



Cisco 7600 Router Manager—A Cisco Element Management System for High-Productivity Network Operations

The Cisco Internet OSS element management system (EMS) product line provides device-specific fault, configuration, accounting, performance, and security (FCAPS) management capability in the Cisco Internet OSS. The Cisco EMS product line comprises a range of element managers based on a highly scalable, tested, and field-validated common infrastructure, which is designed to support carrier-class element managers across Cisco service provider product lines.

This flexible, modular model allows service providers to install the mix of element managers they need to support their dynamic businesses. It also enables cost-effective and rapid deployment of new element managers, permitting service providers to more rapidly introduce and manage new services. Cisco EMSs provide common interfaces and element-management services to applications in the network and service-management layers of the Cisco Internet OSS, as well as existing service-provider operations support system (OSS) components.

The Cisco 7600 Router Manager is a graphical user interface (GUI)-based, carrier-class EMS for managing Cisco 7600 Series routers. This Cisco EMS provides a range of GUI features (Figure 1) designed to increase the efficiency of network operations. With real-time (physical and logical) inventory-discovery capabilities, this EMS quickens deployment of Cisco networking equipment and provides comprehensive element service assurance to more quickly solve network problems.

The Cisco 7600 Router Manager runs on Sun Microsystems UltraSPARC servers with the Solaris 8 operating environment installed.



Table 1 lists the features and benefits of the Cisco 7600 Router Manager.

Table 1 Features and Benefits of Cisco 7600 Router Manager

Feature or Function	Benefit or Application
<p>Fault management</p> <ul style="list-style-type: none"> • Supports fault detection, logging and display, troubleshooting, and repair • Technology-specific fault information via Simple Network Management Protocol (SNMP) traps, polling, and thresholding—MetroEthernet, Multiprotocol Label Switching (MPLS), virtual LANs (VLANs), routing protocols, etc. • Inventory, configuration, and performance management operate in an integrated fashion 	<ul style="list-style-type: none"> • Enables fast detection, troubleshooting, and repair, helping to ensure higher service availability, maximum revenue, and customer satisfaction • Alarm information specific to a particular technology helps to isolate problems in the network • Example: When a card or module is replaced, alarms can be generated signifying a network change and exactly what happened
<p>Inventory management</p> <ul style="list-style-type: none"> • Automatically discovers, and updates in real time, the elements in a network, and how each element is configured in terms of field-replaceable units (for example, interface cards, power supplies, etc.) and installed software releases • Maintained inventory also includes logical inventory (for example, IP addresses, VLANs, Hot Standby Router Protocol [HSRP], EtherChannel[®] technology, metro Ethernet-type features) • Inventory management function operates in real time and caters for online insertion and removal (OIR), configuration changes, and logical service changes 	<ul style="list-style-type: none"> • Helps maximize use of the network to maximize revenue • Offers a consolidated view of how a particular network element is installed, configured, and performing • Accurate, up-to-date device inventory is essential to managing capacity (port, bandwidth consumption) and helping forecast increased subscriber activity • Powerful when used in conjunction with the fault-management capability of the EMS by correlating alarm conditions to the most granular level possible—for example, down to the port or VLAN level
<p>Provisioning and service activation</p> <ul style="list-style-type: none"> • Includes provisioning of the following: quality of service (QoS), EtherChannel technology, VLAN, VLAN Trunking Protocol (VTP), Spanning Tree Protocol (STP), Border Gateway Protocol [BGP], Intermediate System-to-Intermediate System [IS-IS] Protocol, Enhanced Interior Gateway Routing Protocol [EIGRP], Open Shortest Path First [OSPF] Protocol, Server Load Balancing (SLB), MPLS, 802.1Q Tunneling (QinQ), interfaces, packet over SONET (POS), Spatial Reuse Protocol (SRP) • Uses service profiles for a more scalable and reliable service activation • Synchronizes services with the network elements • Offers flow-through provisioning by using the Common Object Request Broker Architecture (CORBA) interface 	<ul style="list-style-type: none"> • Provides better service to the customer and maximum revenue to the provider • Eliminates the need to understand device-level idiosyncrasies, such as Cisco IOS[®] Software command-line interface (CLI) abstraction • Provides easy-to-use, flow-based GUI for deployment of new services • Consistently shows configurations at all times; changes outside of the EMS are immediately reflected in the EMS
<p>Performance and thresholding</p> <ul style="list-style-type: none"> • Supports proactive checking for network-capacity breaches • Performance-management data collection—historical and real-time 	<ul style="list-style-type: none"> • Offers a powerful troubleshooting feature, useful for service-level agreement (SLA) supervision • Immediately observes performance metrics for a given port, module, or chassis • Logs performance metrics over time to aid in bandwidth management and capacity control



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<p>Network element administration</p> <ul style="list-style-type: none"> • Includes Cisco IOS Software image upgrade, configuration backup and restore, and management of Cisco IOS Software passwords • Software-image maintenance • Bulk network element configuration 	<ul style="list-style-type: none"> • Reduces reliance on CLI • Enables less skilled personnel to manage the network • Reduces operator training costs • Integrates with online Cisco resources for Cisco IOS Software image maintenance, such as verification of hardware prerequisites, firmware, etc. • Allows changes to entire groups of network elements, such as authentication, authorization, and accounting (AAA), Network Time Protocol (NTP), routing, etc.
<p>Network security</p> <ul style="list-style-type: none"> • Assigns each user privileges according to which group(s) the user belongs and the roles assigned to the(se) group(s); for example, to restrict less skilled staff to fault management operations only 	<ul style="list-style-type: none"> • Enables the network operations center (NOC) manager to confidently permit less experienced personnel access to the management system, reducing cost of NOC operations • Access-security features reduce margin for error and prevent malicious access • Increases reliability of service
<p>Multiple users</p> <ul style="list-style-type: none"> • Supports up to 50 simultaneous users using the “fat client” model, in which the client performs the bulk of processing, and is X Window System-based technology 	<ul style="list-style-type: none"> • Supports multiuser, multisite NOC operations
<p>Disaster recovery support</p> <ul style="list-style-type: none"> • Supports network elements and EMSs, including “online” EMS database backup and restore • Device configuration archive 	<ul style="list-style-type: none"> • Reduces network downtime to increase reliability of service • Helps ensure the EMS is continually available for provisioning and finding faults, even when backup and restore is in progress • Date/time-stamped configuration archive aids in “rolling back” device configuration to a known “good” state
<p>OSS integration interfaces</p> <ul style="list-style-type: none"> • Based on industry standards, including CORBA, SNMP, File Transfer Protocol (FTP), and ASCII 	<ul style="list-style-type: none"> • Enables integration into the service provider’s OSS, and facilitates management using a single application • Reduces training and provides benefits of EMS to an integrated OSS

Figure 1
Sample GUI Screen Shots from the Cisco 7600 Router Manager



For Further Information

For more information about the Cisco 7600 Router Manager, go to:

<http://www.cisco.com/en/US/products/sw/netmgtsw/index.html>

For more information about Cisco element managers and the Cisco Internet OSS, go to:

<http://www.cisco.com/go/oss>

A Cisco EMS free-trial version (30 days) is available by ordering part number EMS-7600-KIT-3.0-D from Cisco.com.



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