# Cisco Prime Unified Operations Manager 9.0

**Q.** What is Cisco Prime™ Unified Operations Manager (UOM)?

**A.** Cisco Prime Unified Operations Manager is part of the Cisco® Unified Communications (UC) Management Suite. It provides comprehensive monitoring for the entire Cisco Unified Communications system, including the underlying transport infrastructure. It discovers the UC network from a phone perspective and creates a phone layer view of all the UC components, ignoring devices that are not part of the UC network. Cisco Prime Unified Operations Manager provides a real-time view of the Cisco Unified Communications system and presents the current operational status of each element. It also provides extensive capabilities for application-level testing of telephony functions that can be used in real time or scheduled to identify problems to help ensure that the phones and their supporting applications are functioning correctly.

Cisco Prime Unified Operations Manager:

- Monitors and evaluates the current operational status of all the key components of the Cisco Unified Communications system, including the underlying transport infrastructure.
- Presents the current operational status of the Cisco Unified Communications system through the UC Opsview dashboard, fault monitor alarm display, concentrated diagnostic views, and cluster-level connectivity views of the network. Each view provides contextual access to look at the current alert status, historical information, and service impact of any outages from the selected device or event.
- Increases productivity of network managers and facilitates faster trouble isolation by providing diagnostic tools to help enable rapid troubleshooting and fault isolation:
  - Through diagnostic tests, performance, and connectivity details about elements of the Cisco Unified Communications system.
  - Through use of synthetic tests that replicate end-user activity and verify gateway availability as well as other configuration aspects of the Cisco Unified Communications infrastructure. Tests may be run on synthetic phones or real IP phones (both Session Initiation Protocol [SIP]-based and Skinny Client Control Protocol [SCCP]-based phones) deployed in the network.
  - Through Cisco IOS® IP Service-Level Agreement (SLA)-based diagnostic tests that can be used to troubleshoot network-related issues, determine paths, and proactively monitor voice quality across WAN links.
  - Through context-sensitive links to Cisco Prime LAN Management Solution (LMS) to provide the user with a broad and deep array of infrastructure device-level visual and diagnostic capabilities.
- Provides a very powerful set of dynamic phone-testing capabilities that use IP phones (both SIP- and SCCP-based phones) in the Cisco Unified Communications system as test probes to run dial-plan tests, acceptance tests, phone-feature tests, and more.

These phone-testing capabilities can be used to rapidly troubleshoot connectivity (signaling/media stream), voice quality, and call processing or dial-plan management issues.

- Provides visibility into key performance metrics of Cisco Unified Communications elements, such as resource usage (CPU, memory, Media Termination Point [MTP] resources, transcoder resources), call statistics (active calls), and trunk statistics (trunk usage, port usage, gateway statistics) that help with capacity planning.
- Integrates voice-quality alerts from information delivered by Cisco Prime Unified Service Monitor (USM).
- Provides current information about connectivity and registration-related outages affecting IP phones in the network.
- Facilitates tracking of Cisco Unified Communications devices and IP phone inventory, tracks IP phone status changes, and creates a variety of reports that document move, add, and change operations on IP phones in the network.
- Provides extensive northbound real-time notifications, using Simple Network Management Protocol (SNMP) traps, email, and syslog notifications that facilitate integration with an SNMP-based management system. The email and SNMP notifications contain context-sensitive HTTP links that let network managers log in directly to quickly determine the nature of the outage and rapidly troubleshoot the problem.
- Cisco Prime Unified Operations Manager also features phone-based diagnostic testing using real IP phones for phone-feature validation.
- Cisco Prime Unified Operations Manager can use Cisco Prime Unified Service Monitor to monitor and provide alerts on voice-quality issues detected by the Cisco Voice Transmission Quality (VTQ) metric that is available in most Cisco IP phones, when used in Cisco Unified Communications Manager (UCM) 4.2 and later deployments.

**Q.** What is Cisco Prime?

**A.** Cisco Prime for Enterprise is an innovative strategy and portfolio of management products that empower IT departments to more effectively manage their networks and the services they deliver. Cisco Prime is built upon a network services management foundation and a set of common attributes. It delivers an intuitive workflow-oriented user experience across Cisco architectures, technologies, and networks. Cisco Prime simplifies network management, improves operations efficiency, reduces errors, and makes the delivery of network services more predictable.

