

Cisco UCS Manager

Product Overview

Cisco® UCS Manager provides unified, centralized, embedded management of all software and hardware components of the Cisco Unified Computing System™ across multiple chassis and thousands of virtual machines. Cisco UCS Manager manages the entire Cisco Unified Computing System as a single logical entity through an intuitive GUI, a command-line interface (CLI), or an XML API.

By enabling better automation of processes, Cisco UCS Manager allows data center managers to achieve greater agility and scale in their server operations while reducing complexity and risk. Cisco UCS Manager provides flexible role- and policy-based management using service profiles and templates and facilitates processes based on IT Infrastructure Library (ITIL) concepts.

The crucial feature of Cisco UCS Manager is its use of service profiles to provision Cisco Unified Computing System resources. The service profile concept improves IT productivity and business agility. Now infrastructure can be provisioned in minutes instead of days, shifting IT's focus from maintenance to strategic initiatives.

Cisco UCS Manager uses service profiles to provision servers and their I/O properties. Service profiles are created by server, network, and storage administrators and are stored in the Cisco UCS 6100 Series Fabric Interconnects. In today's data centers, servers are difficult to deploy and difficult to repurpose, often taking days or weeks to implement. This challenge arises from the careful manual coordination that is needed among server, networking, and storage teams to help ensure that all their individual devices work together. The service profile allows the servers in the Cisco Unified Computing System - whether blade, rack-mount or both - to be treated as raw computing capacity that can be allocated and reallocated among application workloads, enabling a much more dynamic and efficient use of the server capacity that exists in today's data centers.

The service profile consists of a software definition of a server and the associated LAN and SAN connectivity that the server requires. When a service profile is deployed to a server, Cisco UCS Manager automatically configures the server, adapters, fabric extenders, and fabric interconnects to match the configuration specified in the service profile. This automation of device configuration reduces the number of manual steps required to configure servers, network interface cards (NICs), host bus adapters (HBAs), and LAN and SAN switches. The reduction in manual steps reduces the potential for human error, improves consistency, and decreases server deployment times.

Service profiles benefit both virtualized and nonvirtualized environments. Workloads may need to be moved from server to server to change the hardware resources assigned to a workload or take a server offline for service or upgrade. Service profiles can be used to increase the mobility of nonvirtualized servers. They also can be used in conjunction with virtualization clusters to bring new resources online easily, complementing existing virtual machine mobility. Service profiles are also used to enable Cisco Virtual Network Link (VN-Link) capabilities for servers that will run hypervisors enabled for VN-Link.

Cisco UCS Manager resides on a pair of Cisco UCS 6100 Series Fabric Interconnects using a clustered, active-standby configuration for high availability. The manager participates not only in server provisioning, but also in device discovery, inventory, configuration, diagnostics, monitoring, fault detection, auditing, and statistics collection. The manager can export the system's configuration information to configuration management databases (CMDBs), facilitating processes based on ITIL concepts.

Cisco UCS Manager provides granular UCS system visibility to higher-level management tools from BMC, CA, HP, IBM and others, providing exceptional alignment of infrastructure management with OS and application requirements.

In-house and third-party developers can leverage the UCS XML API's over 9,000 exposed objects to further enhance the value of the UCS platform according to customized requirements.

Features and Benefits

Cisco UCS Manager implements policy-based management of the server and network resources in the Cisco Unified Computing System. Network, storage, and server administrators all participate in creating policies in their areas of domain expertise. Policies are consumed in service profiles, allowing Cisco UCS Manager to fully configure the servers, adapters, and fabric extenders and the appropriate isolation, quality of service (QoS), and uplink connectivity on the Cisco UCS 6100 Series Fabric Interconnects.

Cisco UCS Manager has a GUI and a CLI for use by server, network, and storage administrators. Cisco UCS Manager also provides a number of APIs for integration with existing data center systems management tools. Some examples of these APIs are Intelligent Platform Management Interface (IPMI), Simple Network Management Protocol (SNMP), and a full-featured XML interface. The XML interface allows the entire system to be monitored or configured externally by higher-level systems management tools from Cisco's many ecosystem partners Figure 1 shows the three Cisco UCS Manager management tabs.

