

# What's New in Cisco 1x2/Compact Shelf RPD 10.x



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Cisco is continuously enhancing the product with every release and this section covers a brief description of key features and enhancements that were added. It also includes links to detailed documentation, where available.

This document contains information about downloading and installing Cisco 1x2 / Compact Shelf RPD Software 10.7 and its maintenance releases. It also provides new and changed information, hardware support information, limitations, and caveats for Cisco 1x2 / Compact Shelf RPD Software 10.7.1 and its maintenance releases.

We recommend that you view the field notices for this release to see that your software or hardware platforms are affected. If you have an account at Cisco.com, you can find the field notices at http://www.cisco.com/en/US/customer/support/tsd\_products\_field\_notice\_summary.html.

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Note

Cisco1x2 / Compact Shelf RPD Software 10.7.1 is generally available for field deployment. To ensure a smoother, faster, and successful field deployment, we recommend that you validate and qualify the software in a limited field trial.

The versions of Cisco cBR-8 router and RPD must be compatible. If the versions are not compatible, the RPD remains in the **init(gcp**) state. The following table provides information on the compatibile cBR-8 and RPD versions:

- Cisco cBR-8 IOS XE Dublin 17.12.1x is interoperable with RPD 10.7.1.
- New Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.7.1, on page 3
- New Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.7, on page 3
- New Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.6.1, on page 6
- New Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.6, on page 6
- New Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.5, on page 6
- New Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.4, on page 6
- New Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.3, on page 8
- New Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.2, on page 9
- New Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.1, on page 10
- Modified Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.7.1, on page 11
- Modified Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.7, on page 11
- Modified Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.6.1, on page 11
- Modified Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.6, on page 11
- Modified Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.5, on page 11
- Modified Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.4, on page 11
- Modified Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.3, on page 12
- Modified Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.2, on page 12
- Modified Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.1, on page 12
- Integrated Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.7.1, on page 12
- Integrated Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.7, on page 12
- Integrated Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.6.1, on page 12
- Integrated Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.6, on page 13
- Integrated Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.5, on page 13
- Integrated Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.4, on page 13
- Integrated Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.3, on page 13
- Integrated Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.2, on page 13
- Integrated Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.1, on page 13
- New Hardware Features in Cisco 1x2 / Compact Shelf RPD Software 10.7.1, on page 14
- New Hardware Features in Cisco 1x2 / Compact Shelf RPD Software 10.7, on page 14
- New Hardware Features in Cisco 1x2 / Compact Shelf RPD Software 10.6.1, on page 14
- New Hardware Features in Cisco 1x2 / Compact Shelf RPD Software 10.6, on page 14
- New Hardware Features in Cisco 1x2 / Compact Shelf RPD Software 10.5, on page 14
- New Hardware Features in Cisco 1x2 / Compact Shelf RPD Software 10.4, on page 14
- New Hardware Features in Cisco 1x2 / Compact Shelf RPD Software 10.3, on page 15
- New Hardware Features in Cisco 1x2 / Compact Shelf RPD Software 10.2, on page 15
- New Hardware Features in Cisco 1x2 / Compact Shelf RPD Software 10.1, on page 15

## New Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.7.1

There are no new software features for Cisco 1x2 / Compact Shelf RPD Software 10.7.1 release.

## New Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.7

The new software features for Cisco 1x2 / Compact Shelf RPD Software 10.7 release are

### Support for TLV 67

Cisco RPD 10.7 supports TLV 67 UsOfdmaInitialRangingIuc. For details, see the following table:

Attribute/TLV Name	Object Type	TLV Type	TLV Value Field Length	Constraints	Comments
UsOfdmaInitialRangingIu	Complex TLV	67	variable		
NumSubcarriers	UnsignedShort	67.1	2	R	
Guardband	UnsignedShort	67.2	2	R	

You can use the show ofdma config command to obtain the initial ranging configuration:

```
R-PHY#show ofdma config
OFDMA Channel Configuration
...
UCD Message
UCD fields
UCID : 16
CCC : 5
DSID : 0
ticks per frame : 1179
mslot per frame : 237
Initial Ranging : 128
```

```
•••
```

### Support for TLV 69

Cisco RPD 10.7 supports TLV 69 UsOfdmaDataIuc. For details, see the following table:

Attribute/TLV Name	Object Type	TLV Type	TLV Value Field Length	Constraints	Comments
UsOfdmaInitialRangingIu	Complex TLV	69	variable		
DataIuc	UnsignedByte	69.1	1	N/A	Key
StartMinislot	UnsignedByte	69.2	1	N/A	Key
FirstSubcarrierId	UnsignedShort	69.3	2	R	
NumConsecutiveMinislots	UnsignedByte	69.4	1	R	
MinislotPilotPattern	UnsignedByte	69.5	1	R	
DataSymbolModulation	UsOfdmaModulationType	69.6	1	R	

You can use the show ofdma config command to obtain the initial ranging configuration:

#### R-PHY#**show ofdma config**

```
OFDMA Channel Configuration

...

OFDMA Profile Table:

IUC Bit Loading Pilot Pattern Consec Mslot

5 4096-QAM 9 236

6 2048-QAM 9 236

9 1024-QAM 9 236

13 1024-QAM 9 236

13 1024-QAM 10 1

13 128-QAM 11 1

13 1024-QAM 9 48

13 32-QAM 8 150

13 1024-QAM 9 32
```

#### Support for TLV 78.4 and TLV 78.5

Cisco RPD 10.7 supports TLV 78.4 LateMaps and TLV78.5 IllegalMaps. For details, see the following table:

Attribute/TLV Name	Object Type	TLV Type	TLV Value Field Length	Constraints	Comments
LateMaps	UnsignedLong	78.4	8	R	
IllegalMaps	UnsignedLong	78.5	8	R	

### Support for TLV 75.5

Cisco RPD 10.7 supports TLV 75.5 operStatusDsOob552. For details, see the following table:

Attribute/TLV Name	Object Type	TLV Type	TLV Value Field Length	Constraints	Comments
operStatusDsOob552	OperStatusType	75.5	1	R	

#### Support for TLV 12.4

Cisco RPD 10.7 supports TLV 12.4 Oob55d2ModuleIndex. TLV12.4 is a TLV which identifies a particular SCTE 55-2 module on the RPD. An SCTE 55-2 module has a single modulator, so this TLV also identifies a single DsOob55d2 downstream channel. For details, see the following table:

Interface Container TLV	Status/Performance sub-TLV	Interface Selector sub-TLV	Interface Selector type constraint
RfChannel(16)	DsOob552Perf(75)	RfChannelSelector(12)	RfChannelType(12.2) = DsOob55d2(10)
		Index: Oob55d2ModuleIndex(12.4)	

Note For detail information, go through Section B5.2.4 RfChannelSelector TLV in the document Data-Over-Cable Service Interface Specifications, CM-SP-R-PHY-I17.

#### **Decision Pending IRA Support**

RPD 10.7 supports IRA with CoreMode DecisionPending.

When a CCAP Core needs additional information from the RPD or additional time to make the redirection decision, the CCAP Core can send a GCP message indicating a decision is pending



Note

For detail information, go through Section B.3.2.13IRA: Decision Pending in the document Data-Over-Cable Service Interface Specifications, CM-SP-R-PHY-I17.

#### **GCP Keepalive Monitoring support**

RPD 10.7 support to configure the GcpIdleTime for GCP keepalive instead of using the TCP keepalive timers



Note

For detail information, go through Section 7 GCP CONNECTIVITY VERIFICATION AND RECOVERY in the document Data-Over-Cable Service Interface Specifications, CM-SP-R-PHY-I17.

#### Secure Factory reset log saving in ACT2 support

RPD 10.7 support to save a log in ACT2 for Secure Factory reset

You can use the **show logging secure-resetlog** command to obtain the secure factory result:

### New Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.6.1

There are no new software features for Cisco 1x2 / Compact Shelf RPD Software 10.6.1 release

### New Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.6

The new software features for Cisco 1x2 / Compact Shelf RPD Software 10.6 release are:

#### **4 OFDM Channel Support**

RPD 10.6 supports 4 OFDM downstream channels per one downstream RF port of 1x2 RPD

#### Multiple Spectrum Acquisition Circuits on 1 port support

RPD 10.6 supports 2 SACs(1 wideband SAC and 1 narrowband SAC) on a single port at the same time

### New Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.5

The new software features for Cisco 1x2 / Compact Shelf RPD Software 10.5 release are:

#### **TLV58 read function support**

RPD 10.5 supports readcount, read by index, and read by leaf for TLV58 StaticPwConfig



For detail information, go through the *Reading of Interface and Array ROTs* section in the document *Data-Over-Cable Service Interface Specifications, CM-SP-R-PHY*.

