



Information about Cisco Smart PHY

Cisco Smart PHY is a highly resilient cloud-native solution for installing, configuring, monitoring, and troubleshooting Remote PHY Devices (RPD) serviced by Cisco cBR-8 routers.

Smart PHY focuses on:

- Simplifying Distributed Access Architecture (DAA) deployment
- Providing Device Lifecycle management for RPDs
- Dynamic RPD Resource Management & CIN traffic engineering
- Enabling Common DHCP policy
- RPD GCP Redirect Management
- Surfacing Advanced Monitoring, Troubleshooting, and Cluster Health Metrics for network insights
- Enabling Programmatic API control for easy third party integration

Smart PHY significantly simplifies RPD deployments thereby improving operational efficiency and reducing the total cost of ownership for Communication Service Providers (CSPs).

- [Benefits of Cisco Smart PHY, on page 1](#)
- [Configuring DAA Infrastructure, on page 2](#)
- [How to Use Cisco Smart PHY, on page 2](#)

Benefits of Cisco Smart PHY

Below are some of the benefits of using the Cisco Smart PHY application:

- Zero-Touch discovery of RPDs as they are connected to the CIN
- Error free RPD Provisioning, which is validated by YANG data models
- Deployment validation ensures that unauthorized changes are detected and flagged
- RPD Software management
- REST-based API eases integration with third party systems

Configuring DAA Infrastructure

This section describes the steps that you should take to ensure your Distributed Access Architecture (DAA) infrastructure works with Smart PHY.

Configuring DHCP

To establish a GCP session with Smart PHY, and later to be GCP-redirected to the appropriate CCAP Cores, the RPDs must first discover Smart PHY's Converged Interconnect Network (CIN) virtual IP address.

Discovery is performed using DHCP. The DHCP servers assigning leases to RPDs must include the CIN virtual IP address of Cisco Smart PHY in the suboption 61 CCAP Cores, under DHCP option 43.

To configure suboption 61 CCAP Cores under DHCP option 43, contact your DHCP software vendor.

Configuring Cisco cBR-8 for Smart PHY

Smart PHY collects SNMP traps and syslog messages to determine and report the operational status of Cisco cBR-8 routers and RPDs.

Enabling Syslog

You can configure your cBR-8 routers to send syslog messages to Smart PHY, including the messages for Line Card high availability (HA) events.

To enable syslog, enter the following commands on your cBR-8 routers:

```
configure terminal
logging host <Smart PHY CIN Virtual IP Address> transport [tcp|udp]
port 8514
logging trap informational
cable logging layer2events
```

Enabling SNMP Traps

You can configure your cBR-8 routers to send SNMP traps to Smart PHY.

To enable SNMP traps on your cBR-8 router, enter the following commands:

```
configure terminal
snmp-server host <Smart PHY CIN Virtual IP address> version 2c public udp-port <port-number>
```

How to Use Cisco Smart PHY

Table 1: Feature History

Feature Name	Release information	Description
Modernized and Refreshed Smart PHY NSO Error Messages	Cisco Smart PHY, Release 24.2	Smart PHY displays NSO-related errors in a user-friendly format, and only shows useful or relevant information regarding the NSO error.

Feature Name	Release information	Description
Standardizing All 2/3 Sidebar Table Views	Cisco Smart PHY, Release 24.2	Smart PHY has consistent standardized functionality across all its 2/3 sidebar tables.
Modernized and Refreshed Smart PHY UI for System Settings and Appearance	Cisco Smart PHY 22.2	The Smart PHY UI has been completely refreshed and modernized with a new look and feel, and streamlined workflows.

For more information regarding how to use Cisco Smart PHY see [Logging into Smart PHY UI, on page 3](#) and [Provisioning an RPD, on page 4](#).

Logging into Smart PHY UI

Procedure

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- Step 1** In the browser's address bar, enter `https://<fqdn>` or `https://<Cisco Smart PHY master virtual IP address>.nip.io`. The access URL is based on the initial cluster configuration.
- When you access Cisco Smart PHY for the first time, the browser may display a warning that the site is untrusted or the connection is not private. The warning is due to Smart PHY's use of a self-signed certificate. Follow the browser prompts to add a security exception.
- Step 2** Log in through the Cisco Operations Hub UI using the password that you provided during the initial installation. The **Welcome** page appears.
- Step 3** Click the **Cisco Smart PHY** box to open the application. The Cisco Smart PHY **Overview** page appears.
- To open the Cisco Smart PHY application each time after you log in, check the checkbox for **Open Smart PHY at login**.
- Step 4** To exit the web GUI, close the browser window or log out using the option in the main menu.
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Overview

Feature Name	Release information	Description
Enhancements to the Overview page	Cisco Smart PHY, Release 23.1	Additional Provisioning KPIs and new Application KPIs are available on the Overview page. The KPIs include: Provisioning Tasks (Succeeded and Failed), GCP Redirects, Cloud Node status, Micro Services status, API Server status, and Smart Licensing status.

When you access Smart PHY from Operations Hub's Welcome page, or if you have configured Smart PHY to open at login, your browser automatically loads the Smart PHY's Overview page.

The Smart PHY Overview provides you with a centralized view consisting of the following sections:

- **Inventory Overview:** Displays the number of RPDs, CCAP Cores, and Credential Profiles managed by Smart PHY.
- **Provisioning Overview:** Captures count of RPD Associations and Service Definitions along with insights into RPD provisioning activities, GCP message counts from RPDs.
- **Application Overview:** Provides health of the cluster nodes, application pods and status of Smart License.

The Overview page is accessible by selecting **Smart PHY > Overview** at the main menu.

For more information regarding viewing more detailed cluster specific Smart PHY metrics, see the Operations Hub's **Dashboards** section.

Smart Licensing

Cisco Smart Licensing is a new, flexible way of licensing to buy, deploy, track, and renew Cisco software. With Smart Licensing, you can configure, activate, and register your application. Smart Licensing establishes a pool of software licenses that you can use across your entire enterprise in a flexible and automated manner.

RPDs in the state other than **Defined**, **Inventory**, **Installed**, or **GcpUp** are considered for the license consumption.

For more information regarding the configuration of Smart License, see [Configuring Smart License](#)

Provisioning an RPD

Procedure

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|---------------|--|
| Step 1 | Create a Credential Profile.
For more information, see Creating a New Credential Profile . |
| Step 2 | Add the Cisco cBR-8 router to the inventory.
For more information, see Adding Devices Through GUI and Importing Devices in Bulk . |
| Step 3 | Create a Service Definition.
For more information, see Creating Service Definitions . |
| Step 4 | Create an RPD Association.
For more information, see Remote PHY Device Association . |
| Step 5 | Save the changes. |
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**Note**

After providing all the mandatory parameters, Smart PHY pushes the RPD's configuration to the Cisco cBR-8 router. When the RPD boots, the RPD establishes a GCP session with Smart PHY. Smart PHY GCP-redirects the RPD to the DOCSIS Principal Core configured in the RPD Association, post which the RPD's status in Smart PHY is `Online`.

