CiscoWorks Campus Manager 5.0

Product Overview

Today's networks are critical business assets and require robust tools for administering, monitoring, and configuring their foundational connectivity services. The CiscoWorks LAN Management Solution (LMS) with Campus Manager delivers on those needs. Designed for operational use, CiscoWorks Campus Manager provides powerful tools for configuring, managing, understanding, and visualizing the complex physical and logical Layer 2 infrastructures.

CiscoWorks Campus Manager includes the following tools:

- User tracking (and end-host tracking)
- Discrepancy reporting
- Topology services
- VLAN, private VLAN (PVLAN), and VLAN Trunking Protocol (VTP) management
- Spanning-tree management and visualization
- ATM management
- Path analysis
- Data-extraction engine

CiscoWorks Campus Manager Features and Benefits

The new features offered in CiscoWorks Campus Manager 5.0 help to simplify network operations and to dramatically increase operational efficiency.

Table 1 lists the features and benefits of CiscoWorks Campus Manager.

Table 1. Features and Benefits of CiscoWorks Campus Manager

Feature	Benefits
Device discovery, mapping, and monitoring	• Link and device status display based upon Simple Network Management Protocol (SNMP) polling • Identification of Layer 2 configuration discrepancies and many other new physical and logical discrepancies • Automatic location and correlation of information on users by MAC, IP address, NT login, or UNIX host name, with their physical connections to the switched network • Visibility and launch point of Cisco® CallManager from topology services as well as tracking of phone handset to IP, MAC address, and switch port • Ability to form hierarchical groups in Topology View based on criteria like SysLocation, SysName, and IP address or subnet mask with unlimited levels of nesting • Support for Spanning Tree Protocol–Per VLAN Spanning Tree Plus (PVST+), Multiple Spanning Tree Protocol (MSTP) support for configuration, recommendation reports, and visualization reports for modeling Spanning Tree Protocol configuration in offline mode
Device configuration management	• Configuration of VLAN/LAN Emulation (LANE), PVLAN, and ATM services and assignment of switch ports to those services

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Troubleshooting	• Diagnostic tools for connectivity-related problems between end stations and Layer 2 and Layer 3 devices • Layer 2 and Layer 3 path trace between source and destination handsets • Support for time delay reflectometry (TDR) to detect faults in a cable and locate open circuits, short circuits, sharp bends, crimps, kinks, impedance mismatches, and other such defects
Graphical user interface and usability	• Intuitive workflow and dashboard user interfaces for easy data access and administration • Intelligent discovery and display of large Layer 2 networks on browser-accessible topology maps, independent of VTP server • Java plug-ins to improve GUI performance • New lightweight HTML-based user interface for the user tracking and campus administration functions • Export of topology maps to Visio
IP and SNMP updates	• Support for dual stack devices using IPv6 or IPv4 • Support for SNMP Version 3 (SNMPv3)
Secure communications	• Secure communication between the client browser and CiscoWorks Campus Manager using Secure Sockets Layer (SSL)
Integration with Cisco CallManager and voice-over-IP (VOIP) products	• Support for Cisco Secure Access Control Server (ACS)–based user roles

New Features in CiscoWorks Campus Manager

The following are the new features and enhancements in CiscoWorks Campus Manager 5.0:

- Dynamic user tracking for almost real-time monitoring of end hosts
- User tracking history reports up to 250,000 end hosts and IP phones
- Enhanced user tracking for discovering end hosts on trunk ports
- Enhanced switch port usage reports for monitoring free unused and connected ports
- Enhanced discrepancy reports
- New workflow for VLAN, PVLAN, and trunk management tasks
- Handling duplicate MAC addresses
- Enhanced topology services for bandwidth utilization and with Java Web Start support
- Critical Device Poll Module, in topology, to monitor network elements

Table 2 lists the new features included in the CiscoWorks Campus Manager 5.0 application.