Figure 1. Cisco UCS Manager Integrates and Preserves Role Specialization in the Data Center

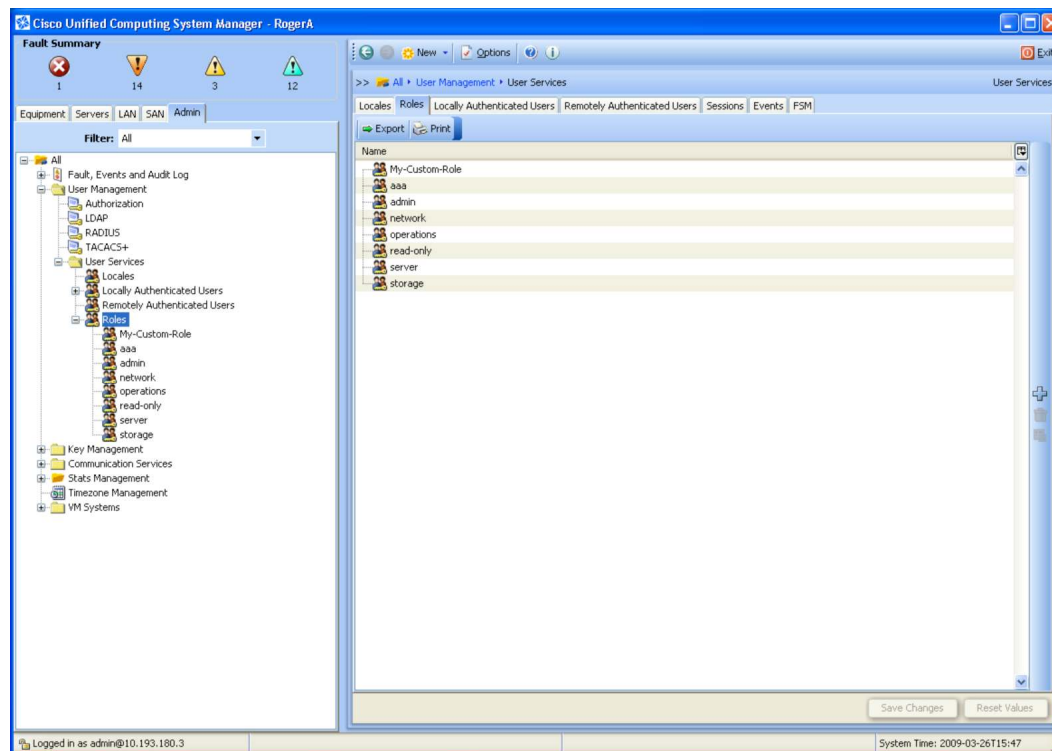


Table 1 summarizes the main features of Cisco UCS Manager.