**Q.** What's new in Cisco Prime Unified Operations Manager 9.0?

**A.** Cisco Prime Unified Operations Manager 9.0 is a minor release, no upgrade charge from 8.x under SAS agreement, and adds support for Unified Communications Manager 9.0. It also provides new features:

- Third-party device support: This new feature extends UOM device coverage to monitor non-Cisco devices that are essential for an end-to-end Unified Communications solution. Applications like Lightweight Directory Access Protocol (LDAP) server,

Exchange server, or any Windows/Linux-based application server that supports the following MIBs can now be monitored using UOM:

  - MIB-2: System and interface details
  - HOST-Resources-MIB: CPU and memory usage

- Unified Presence monitoring enhancement: UOM can now monitor new performance metrics such as total successful logins, active instant messaging (IM) sessions, IM in last 60 sessions, and other information that provides deeper visibility on the performance of a Presence server.
- Scales up to 60,000 IP phones: Single instance of UOM can manage up to 60,000 IP phones and 2500 IP devices.
- Trunk/route group utilization: This enhancement feature helps administrators to proactively monitor channel utilization per route group (RG). In the event of configured threshold violations at the RG level, UOM generates a “High Route Group Utilization” alert. Note: this feature works only on UCM integrated with Media Gateway Control Protocol (MGCP) gateways.
- Enterprise license manager support: This enhancement feature helps administrators to proactively monitor license usage of Cisco Unified Communications Manager and Cisco Unity® Connection deployed in an enterprise license manager server.

**Q.** What devices does Cisco Prime Unified Operations Manager 9.0 support?
Refer to the Cisco Prime Unified Operations Manager 9.0 Supported Devices Table at http://www.cisco.com/en/US/products/ps6535/products_device_support_tables_list.html or to the Cisco Prime Unified Operations Manager 9.0 Release Notes at http://www.cisco.com/en/US/products/ps6535/prod_release_notes_list.html for a complete list.

**Q.** Does Cisco Prime Unified Operations Manager monitor Unified Communications applications running on the Cisco Unified Computing System™ (Cisco UCS™)?

**A.** Yes, Cisco Prime Unified Operations Manager monitors Cisco Unified Communications Manager, Cisco Unity Connection, Contact Center Enterprise, Contact Center Express, and Cisco Voice Portal running on the Cisco UCS B-series and C-series blade server, but only the UC application and not the Cisco UCS statistics.

**Q.** Does Cisco Prime Unified Operations Manager use any agents?

**A.** No, Cisco Prime Unified Operations Manager does not require any additional agent software on Cisco monitored devices or the operator workstation, making initial setup simple. It uses standard interfaces such as SNMP, HTTP, and Windows Management Instrumentation (WMI) to receive events and statistics and will periodically poll the devices for additional status information. The user client uses Internet Explorer 8.x or 9.x and Firefox 10.0.5 ESR and 13.0 to allow users to log in from anywhere in the network, providing easy access to real-time information on the current status of the devices.

**Q.** How is Cisco Prime Unified Operations Manager different from other products that manage Cisco Unified Communications deployments?

**A.** Cisco Prime Unified Operations Manager is part of the industry-leading Cisco Unified Communications Management Suite. It is differentiated from other management system

vendors' products that manage Cisco Unified Communications deployments because it comes with the Cisco commitment to quality and 24-hour support and combines all of the following capabilities into a comprehensive management package:

- Extensive coverage of Cisco Unified Communications devices as well as the underlying transport infrastructure.
- Support for the latest Unified Communications versions in a timely fashion, thanks to parallel development and testing.
- Cluster service-level views of the Cisco Unified Communications system, with current status information about all monitored elements.
- Context-sensitive tools that can be launched from UC Opsview, Fault Monitor, Service Level View, and Diagnostic View to aid in rapid trouble isolation and resolution.
- Diagnostic tests that can replicate end-user activities, validate phone features, and proactively test dial-plan configuration by way of making phone calls, leaving voicemail, and so on.
- Use of built-in agent interfaces to remotely and periodically poll devices without the need for additional network agent software or devices.
- Phone and video-enabled IP phone reports with extensive information such as IP/MAC addresses, physical connectivity information, and signaling status.
- IP Phone Activity Report presents phone movement, MAC/IP address conflict, extension change, and suspicious phones on the network; an option exists to email all these reports daily.
- IP Phone Audit Report records an audit trail of IP phone add, remove, and status change operations and maintains this information for a period of up to 30 days.

**Q.** What IP transport elements does Cisco Prime Unified Operations Manager monitor?

**A.** Cisco Prime Unified Operations Manager monitors the devices in the voice signal path, such as routers, Ethernet switches, gateways, and gatekeepers.

Refer to the Cisco Prime Unified Operations Manager 9.0 Supported Devices Table at http://www.cisco.com/en/US/products/ps6535/products_device_support_tables_list.html.

