Pri  Act N/A  ---
0004.9f03.0256   Te0/1/2    online      Pri  Act N/A  2001:120:102:70:3:830A:FAEA:CF7E
0004.9f03.0268   Te0/1/6    online      Pri  Act N/A  2001:120:102:70:7:41F1:7CCD:4475
0004.9f03.0268   Te6/1/6    online      Aux  Act N/A  2001:120:102:70:7:41F1:7CCD:4475
badb.ad13.5d7e   Te0/1/2    online      Pri  Act N/A  2001:120:102:70:3:FF46:1FF9:29FE
```

Feature Information for RPD IPv6

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Note   The following table lists the software release in which a given feature is introduced. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Table 2: Feature Information for RPD IPv6

Feature Name	Releases	Feature Information
RPD IPv6	Cisco Smart PHY 7200 Software 1.x	This feature was introduced on the Cisco Smart PHY 7200.