



CHAPTER 1

Overview to Prime Performance Manager

Cisco Prime Performance Manager provides performance statistics and reports for service provider and large enterprise networks including access, edge, distribution, core, mobile backhaul, Carrier Ethernet, and core MPLS networks.

The following topics provide an overview to Cisco Prime Performance Manager user operations:

- [Features and Functions, page 1-1](#)
- [Reports, page 1-3](#)
- [Dashboards, page 1-3](#)
- [Architecture, page 1-4](#)
- [Device Discovery, page 1-6](#)
- [Security, page 1-6](#)

Features and Functions

Prime Performance Manager acquires devices by importing Cisco Prime Network devices or by running device discovery (see [Chapter 5, “Discovering Network Devices”](#)). After acquiring devices, Prime Performance Manager uses SNMP polling to collect device performance statistics. Prime Performance Manager sends SNMP get, getnext, and getbulk requests to the device targeting many different SNMP MIBs. The device responds with data, and Prime Performance Manager collects the data and allows you to display it in many different ways in the Prime Performance Manager GUI.

In addition to SNMP, Prime Performance Manager supports Telnet and SSH polling for Y.1731 reports, and CSV-based (bulkstats) data collection.

Prime Performance Manager supports Cisco and non-Cisco platforms and devices. Supported Cisco devices include the Cisco 7600 Series Routers, Cisco ASR 901, 903, 1000, 5000, 5500, and 9000 Series Aggregation Services Routers, Cisco ME 3400, 3600, and 3800 Series Ethernet Access Switches, the Cisco Carrier Routing System (CRS), Cisco Mobile Wireless Routers (MWR), the Cisco uBR, CSV-based (bulk statistics) data collection for StarOS mobile wireless reports, and many others.

Prime Performance Manager also provides extensive data center support including reports for data center networking, computing, storage, and virtualization devices and technologies. For a list of supported data center devices and technologies, see [Displaying Data Center Reports, page 7-22](#).

For a detailed list of devices supported by Prime Performance Manager, visit:

http://www.cisco.com/en/US/products/ps11715/products_device_support_tables_list.html

Prime Performance Manager is packaged with over 2800 standard historical, aggregation, and summary reports. Reports can be automatically generated on a 1-minute, 5-minute, 15-minute, hourly, daily, weekly, or monthly basis. Prime Performance Manager allows you to define collection intervals for each supported time interval on a per-report basis. All reports are available in GUI and CSV export format. In addition, you can use an XML editor to define new reports or extend the packaged reports. All reports are available in graph and table view formats in the GUI, and in CSV export format.

**Note**

For a list of all reports provided with Prime Performance Manager, from the Help menu, choose **Reports**, then click **Reports List Readme**.

Additional Prime Performance Manager features and functions include:

- The ability to add and manage users when installed as a standalone product, and integration with Cisco Prime Central user management when integrated with Cisco Prime Central.
- The ability to define thresholds on any Prime Performance Manager report key performance indicator (KPI). For each KPI you can define three onset and abate threshold levels and associate them with the alarms you want generated.
- The ability to create polling groups to define unique polling frequencies for devices in your network.
- The ability to create reports based on groups of network objects, for example, a reporting group based on a particular type of interface.
- The ability to create report policies that specify report sets for specific devices.
- The ability to create custom report views so that you can watch specific report data items pulled from different reports and for different devices.
- The ability to create and display star graphs for each device separate from the custom report views.
- Centralized reporting and administration through a Web 2.0 graphical user interface and a command line interface (CLI).
- A distributed architecture and embedded database that allows you to monitor and report on networks of varying sizes.
- Synchronized device inventory and credentials from Prime Network.
- Extensibility, including the ability to dynamically add new collection types, KPI definitions, GUI reports, and data exports.
- The ability to cross-launch Cisco Prime Network and Cisco Prime Central, including contextual reporting and administration integrated with Prime Performance Manager.
- Automatic device discovery and data collection based on device IP address ranges.
- Support for standard protocols as well as SNMP V2 and V3, and CLI-based and CSV-based (bulk statistics) data collection.
- N+1 high availability protection groups for units.
- Gateway local high availability using the Red Hat Cluster Suite and geographical high availability.
- Local alarm management features and integration with upstream OSS fault management systems.
- Flexible collection schedules.
- Capability to export report data in CSV format for integration with OSS applications.
- Capability to export report data using Representation State Transfer (REST) north bound API.
- Automatic and custom CSV file generation.
- Pull model CSV file access.

