Cisco Integrated Management Controller (IMC)

Contents

Product overview

The Cisco® Integrated Management Controller (IMC) is a baseboard management controller that provides embedded server management for Cisco UCS® C-Series Rack Servers and Cisco UCS S-Series Storage Servers. The Cisco IMC enables system management in the data center and across distributed branch-office locations. It supports multiple management interfaces, including a Web User Interface (Web UI), a Command-Line Interface (CLI), and an XML API that is consistent with the one used by Cisco UCS Manager. IMC also supports industry-standard management protocols, including Redfish, Simple Network Management Protocol Version 3 (SNMPv3), and Intelligent Platform Management Interface Version 2.0 (IPMIv2.0). Figure 1 shows a sample Cisco IMC screen.
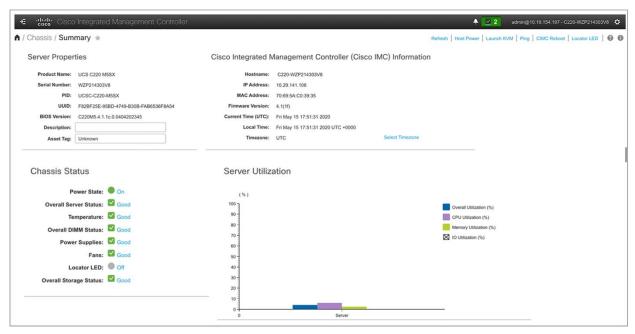

Figure 1.
Cisco IMC server properties details, including chassis status and server utilization

Features and benefits

Table 1 summarizes the features and benefits of the Cisco IMC.

Table 1.   Features and benefits

Feature	Description
Simplified server setup and configuration	

Simple firmware upgrade	• Out-of-band upgrades
	  ◦ BIOS, Cisco IMC, and Cisco UCS VIC adapter firmware upgrade
	  ◦ RAID and LOM
	• Automated multisystem upgrade (noninteractive upgrade)

Integrated diagnostics	Platform diagnostic suite
Local storage configuration	• Out-of-band RAID configuration wizard • Simple, fast configuration of RAID arrays and multiple volumes

Feature	Description
Boot control	• Flexible boot target configuration management • One-time boot support
Cisco UCS Virtual Interface Card (VIC) configuration	• Configuration of Cisco UCS VIC • Configuration to enable Ethernet and Fibre Channel over Ethernet (FCoE) • Network Interface Card (NIC) configuration, which eliminates the need for configuration from the OS
Interfaces	
XML API	• Easy-to-use programmable interface • Agentless • Microsoft Windows PowerShell support (Cisco UCS PowerTool for standalone Cisco UCS C-Series Rack Servers) • Python SDK • Cisco IMC Supervisor for multisystem monitoring and management • Consistent model for Cisco UCS Manager and standalone deployments
WebUI	• Access to IMC configuration and control from a web browser • HTML5 WebUI support
CLI	CLI for scripted environments
Redfish	Support for Redfish
SNMP v2 and v3	Embedded agentless MIB catalog
IPMI v2.0	Support for IPMI tool
Serial over LAN	Support for serial-over-LAN capability
SmartAccess: Serial	Capability to access the BMC CLI through host serial port
SMTP support	Ability to send emails for faults
Remote administration	
Virtual Keyboard, Video, and Mouse (vKVM)	• Remote access to server console screen (HTML5) • HTML5 vKVM available for M4 and M5 servers
Virtual power on and off	Remote power on, off, and reset from WebUI, KVM, and XML API
Global team collaboration (KVM)	• RBAC for distributed global teams • Up to 5 simultaneous administrator sessions
Locally mountable virtual media	• Remote mounting of network-available media using Network File System (NFS) and Common Internet File System (CIFS); KVM-mounted or IMC-mounted • Connectivity support for USB, CD, ISO images, virtual floppy drive images, and remote storage
Serial over LAN	SSH serial-over-LAN server administration
Network Time Protocol (NTP)	NTP support for remote operations

Feature	Description
SNMP	• SNMP support from management plane • Use of Cisco Unified Computing System™ (Cisco UCS) MIBs • Consistent data format across Cisco UCS Manager and standalone modes
XML API	Agentless out-of-band management
Cisco Intersight™	Cisco IMC embeds a Cisco Intersight Device Connector for connectivity with Cisco Intersight. Cisco UCS C-Series M4 servers can support Cisco Intersight when the corresponding Cisco IMC version is 3.0(4) or later, Cisco UCS C-Series M5 servers can support Cisco Intersight when the corresponding Cisco IMC version is 3.1 or later, and Cisco UCS S3260 standalone servers support Cisco Intersight when the corresponding Cisco IMC version is 4.0(4e) or later.
Embedded system health monitoring	
System health and configuration data	Embedded fault engine, delivering consistent error reporting through IMC interfaces
System event log	Security compliance and event monitoring and filtering
Audit log	Security compliance and filtering
Technical support data export	• Quick access to configuration information, logs, and diagnostic data • Simpler and faster troubleshooting and resolution of technical problems
Watchdog timer	System crash recovery
Nonmaskable interrupt (NMI) generation	• Generation of NMI to x86 host • Creation of crash dump file • Debugging of OS crashes
RAID support	Embedded monitoring of entire RAID subsystem: RAID controller, battery backup units, SuperCap batteries, and Hard-Disk Drives (HDDs)
MAC address inventory	Inventory of all physical NIC and LOM MAC addresses
Cisco UCS VIC support	• Monitoring of Cisco UCS VIC • Ethernet and FCoE monitoring
CPU, temperature, fan, and motherboard	• Remote status and monitoring of system health • Run-time monitoring • Complete system sensor data
System memory	Inventory, specifications, and health status
Predictive failure analysis	• Memory DIMM failure prediction • Battery backup unit or SuperCap battery
Power management	
Dynamic power capping	Data center power management
Power monitoring and reporting	• Power management • Compliance reporting