**Q.** What are some of the benefits of the phone-based diagnostic tests? How can they be used to monitor the availability of the network?

**A.** Cisco Prime Unified Operations Manager includes the ability to dynamically test phones and help ensure that the Cisco Unified Communications deployment is functioning smoothly. Phone testing lets network managers dynamically test the behavior and features of real IP phones deployed in the network without needing any form of physical access. This lets them rapidly troubleshoot problems experienced by real users in the network and drastically improve time to address these issues. Such phone-based diagnostic tests may be used in several scenarios, such as site-validation tests, dial-plan tests, and site-to-site call-reachability tests.

- Site-validation tests: As network managers implement solutions based on Cisco Unified Communications at new sites, there is a need to test every single phone for its registration status, dial tone, calling restrictions, and features (call hold, call transfer,

call park, voicemail access, and so on) before going live at that site. The phone-based diagnostic tests let network managers do exactly that by automating the entire test plan. A simple, easy-to-read set of results is made available with the status of each of these tests, which may be further fed into reporting structures to facilitate operational and executive reporting.

- Dial-plan tests: As Cisco Unified Communications deployments grow in size and complexity, dial-plan changes and their impact on subscribers become more and more important. As applications that support the Cisco Unified Communications system (Cisco Unified Communications Manager, Cisco Unity systems, and so on) get upgraded, patched, or reconfigured to add or modify their configuration or dial plans, it becomes very important that there be no side effects of these changes on subscribers affecting their dial-tone access, calling restrictions, or phone features. The phone-based diagnostic tests let network managers test each of these aspects by creating a test plan and scheduling its execution. A simple, easy-to-read set of results is made available with the status of each of these tests, which may be further fed into reporting structures to facilitate operational and executive reporting.
- Site-to-site reachability: As a part of ongoing monitoring and troubleshooting of Cisco Unified Communications deployments, network managers frequently need to test the ability to place and receive calls between remote sites, test for voice-quality issues, and test for basic signaling reachability. The phone-based diagnostic tests let network managers test each of these aspects by creating a test plan and scheduling its execution. Cisco Prime Unified Operations Manager displays a simple, easy-to-read result set, which users may export for external reporting.

**Q.** Can Cisco Prime Unified Operations Manager be used for IP phone inventory tracking? If so, how?

**A.** Yes, Cisco Prime Unified Operations Manager can be used for IP phone tracking. It provides a set of reports that show phone status and phone status change information. The Phone Move Report captures physical movements and failovers while the Phone Audit Report captures state changes, all documented with time stamps. These reports document moves, adds, and changes and support both SIP- and SCCP-based IP phones.

**Q.** How can Cisco Prime Unified Operations Manager monitor my Cisco Unified Communications system?

**A.** Cisco Prime Unified Operations Manager uses a seed device (Cisco Unified Communications Manager Publisher) as a starting point, discovers the entire Cisco Unified Communications network using the Cisco Discovery Protocol, and creates a service-level topological view of the entire deployment. Depending on the type of device, Cisco Prime Unified Operations Manager actively monitors operating conditions using Internet Control Message Protocol (ICMP) polling, HTTP-based polling, SCCP-based synthetic tests, WMI-based data collection, SNMP MIB interrogation, and SNMP trap reception. It tracks only those conditions known to cause higher-level problems in that particular device. If Cisco Prime Unified Operations Manager receives information from the device and that information is not a known condition of a higher-level problem, it ignores the information, minimizing the need for IT managers to look at every event happening on the network. This helps IT managers to more productively manage Cisco device faults. Cisco Prime Unified Operations Manager also carries out diagnostic tests that ascertain the current operational status of the Cisco Unified Communications network and reports on problems it encounters. Whenever a diagnostic test fails, an alert is generated that informs a network operator of potential service problems. The alerts are shown on real-time displays in the Alerts Console and the service-level views. It is also possible to forward filtered Cisco Prime Unified Operations Manager alerts to other management tools using SNMP traps, syslog messages, and email.

**Q.** How is Cisco Prime Unified Operations Manager packaged?

**A.** Cisco Prime Unified Operations Manager, Cisco Prime Unified Service Monitor, and the underlying CiscoWorks Common Services Software are on a single software image. A single installation procedure installs all three components on the server. Service Monitor is enabled once the Service Monitor license is purchased and installed.