- IPv6 address support.

Reports

Prime Performance Manager includes over 1900 reports. All reports support table, chart, and dashboard outputs. High-level report categories include:

- Application Traffic
- Availability
- Data Network Services
- Hypervisors
- IP Protocols
- IP QoS
- IP SLA
- Mobile IOS Statistics
- Mobile StarOS Statistics
- PPM System
- Resources
- Security
- StarOS CDMA Statistics
- Storage
- Transport Statistics
- UCS Clusters
- Video Broadcast
- Virtualization

In addition, Prime Performance Manager Data Center view provides an extensive range of data center networking, computing, storage, and virtualization device and technology reports. For more information about Prime Performance Manager reports, see [Chapter 7, “Managing Reports, Dashboards, and Views.”](#)

You can modify the provided Prime Performance Manager reports or create new reports. For information, see the [Cisco Prime Performance Manager 1.3 Integration Developer Guide](#).

Dashboards

Prime Performance Manager dashboards present data from different sources on a single page. For example, the ICMP (Internet Control Message Protocol) application dashboard presents the top ten ICMP hourly packet rates, total errors, total echoes, and echo replies. The CPU/Memory dashboard presents the top ten hourly CPU average and peak utilization as well as the top ten hourly memory pool average and peak utilization. Dashboards provided with the Prime Performance Manager package include:

- Application
- Availability

- IP Protocols
- IP QoS
- IPSLA
- Network Health
- Resource
- Response Time
- Server Health
- Transport
- VPDN
- Video Broadcast

You can modify the provided Prime Performance Manager dashboards or create new ones. For information, see the [Cisco Prime Performance Manager Integration Developer Guide](#).

For more information about Prime Performance Manager dashboards, see [Chapter 7, “Managing Reports, Dashboards, and Views.”](#)

Architecture

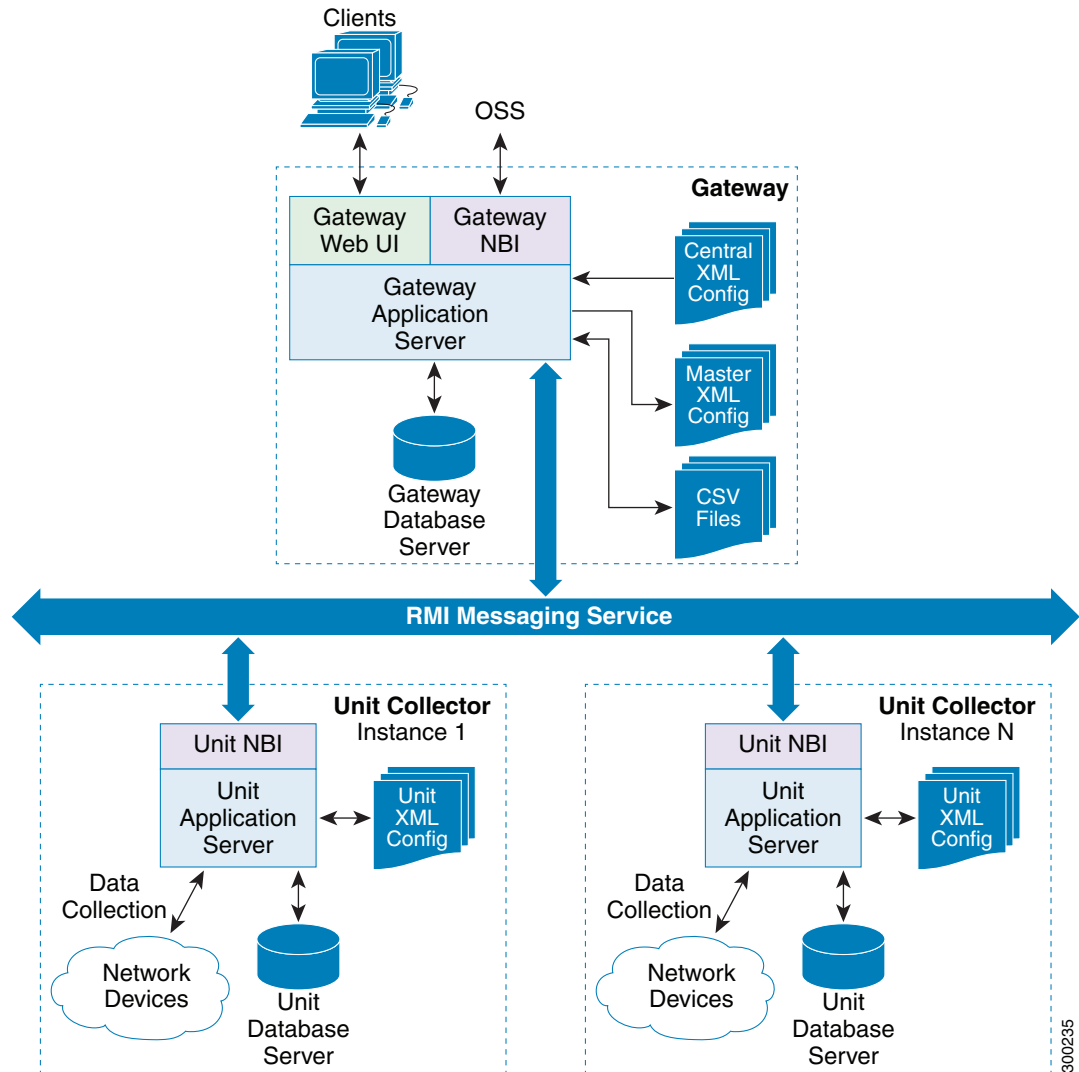
Prime Performance Manager software and functions are distributed across a single gateway and one or more unit servers. The units connect to a gateway through the IP network and through a Secure Sockets Layer (SSL) connection. The gateway is the connection point for users, administrators, and northbound interface (NBI) applications. It stores summarized data for network reports, and is the control point for alarm monitoring and forwarding. The gateway synchronizes administrative data with the units.