Table 1. Features and Benefits

Feature	Benefit
Role-based access control (RBAC)	RBAC simplifies operating tasks that span server, network, and storage administrator teams, while preserving the specialized knowledge that exists within each group. This approach allows subject-matter experts to continue with their normal procedures, but all the configuration data is captured in a single, unified device manager, instead of in the separate, individual device managers that exist in today's data centers.
Embedded device management	Each component of the Cisco Unified Computing System is delivered with embedded firmware that allows it to participate as part of Cisco UCS Manager operation. The Cisco UCS 6100 Series Fabric Interconnects are delivered with the Cisco UCS Manager embedded in the firmware.
High availability	Cisco UCS Manager is designed for enterprise data centers that require high availability. The main Cisco UCS Manager intelligence is replicated across a pair of Cisco UCS 6100 Series Fabric Interconnects, so the loss of a single fabric interconnect will not affect access and use of Cisco UCS Manager.
Scalability	One Cisco UCS Manager instance can manage two Cisco UCS 6100 Series Fabric Interconnects, multiple Cisco UCS 5100 Series Chassis, 80 Cisco UCS 2100 Series Fabric Extenders, and hundreds of Cisco UCS B-Series Blade Servers.
Service profiles	The service profile allows the servers in the Cisco Unified Computing System to be treated as raw computing capacity that can be allocated and reallocated among application workloads, enabling a much more dynamic and efficient use of the server capacity than exists in today's data centers. Server deployment with service profiles takes minutes instead of the many days or weeks that server deployment takes in many existing data centers.
Cisco VN-Link	The Cisco Unified Computing System implements Cisco VN-Link technology. As in the Cisco Nexus™ 1000V Series Switches, the Cisco UCS Manager implementation of VN-Link enables policy-based virtual machine connectivity, mobility of network and security properties during VMware VMotion migration, and a nondisruptive operating model in which network administrators perform network tasks and server administrators perform server tasks.
Autodiscovery and configuration	Cisco UCS Manager automatically discovers devices that are added, moved, or removed from the system; adds them to its inventory; and applies service profile configurations as appropriate.
Unified fabric	Cisco UCS Manager provides the foundation for the operation of the internal unified fabric created by the Cisco UCS 6100 Series Fabric Interconnects, the Cisco UCS 2100 Series Fabric Extenders, and the network adapters that are present on the Cisco UCS B-Series Blade Servers. This foundation enables the use of Fibre Channel over Ethernet (FCoE) in the internal fabric, while preserving traditional Ethernet and Fibre Channel connectivity to the core LAN and SAN environments.
GUI and CLI	All aspects of Cisco UCS Manager can be controlled through a Java-based GUI that is automatically downloaded from the Cisco UCS 6100 Series Fabric Interconnects or through a fully functional CLI.
XML-based API	A full-featured XML API exposing over 9000 objects provides powerful new opportunities for service providers, independent software vendors (ISVs), and users interested in customizing the behavior of the Cisco Unified Computing System to enhance its value in their own unique environments.
Integration with leading systems management solutions	Tested, optimized integration with higher-level systems tools covering the entire operational lifecycle--from orchestration through deployment to monitoring and analysis - helps IT ensure seamless UCS migration and simplified operations and accelerate service delivery, within familiar processes and tools.

Platform Compatibility

Cisco UCS Manager manages everything about the devices in the Cisco UCS Family, but it does not control or manage any devices outside the Cisco UCS Family.

Licensing

Cisco UCS Manager is provided free of charge with every Cisco Unified Computing System deployment. Port-based licensing on the Cisco UCS 6100 Series Fabric Interconnects can be used to reduce the cost of small Cisco Unified Computing System deployments.

System Requirements

Cisco UCS Manager resides as embedded firmware on the Cisco UCS fabric interconnects, fabric extenders, servers, and adapters. No external management server is required, thereby reducing the capital expense for the management environment. The communication between the main Cisco UCS Manager intelligence on the fabric interconnect and the subsidiary functions found in the fabric extenders, chassis, servers, and adapters is handled automatically. This feature reduces the challenges and costs associated with implementing and maintaining connectivity between traditional central management servers and the devices they are tasked with managing.

Cisco Unified Computing Services

Using a unified view of data center resources, Cisco and its industry-leading partners deliver services that accelerate your transition to a unified computing architecture. Cisco Unified Computing Services helps you quickly deploy your data center resources, simplify ongoing operations, and optimize your infrastructure to better meet your business needs. For more information about these and other Cisco Data Center Services offerings, visit <http://www.cisco.com/go/unifiedcomputingservices>.

Why Cisco?

Cisco has significant experience in listening to customer requirements and providing solid technology innovation for the enterprise data center. Cisco delivers standards-based solutions backed by a broad partner ecosystem of industry leaders to provide end-to-end customer solutions. Unified computing elevates the traditional product classification of network, server, storage, operating systems, and applications to a data center-wide vision. Cisco, as one of the largest technology providers in the world, has the resources, expertise, and customer focus to deliver on this vision.

For More Information

For more information about Cisco UCS Manager, visit <http://www.cisco.com/en/US/products/ps10281/index.html> or contact your local Cisco representative.



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