**Q.** How do I order Cisco Prime Unified Operations Manager?

**A.** Cisco Prime Unified Operations Manager 9.0 can be licensed for the deployment scale required. Deployment scale is controlled with a license file so network administrators can increase the number of phones supported by adding to the license file as their Cisco Unified Communications deployment grows, without disruption. Expansion is accomplished by purchasing additional licenses and deploying them on the server, adding to licenses already there. License ranges are available starting at 500 phones up to 30,000 phones, supporting a maximum of 60,000 phones per Cisco Prime Unified Operations Manager 9.0 server or virtual machine (VM). Server hardware sizing is checked during installation to make sure the server will adequately support the number of phones licensed. For Cisco Unified Communications deployments of more than 60,000 phones, multiple Cisco Prime Unified Operations Manager 9.0 servers or VMs are deployed. By integrating Cisco Prime Unified Operations Manager with Cisco Secure Access Control Server (ACS), administrators have central control over user access across many products.

**Q.** On what operating systems can Cisco Prime Unified Operations Manager 9.0 be installed?

**A.** Cisco Prime Unified Operations Manager 9.0 requires a server using Microsoft Windows Server 2003 with Service Pack 2 or Windows Server 2008 Server with Service Pack 2 or the R2 version. Check the Installation Guide for a comparison of Standard Edition and Enterprise Edition support, depending on the number of phones supported.

**Q.** Does Cisco Prime Unified Operations Manager support VMware?

**A.** Yes, Cisco Prime Unified Operations Manager supports VMware ESXi 4.x and ESXi 5.0. Refer to the Cisco Prime Unified Operations Manager 9.0 Installation Guide for specifications.

**Q.** Can a single Cisco Prime Unified Operations Manager instance manage multiple customers' Unified Communications deployments?

**A.** Yes, Cisco Prime Unified Operations Manager 9.0 can allow managed service providers (MSPs) to manage multiple customers' UC deployments. For more details, refer to the "Using Operations Manager Multiple End-Customer Views" section in the Cisco Prime Unified Operations Manager 9.0 User Guide at http://www.cisco.com/en/US/products/ps6535/products_user_guide_list.html.

**Q.** Can Cisco Prime Unified Operations Manager monitor devices behind the NAT wall?

**A.** Yes, Cisco Prime Unified Operations Manager 8.5 and later can manage UC or transport infrastructure devices sitting behind the NAT wall. For more details, refer to the "Using Operations Manager Multiple End-Customer Views" section in the Cisco Prime Unified Operations Manager 9.0 User Guide at http://www.cisco.com/en/US/products/ps6535/products_user_guide_list.html.

**Q.** How does Cisco Prime Unified Operations Manager integrate with CiscoWorks products?

**A.** Cisco Prime Unified Operations Manager 9.0 works with Cisco Prime LAN Management Solution 4.2.1. Cisco Prime Unified Operations Manager integration with the CiscoWorks family includes:

- CiscoWorks security roles
- CiscoWorks server process and backup management services
- Device and Credential Repository (DCR) - Common Services 4.2.1
- Cisco Secure ACS integration 4.2

In addition, Cisco Prime Unified Operations Manager can perform a context-sensitive launch of CiscoWorks Resource Manager Essentials, Cisco Prime LAN Management Solution, and CiscoWorks Campus Manager to accelerate trouble isolation and resolution.

**Q.** How does Cisco Prime Unified Operations Manager integrate with Cisco Prime Unified Service Monitor?

**A.** Cisco Prime Unified Operations Manager uses the information provided by Cisco Prime Unified Service Monitor to present service-quality (quality of voice) alerts on a real-time basis. The service-quality alerts are associated with IP phones or Cisco Unified Communications devices that are currently monitored by Cisco Prime Unified Operations Manager and are presented in the Fault Monitor display and Diagnostic View Device Pool

registration status portlet. Cisco Prime Unified Operations Manager and Cisco Prime Unified Service Monitor have specialized reports that present near-term historical information and tie into Cisco Unified Service Statistics Manager for long-term historical reporting and sophisticated graphing and summaries.

**Q.** How does Cisco Prime Unified Operations Manager integrate with Cisco Unified Service Statistics Manager?

**A.** Cisco Prime Unified Operations Manager provides report information to Cisco Unified Service Statistics Manager to be postprocessed, reduced, and stored for long-term historic report uses. Cisco Prime Unified Operations Manager has a provision to launch Cisco Unified Service Statistics Manager to simplify the movement from one application to another.

**Q.** How does Cisco Prime Unified Operations Manager integrate with Cisco Prime Unified Provisioning Manager?

**A.** Cisco Prime Unified Operations Manager has a provision to launch Cisco Prime Unified Provisioning Manager to simplify the movement from one application to another.

## For More Information

For more information about Cisco Prime Unified Operations Manager, please visit http://www.cisco.com/go/cuom, contact your local account representative, or send an email to the Cisco product marketing group at ask-ucms@cisco.com.


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