Feature	Description
Network connectivity	
Single-wire connection	• Simplified connectivity when deployed in a Cisco UCS Manager domain • Support for simplified connection with Cisco UCS VIC • Converged fabric
Dedicated management port	Dedicated management port for installations requiring separate cable connection for data and management
Generic connectivity support	• Dynamic Host Configuration Protocol (DHCP) support • IPv4 support
Shared LAN-On-Motherboard (LOM) mode	• Simplified cabling • Management and data traffic over a single wire
Security	
Secure Sockets Layer (SSL)	Cryptographic security
Secure Shell (SSH)	Cryptographic network protocol for secure data communication (including key-based authentication)
Lightweight Directory Access Point (LDAP) support	Out-of-the-box Microsoft Active Directory integration (including encrypted connection)
Role-based access control (RBAC)	RBAC for separation of concerns and authorizations in data center operation
Locally stored accounts	Capability to define user accounts locally
Power-on password	Enable password requirement at power-on or reboot
Management IP whitelist	Prevents connections from being made from unspecified IP addresses
Other	
Integration with Cisco UCS Manager	Service profile management model • Scalability • Virtual machine migration
Local language support	Language support for Chinese, English, Japanese, Korean, Russian, and Spanish

Management scope

Cisco IMC provides end-to-end management of all the devices in a rack server.

Licensing

Cisco IMC is currently provided at no additional charge with Cisco UCS C-Series Rack Servers and Cisco UCS S-Series Storage Servers.

Cisco IMC is supported on all Cisco UCS C-Series Rack Servers and Cisco UCS S-Series Storage Servers

Why Cisco?

Cisco has significant experience in responding to customer requirements with solid technology innovations for the enterprise data center. Enhancing Cisco's capability to deliver standards-based solutions is a broad ecosystem of industry-leading partners that provide end-to-end customer solutions and services that can accelerate the transition to a unified data center architecture. Unified computing elevates the traditional product classification of network, server, storage, operating systems, and applications to a data center–wide vision. Cisco Unified Computing Services helps our customers quickly deploy data center resources, simplify ongoing operations, and optimize infrastructure to better meet business needs. For more information about these and other Cisco Data Center Services offerings, visit https://www.cisco.com/go/unifiedcomputingservices.

Cisco environmental sustainability

Information about Cisco's environmental sustainability policies and initiatives for our products, solutions, operations, and extended operations or supply chain is provided in the "Environment Sustainability" section of Cisco's Corporate Social Responsibility (CSR) Report.

Reference links to information about key environmental sustainability topics (mentioned in the "Environment Sustainability" section of the CSR Report) are provided in the following table:

Sustainability topic	Reference
Information on product material content laws and regulations	Materials
Information on electronic waste laws and regulations, including products, batteries, and packaging	WEEE compliance

Cisco makes the packaging data available for informational purposes only. It may not reflect the most current legal developments, and Cisco does not represent, warrant, or guarantee that it is complete, accurate, or up to date. This information is subject to change without notice.

Cisco Capital

Flexible payment solutions to help you achieve your objectives

Cisco Capital makes it easier to get the right technology to achieve your objectives, enable business transformation and help you stay competitive. We can help you reduce the total cost of ownership, conserve capital, and accelerate growth. In more than 100 countries, our flexible payment solutions can help you acquire hardware, software, services and complementary third-party equipment in easy, predictable payments. Learn more.

For more information

For additional information, see:

- [Cisco UCS Manager](#)
- [Understanding Cisco UCS Manager Service Profiles (white paper)](#)
- [Cisco UCS C-Series Rack Servers](#)
- [Cisco Unified Computing](#)
- [Cisco IMC Supervisor](#)
- [Integrating with Cisco IMC](#)
- [Cisco Intersight](#)

Footnotes

This product includes cryptographic software written by Eric Young (eay@cryptsoft.com).

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (https://www.openssl.org/)

This product includes software written by Tim Hudson (tjh@cryptsoft.com).

This product includes software developed by Yen Lim and North Dakota State University.