Table 2. Features and benefits of CiscoWorks Campus Manager

Feature	Benefits
Dynamic user tracking and user tracking enhancements; new user tracking history reports and improved scalability	• Dynamic updates track changes of the end hosts and users in the network with minimal time delay. In addition to polling the network at regular intervals, CiscoWorks Campus Manager tracks the changes in the network as and when they happen. • Dynamic updates are asynchronous updates based on SNMP MAC notification traps. When a host is connected to the network, an SNMP MAC notification trap is immediately sent from the switch to the CiscoWorks Campus Manager server. • CiscoWorks Campus Manager 5.0 tracks a maximum of 250,000 end hosts. History records can be maintained for the end hosts for a maximum of 10 days.
User tracking history reports	• History reports provide details of the end hosts that are connected to or disconnected from a specific switch port for a period of time.
Enhanced user tracking for discovering end hosts on trunk ports	• CiscoWorks Campus Manager user tracking is now enhanced to discover end hosts connected to trunk ports. From the available trunk ports, select the trunk ports for end host discovery. End hosts connected to the selected trunk ports will be discovered during the next user tracking major acquisition cycle.
Enhanced switch port usage reports	• Switch port usage reports are enhanced to show the port utilization percentage and unused up/down ports for a specified period.
Switch Port Utilization Report	• Switch Port Utilization Report lists the switches that crossed utilization threshold limits. It also lists the percentage of port utilization. This report helps enable network managers to easily estimate capacity planning for network growth.

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Enhanced discrepancy reports	• Reclaim Unused Up Report: For ports that have been in an up state (administratively up and operationally down) for a specified interval of time. • Reclaim Unused Down Report: You can generate reports for ports that have been in a down state (administratively down and operationally down) for a specified interval of time. • Report on Recently Down Ports: You can generate reports for recently down ports. Access ports that were connected to an end host in the last user tracking major acquisition cycle but are found unconnected in the current data collection cycle are listed as recently down ports. • Switch Port Summary Report: This report gives the number of connected, free, and free down ports in each switch. – Ports that are administratively up but are not connected to an end host are free ports. – Ports that are administratively down and are not connected to an end host are free down ports. • This report also provides the sum total of connected, free, and free down ports in each switch.
Handling duplicate MAC addresses	• You can specify the list of switches, switch ports, subnets, and VLANs for which duplicate MAC addresses can either be included or excluded.
Critical Device Poller	• This is a new feature to frequently poll a critical set of devices on the network. Devices can be added to the Critical Device Poller from the topology views and N-Hop view portlet.

User Tracking

CiscoWorks Campus Manager includes a user-tracking tool that assists in locating end-station connections at the access-switch level for quickly locating and troubleshooting end-user connections. User tracking is useful for troubleshooting end-station communication issues because of its ability to perform extensive connectivity analysis of the network. Through automated acquisition, a table of end-user stations and Layer 2 connection information is constructed. This table can be sorted and queried, allowing administrators easily to find users on the network. Users can be identified by name, IP handset, MAC and IP address, as well as the switch port and switch that they are connected to, along with VLAN and VTP assignment by port address. Predefined reports, such as duplicate MAC addresses per switch port, or duplicate IP addresses, help managers to locate mobile users or violations in port policies.

In addition, the user-tracking tool supports several customizable options such as layouts, the ability to predefine queries and quick queries, along with new reports like switch port usage reports. The reports help identify switch ports that have been recently used, unused, or disabled.

Topology Services

The topology services tool allows you to view, monitor, and configure the physical and logical services in your network. The Following are the features of the topology services tool:

- View detailed network information by devices, links, and ports
- Display physical and logical services
- Launch network management tools like CiscoWorks CiscoView and CiscoWorks Resource Manager Essentials (RME) from the network views
- Configure, manage, and monitor ATM devices
- Segment your network logically and manage workgroups that use VLANs
- Create and manage LANE services to extend VLANs across ATM devices
- View port, device, and trunk attributes along with port information by VTP domain for simplifying VLAN configuration
- View reports on inconsistencies or misconfigurations of the physical or logical network setup

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- Simplify topology views through the creation of hierarchical groups by SNMP SysLocation, SysName, and IP address or subnet mask with multiple levels of nesting

The enhancements in topology services are:

- Java Web Start support: Topology services and path analysis will now be launched in Web Start. This eliminates conflicts between multiple Java plug-ins on the client machine. Loading of the applications is much faster.
- Utilization statistics in topology maps: Topology services categorize links in your network according to the percentage of bandwidth utilization and display the links using different colors in topology maps. Topology services compute bandwidth utilization only for Ethernet links and use Remote Monitoring (RMON) to compute bandwidth utilization.

VLAN, PVLAN, and VTP Management

CiscoWorks Campus Manager provides an easy-to-use GUI for creating, modifying, or deleting VLANs and LANE elements or for assigning switch ports to VLANs. As VLANs are created or modified, port and user changes are instantly updated and transmitted to the switches, eliminating the need to update and configure each participating switch individually. As VLANs are selected, the table view displays the participating ports, port status, and switch information. The topology map can be launched to graphically highlight participating devices and links of the VLAN connections. Additional mapping tools allow the user to show spanning-tree states, VTP trunks, switch port links, and existing LANE service elements.