### New Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.4

The new software features for Cisco 1x2 / Compact Shelf RPD Software 10.4 release are:

#### Support for TLV 98.3

Starting from Cisco 1x2 / Compact Shelf RPD Software 10.4 release, TLV 98.3 BaseTargetRxPower is supported.

Attribute/TLV Name	Object Type	TLV Type	TLV Value Field Length	Constraints	Comments
BaseTargetRxPower	Short	98.3	2	R/W	TenthdBmV per 1.6 MHz

You can use the show vga command to obtain the TLV98.3 configuration:

```
R-PHY# show vga
OOB US S/W VGA Gain:
    Port0: 11
    Port1: 11
 OOB US Default Gain Calculated:
    Port0: 11
   Port1: 11
 Enable Upstream Calibration: TRUE
Upstream Calibration - PortO: 10 0 Port1: 10 0
VGA of platform: CSHELF
VGA Setting: Power values below in reference to 0dBmV/6.4Mhz
Port0: 0x12 (+8db)
Port1: 0x12 (+8db)
NB-GAIN Setting:
Port 0 (SCQAM0)
 receiver 1 : 31(0x1f) adj:-0.4:-0.2 db
  receiver 2 : 32(0x20) adj:-0.1:+0.1 db
  receiver 3 : 32(0x20) adj:-0.1:+0.1 db
 receiver 4 : 32(0x20) adj:-0.1:+0.1 db
 receiver 5 : 32(0x20) adj:-0.1:+0.1 db
  receiver 6 : 32(0x20) adj:-0.1:+0.1 db
  receiver 7 : 32(0x20) adj:-0.1:+0.1 db
  receiver 8 : 32(0x20) adj:-0.1:+0.1 db
 receiver 9 : 32(0x20) adj:-0.1:+0.1 db
 receiver 10: 32(0x20) adj:-0.1:+0.1 db
 receiver 11: 32(0x20) adj:-0.1:+0.1 db
 Port 1 (SCQAM1)
  receiver 1 : 31(0x1f) adj:-0.4:-0.2 db
  receiver 2 : 32(0x20) adj:-0.1:+0.1 db
  receiver 3 : 32(0x20) adj:-0.1:+0.1 db
 receiver 4 : 32(0x20) adj:-0.1:+0.1 db
  receiver 5 : 32(0x20) adj:-0.1:+0.1 db
  receiver 6 : 32(0x20) adj:-0.1:+0.1 db
  receiver 7 : 32(0x20) adj:-0.1:+0.1 db
  receiver 8 : 32(0x20) adj:-0.1:+0.1 db
 receiver 9 : 32(0x20) adj:-0.1:+0.1 db
  receiver 10: 32(0x20) adj:-0.1:+0.1 db
  receiver 11: 32(0x20) adj:-0.1:+0.1 db
TLV 98.3 Setting:
Supp range for TLV 98.3: -200 to 100 TenthdBmV per 1.6MHz
Port 0 : Disabled
User Config value: --
Port 1 : Disabled
User Config value: --
OFDMA pwrAdjust Setting:
 Port. 0
 Value not set as tlv98.3 disabled for this port
 Port 1
 Value not set as tlv98.3 disabled for this port
```

#### **DLM for OFDM Support**

Cisco 1x2 / Compact Shelf RPD Software 10.4 adds RPD support DLM for the ofdm channel.

You can use the **show downstream dlm counter** command to obtain the DLM counters.

R-PHY**#show downstream dlm counter** DLM RX Count: 872 DLM TX Count: 872 Bad Format Drop: 0 Bad Code Field Drop: 0 Bad Session Drop: 0

#### Support for TLV93 Oob55d2Config Read Functionilaty

Cisco 1x2 / Compact Shelf RPD Software 10.4 adds support for TLV93 Oob55d2Config read by count and read by leaf.

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For detailed information, check the *Reading of Interface and Array ROTs* section in the document *Data-over-Cable Service Interface Specifications, CM-SP-R-PHY*.

### New Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.3

The new software features for Cisco 1x2 / Compact Shelf RPD Software 10.3 release are:

#### Link Redundancy Down-Up Mode Support

Starting from Cisco 1x2 / Compact Shelf RPD Software 10.3 release, Link Redundancy Down-Up Mode is supported.