Units poll network devices and compute and store the data received from the devices. A unit can be installed with a gateway on the same physical server, or a unit can be installed on a separate physical server. The monitored devices are distributed across a single or multiple units, as directed by the gateway server.

All unit monitoring and management is conducted through the gateway. Gateway-to-unit communication is conducted using Java Remote Method Invocation (RMI).

[Figure 1-1](#) shows the Prime Performance Manager architecture. Architecture elements include:

- Prime Performance Manager gateways and units are software processes. Gateways and units can run on the same physical machine or on separate ones.
- The master XML configuration defines the reports and associated functions. All XML is created and managed on the gateway, and the gateway distributes the XML to the units.
- The central XML configuration is the conceptual repository used to feed to the units. The central XML configuration is backed by the master XML configuration.'
- CSV are automatically generated. They reside on the gateway and are forwarded there from the units.
- Unit XML configuration is the set of XML file that exist on the unit. These are created when Prime Performance Manager is installed and updated by the gateway.

Figure 1-1 Prime Performance Manager Architecture


Note

The Prime Performance Manager database is based on Apache Derby, an open source relational database based on Java. (For information about Apache Derby, see <http://db.apache.org/derby/>). The Prime Performance Manager database resides on the units. For performance, Prime Performance Manager stores data in binary fragments that can be distributed across multiple units for performance, scale, and high availability purposes. The data fragments are reassembled for specific reports, nodes, and time frames and streamed to the gateway when users run queries. For this reason, you cannot query the Prime Performance Manager database using traditional SQL queries or DBMS applications.

Device Discovery

Devices can be added to Prime Performance Manager using one or both of the following methods:

- Import a device inventory from Cisco Prime Network or Cisco Prime Central.
- Run device discovery from Prime Performance Manager.

If devices are imported from Prime Network or Prime Central, the device inventory updates are automatically communicated to Prime Performance Manager. Prime Network and Prime Central users can cross launch Prime Performance Manager reports directly from those applications.

For more information about Prime Performance Manager device discovery, see [Chapter 5, “Discovering Network Devices.”](#)

Security

Prime Performance Manager security functions include:

- HTTPS web access and SSL-enabled gateway-unit communication options
- Role-based password-protected access for multiple users
- Multiple user authentication methods (PAM-based and standalone)
- Web-based and CLI-based user management
- Password enforcement policies (aging, minimum length, and lockouts)
- Audit trails of all user actions and all access through the web interface
- Security logs

For more information about Prime Performance Manager security functions, see [Chapter 6, “Managing Users and Security.”](#)