The CiscoWorks Campus Manager VLAN, PVLAN, and VTP management features include:

- Tabular summary views of VLANs showing participating ports, devices, links, and port-status information
- Graphical setup of VLANs (including transparent VLANs) and VLAN membership to simplify administration
- Integration of LANE-configuration services in VLAN configuration tools for more efficient operational and engineering practices
- A separate interface for administrators to quickly search, using a variety of criteria, and to assign selected switch ports, individually or in bulk, to VLANs
- Logical display of VLAN configurations to easily visualize switch connections
- Automated discrepancy reports highlighting connection problems and link mismatches
- Automated VLAN membership registration, reducing administration and configuration requirements
- Support for PVLAN creation and deletion; promiscuous ports; and creation of isolated, community, or two-way community
- Inter-VLAN routing on Route Switch Modules (RSM), Multilayer Switch Feature Cards (MSFC), Layer 2 and 3 devices, and external routers
- VTP support for domains, VTP v3 support, VTP reports, VTP views

In this release, a new wizard-based UI workflow for VLAN management is introduced.

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The following tasks can be performed as a result of improved workflow:

- Create and delete VLANs on multiple devices irrespective of VTP domain
- Assign access link ports to a desired VLAN
- Move ports to a temporary VLAN while deleting the associated VLAN

Spanning-Tree Management

CiscoWorks Campus Manager provides advanced capabilities to manage spanning-tree protocols in a campus network such as PVST, Multiple Spanning Tree Protocol (MSTP), and Multi-Instance Spanning Tree Protocol (MISTP).

Features include:

- Configuration of spanning-tree protocols through Spanning Tree Protocol parameters
- Reports on spanning trees in the network deployment
- Visualization of the spanning tree on the topology maps
- Recommendation reports on Spanning Tree Protocol for optimal root recommendation, instance-reduction recommendation, and VLAN-to-instance mapping recommendation
- Spanning Tree Protocol Visualizer, which allows the user to model and test Spanning Tree Protocol parameter changes before actually applying them to the network

ATM Management

CiscoWorks Campus Manager offers a graphical tool for managing complex ATM networks, simplifying their configuration, and monitoring their performance. ATM networks are displayed on the topology map, and the logical VLAN and ATM domain views provide graphical representations of ATM switches and LANE elements.

Features include:

- Autodiscovery of ATM switches, including switched virtual circuit (SVC) and permanent virtual circuit (PVC) connections
- Connectivity checking of SVCs and PVCs
- End-to-end virtual-circuit path tracing and analysis, which assists in connectivity diagnostics
- LANE troubleshooting and performance analysis
- Quality of service (QoS) templates for simplifying the configuration of typical traffic such as video or constant-bit-rate (CBR) service
- Simple configuration of soft PVCs
- ATM RMON data collection and analysis

Path Analysis

Path analysis is an operational and diagnostic tool that traces the connectivity between two specified devices on the network, including the physical and logical paths taken by packets flowing between those points.

Path analysis uses user-tracking, topology-services, and real-time spanning-tree information to determine Layer 2 and 3 connectivity between two end points, or IP handsets, in the network. The resulting trace is presented in graphical topology views that illustrate the Layer 2 and 3 devices,

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path direction, and link types, and in tabular formats that provide specific interface, IP address, VLAN, and link-type information.

Data Extraction Engine

This utility provides servlet and command-line access to CiscoWorks Campus Manager application data (user tracking, topology, and discrepancy) and allows you to extract data in Extensible Markup Language (XML) format.

System Requirements

Please refer to the CiscoWorks LAN Management Solution 3.0 product data sheet, under the Product Literature section at http://www.cisco.com/go/lms, for specific hardware and software server and client requirements.

Ordering Information

CiscoWorks Campus Manager is part of the CiscoWorks LAN Management Solution (LMS). CiscoWorks LMS is available for ordering through regular Cisco sales and distribution channels worldwide. To place an order, visit the Cisco Ordering Home Page.

Service and Support

Using the Cisco Lifecycle Services approach, Cisco and its partners provide a broad portfolio of end-to-end services and support that can help increase your network's business value and return on investment. This approach defines the minimum set of activities needed, by technology and by network complexity, to help you successfully deploy and operate Cisco technologies and optimize their performance throughout the lifecycle of your network.

For More Information

For more information about the CiscoWorks Campus Manager application, visit http://www.cisco.com/go/lms, contact your local Cisco account representative, or send an e-mail to the product marketing group at lms-pm@cisco.com.

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