RPD backhaul has three working modes:

- Link-redundancy down-up mode: you can only observe one virtual backhaul interface which always binds to active TenGigabitEthernet port. Only one TenGigabitEthernet port is up.
- Link-redundancy up-up mode: you can only observe one virtual backhaul interface which always binds to active TenGigabitEthernet port. Two TenGigabitEthernet ports are up and only one is working.
- Daisy-chain mode: works for daisy-chain topology RPD. Each RPD is daisy-chained with the next RPD, and the last RPD connects to the CIN.



Note

Daisy-chain mode is the default RPD backhaul mode. If you upgrade RPD from release 8.1 or lower version without mode configuration, RPD backhaul will work in daisy-chain mode.

Changing RPD backhaul mode needs hard-reset RPD to take effect.

For more information, refer to Link Redundancy Down-Up Mode.

Note

#### **Read Function Support**

Cisco 1x2 / Compact Shelf RPD Software 10.3 adds support to TLV95 NdrConfig read by count and read by leaf.



Note

For detailed information, check the *Reading of Interface and Array ROTs* section in the document *Data-Over-Cable Service Interface Specifications, CM-SP-R-PHY*.

### New Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.2

The new software features for Cisco 1x2 / Compact Shelf RPD Software 10.2 release are:

#### **Supports Read Function**

Cisco RPD Software 10.2 supports readcount, read by index, and read by leaf for the following TLVs.

- TLV65 UsScQamChannelConfig
- TLV66 UsOfdmaChannelConfig
- TLV100.20 CrashDataFileStatus

Cisco RPD Software 10.2 supports readcount and read by leaf for the following TLVs.

- TLV91 DsOob55d1
- TLV92 UsOob55d1
- TLV94 NdfConfig

For a read request, the CCAP Core can select an Array ROT or Interface ROT down to a leaf. For example, the CCAP Core can issue a read request for UsScQamChannelConfig.AdminState(TLV 65.1). As the result, the RPD returns just this one leaf sub-TLV value.

For a read request, the CCAP Core can select an Array ROT or Interface ROT by index. For example, the CCAP Core can issue a read request for RfChannelIndex 0 UsScQamChannelConfig (TLV 65). As the result, the RPD returns the object with this index.

A top level *ReadCount* (TLV 26) defines how many index sets of the ROT are to be returned in a read response, beginning with the starting index that is set. For example, use ReadCount(26) TLV to read the first three objects from the Interface ROT UsScQamChannelConfig (TLV 65). ReadCount is 3, the starting index is RfChannelIndex 0, and the existing objects are indexed 0–7. The read response includes three objects with RfChannelIndex 0, RfChannelIndex 1, and RfChannelIndex 2.



**Note** For more information, see the *Reading of Interface and Array ROTs* section in *Data-over-Cable Service Interface Specifications, CM-SP-R-PHY.* 

## New Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.1

The new software features for Cisco 1x2 / Compact Shelf RPD Software 10.1 release are:

#### Supports Sub TLVs of TLV 79 UsOfdmaChannelPerf

Cisco RPD supports the following sub TLVs under TLV 79 UsOfdmaChannelPerf:

Attribute/TLV Name	Object Type	TLV Type	TLV Value Field Length	Constraints
DiscardedRequests	UnsignedLong	79.6	8	R
ProbeGrants	UnsignedLong	79.7	8	R
LateMinislots	UnsignedLong	79.11	8	R
IllegalMinislots	UnsignedLong	79.12	8	R

#### **Supports Read Function**

RPD 10.1 supports readcount, read by index, and read by leaf for the following TLVs.

- TLV60 CcapCoreIdentification
- TLV61 DsRfPort
- TLV62 DsScQamChannelConfig
- TLV64 DsOfdmProfile
- TLV88 MultiCore

RPD 10.1 supports readcount and read by leaf for the following TLVs.

TLV90 Ssd

RPD 10.1 supports read by index for the following TLVs.

TLV93 Oob55d2Config

For a read request, the CCAP Core can select an Array ROT or Interface ROT down to a leaf. For example, the CCAP Core can issue a read request for CcapCoreIdentification.IsPrincipal(TLV 60.4). As the result, the RPD returns just this one leaf sub-TLV value.

For a read request, the CCAP Core can select an Array ROT or Interface ROT by index. For example, the CCAP Core can issue a read request for index CcapCoreIdentification.Index(TLV 60.1). As the result, the RPD returns the object with this index.

A top level *ReadCount* (TLV 26) defines how many index sets of the ROT are to be returned in a read response, beginning with the starting index that is set. For example, use ReadCount(26) TLV to read the first three objects from the Array ROT CcapCoreIdentification (TLV 60). ReadCount is 3, and the starting index is index 0, and the existing objects are indexed 0–3 and index 20. The read response includes three objects with index 0, index 1, and index 2.



Note

For more information, see the *Reading of Interface and Array ROTs* section in *Data-over-Cable Service Interface Specifications, CM-SP-R-PHY.* 

## Modified Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.7.1

There are no modified software features for Cisco 1x2 / Compact Shelf RPD Software 10.7.1 release.

## Modified Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.7

There are no modified software features for Cisco 1x2 / Compact Shelf RPD Software 10.7 release.

### Modified Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.6.1

There are no modified software features for Cisco 1x2 / Compact Shelf RPD Software 10.6.1 release.

### Modified Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.6

There are no modified software features for Cisco 1x2 / Compact Shelf RPD Software 10.6 release.

### Modified Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.5

There are no modified software features for Cisco 1x2 / Compact Shelf RPD Software 10.5 release.

### Modified Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.4

There are no modified software features for Cisco 1x2 / Compact Shelf RPD Software 10.4 release.

## Modified Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.3

There are no modified software features for Cisco 1x2 / Compact Shelf RPD Software 10.3 release.

### Modified Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.2

There are no modified software features for Cisco 1x2 / Compact Shelf RPD Software 10.2 release.

### Modified Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.1

There are no modified software features for Cisco 1x2 / Compact Shelf RPD Software 10.1 release.

## Integrated Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.7.1

There are no new integrated software features for Cisco 1x2 / Compact Shelf RPD Software 10.7.1 release.

### Integrated Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.7

There are no new integrated software features for Cisco 1x2 / Compact Shelf RPD Software 10.7 release.

### Integrated Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.6.1

There are no new integrated software features for Cisco 1x2 / Compact Shelf RPD Software 10.6.1 release.

## Integrated Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.6

There are no new integrated software features for Cisco 1x2 / Compact Shelf RPD Software 10.6 release.

## Integrated Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.5

There are no new integrated software features for Cisco 1x2 / Compact Shelf RPD Software 10.5 release.

## Integrated Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.4

There are no new integrated software features for Cisco 1x2 / Compact Shelf RPD Software 10.4 release.

## Integrated Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.3

There are no new integrated software features for Cisco 1x2 / Compact Shelf RPD Software 10.3 release.

### Integrated Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.2

There are no new integrated software features for Cisco 1x2 / Compact Shelf RPD Software 10.2 release.

### Integrated Software Features in Cisco 1x2 / Compact Shelf RPD Software 10.1

There are no new integrated software features for Cisco 1x2 / Compact Shelf RPD Software 10.1 release.

## New Hardware Features in Cisco 1x2 / Compact Shelf RPD Software 10.7.1

There are no new hardware features for Cisco 1x2 / Compact Shelf RPD Software 10.7.1 release.

## New Hardware Features in Cisco 1x2 / Compact Shelf RPD Software 10.7

There are no new hardware features for Cisco 1x2 / Compact Shelf RPD Software 10.7 release.

## New Hardware Features in Cisco 1x2 / Compact Shelf RPD Software 10.6.1

There are no new hardware features for Cisco 1x2 / Compact Shelf RPD Software 10.6.1 release.

## New Hardware Features in Cisco 1x2 / Compact Shelf RPD Software 10.6

There are no new hardware features for Cisco 1x2 / Compact Shelf RPD Software 10.6 release.

## New Hardware Features in Cisco 1x2 / Compact Shelf RPD Software 10.5

There are no new hardware features for Cisco 1x2 / Compact Shelf RPD Software 10.5 release.

## New Hardware Features in Cisco 1x2 / Compact Shelf RPD Software 10.4

There are no new hardware features for Cisco 1x2 / Compact Shelf RPD Software 10.4 release.

## New Hardware Features in Cisco 1x2 / Compact Shelf RPD Software 10.3

There are no new hardware features for Cisco 1x2 / Compact Shelf RPD Software 10.3 release.

### New Hardware Features in Cisco 1x2 / Compact Shelf RPD Software 10.2

There are no new hardware features for Cisco 1x2 / Compact Shelf RPD Software 10.2 release.

## New Hardware Features in Cisco 1x2 / Compact Shelf RPD Software 10.1

There are no new hardware features for Cisco 1x2 / Compact Shelf RPD Software 10.1 release.