



Overview

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About Cisco IMC Supervisor

Cisco IMC Supervisor is a management system that allows you to manage rack-mount servers on a large scale. It allows you to create groups of rack-mount servers for monitoring and inventory purposes.

You can use Cisco IMC Supervisor to perform the following tasks:

- Logically grouping servers and viewing summary per group
- Collecting inventory for the managed servers
- Monitoring servers and groups
- Managing firmware including firmware download, upgrade, and activation
- Provide Northbound REST APIs to discover, monitor and manage servers and perform firmware upgrades programmatically.
- Managing standalone server actions including power control, LED control, log collection, KVM launch, and CIMC UI launch.
- Restricting access using Role Based Access Control (RBAC)
- Configuring email alerts
- Configuring server properties using policies and profiles
- Defining schedules to defer tasks such as firmware updates or server discovery
- Diagnosing server hardware issues using UCS Server Configuration Utility
- Cisco Smart Call Home provides proactive diagnostics, alerts, and remediation recommendations
- Managing Cisco UCS S3260 Dense Storage Rack Server

- Configuring the DNS server and other network settings through the Network Configuration policy
- Assigning physical drives to server through the Zoning policy
- Setting up multiple diagnostic images across different geographic locations
- Customizing email rules to include individual servers within a group

Minimum System Requirements

Supported Server Models

- UCS C-220 M3, M4 and M5
- UCS C-240 M3, M4 and M5
- UCS C-460 M4
- UCS C-480 M5
- UCS C-22 M3
- UCS C-24 M3
- UCS C-420 M3
- UCS E-160S M3
- UCS C3160
- UCS S3260 M3, M4 and M5
- UCS EN120E M2
- UCS EN120S M2
- UCS EN140N M2
- UCS E-140S M2
- UCS E-160D M2
- UCS E-180D M2
- UCS E-140S M1
- UCS E-140D M1
- UCS E-160D M1
- UCS E-140DP M1
- UCS E-160DP M1
- UCS E-1120D M3
- UCS E-180D M3
- ENCS 5406

- ENCS 5408
- ENCS 5412
- HX220C-M5S
- HX220C-M4
- HX240C-M5SX
- HX240C-M4
- HXAF240C-M5SX
- HXAF220C-M5S
- HXAF240C-M4SX



Important Cisco IMC Supervisor supports up to 1000 UCS C-Series and E-Series servers. For more information about scalability, see Deployment and Scalability.

Minimum Firmware Versions

Servers	Minimum Firmware Version
UCS C-series Servers	1.5(4)
UCS E-series Servers	2.3.1
UCS S3260 Servers	2.0(13e)

Supported PCIe Cards

- Cisco UCS VIC 1225
- Cisco UCS VIC 1225T
- Cisco UCS VIC 1227
- Cisco UCS VIC 1227T
- Cisco UCS VIC 1385
- Cisco UCS VIC 1387
- Cisco UCS VIC 1455
- Cisco UCS VIC 1457

Supported Hypervisor versions

- ESXi 5.1
- ESXi 5.5

- ESXi 6.0
- ESXi 6.5
- ESXi 6.7
- ESXi 7.0
- ESXi 7.0 U3
- Windows 2008 R2 with Hyper-V Role
- Windows 2012 R2 with Hyper-V Role
- Windows 2016 with Hyper-V Role

Minimum Hardware Requirements

The Cisco IMC Supervisor environment must meet at least the minimum system requirements listed in the following table.

Element	Minimum Supported Requirement
vCPU	4
Memory	12 GB
Primary Disk (Hard Disk 1)	100 GB
Secondary Disk (Hard Disk 2)	100 GB
Minimum write speed for storage	10 MB/sec

Cisco IMC Supervisor Deployment and Scalability

Configuring Inframgr properties

1. Modify the following properties and values from the `/opt/infra/inframgr/service.properties` file:
 - `threadpool.maxthreads.inventory=50`
 - `cimc.inventory.max.thread.pool.size=100`
2. Go to Shell Admin and restart the services by stopping and starting the Cisco IMC Supervisor services.

Deployment Recommendations

Cisco IMC Supervisor recommends the following based on the scale of rack servers you manage:

Element	Small Deployment (1 - 250 rack servers)	Medium Deployment (251 - 500 rack servers)	Large Deployment (501 - 1000 rack servers)
vCPUs	4	4	8

Element	Small Deployment (1 - 250 rack servers)	Medium Deployment (251 - 500 rack servers)	Large Deployment (501 - 1000 rack servers)
CPU Reservation	10000 MHz	10000 MHz	10000 MHz
Cisco IMC Supervisor VM Memory Allocation	12 GB	16 GB	20 GB
Cisco IMC Supervisor VM Memory Reservation	12 GB	16 GB	20 GB
Inframgr Memory Allocation	6 GB	8 GB	10 GB
Database InnoDB BufferPool Config	1GB	2 GB	3 GB
Disk write Speed (Direct IO)	10 MB/sec	10 MB/sec	15 MB/sec

Allocating Inframgr Memory

1. Go to `/opt/infra/bin/` and open the `inframgr.env` file using vi editor.
2. Edit the values `MEMORY_MIN` and `MEMORY_MAX`.

For example, if you are managing 1000 rack servers then `inframgr` memory allocation must be set to 10 GB. Hence, the `MEMORY_MIN` and `MEMORY_MAX` must be set to 10240m.



Note Inframgr memory allocation must be increased only if the memory allocated to the VM is increased. If not, this process may crash due to high load. Hence, increase memory for the IMCS VM using vCenter UI, reserve the whole memory, and then change this parameter.

3. Go to Shell Admin and restart the services by stopping and starting the Cisco IMC Supervisor services.

Configuring Database Buffer Pool

InnoDB buffer pool is the internal memory used by the `mariadb` process inside the Cisco IMC Supervisor VM. You must increase the memory based on the load. To modify this pool size, perform the following procedure:

1. Go to `/etc/` and open the `my.cnf` file.
2. Navigate to the `innodb_buffer_pool_size` parameter.
For example, if you are managing 1000 servers, then the value must be `innodb_buffer_pool_size=3072M`.
3. Go to Shell Admin and restart the services and database by stopping and starting the Cisco IMC Supervisor services and database.

Determining Direct Disk Input/Output Speed

1. After Cisco IMC Supervisor VM is deployed, go to the command prompt and enter the `dd if=/dev/zero of=test.img bs=4096 count=256000 oflag=direct` command. The following output for example, is displayed:

```
[root@localhost ~]# dd if=/dev/zero of=test.img bs=4096 count=256000 oflag=direct
256000+0 records in
256000+0 records out
1048576000 bytes (1.0 GB) copied, 44.0809 s, 23.8 MB/s
```



Note In the above example, 23.8 MB/s is the disk input/output speed.

Supported Firewall Ports

The list of applicable services and ports are listed in the following table.

Service	Port Number
Servers	Minimum Firmware Version
SSH Port	22
HTTP (S)	80/443
DHCP	UDP 67 & 68
Active Directory	TCP / UDP 389/636 & TCP 3268/3269
DNS	TCP/UDP 53
NTP	TCP/UDP 123
Database	3306
Cisco IMC Supervisor ↔ IMC Connectivity	TCP 80/443
Sun-RPC (Remote Procedure Call) Port used for executing NTP, FTP and other remote operations.	TCP/111
Adobe flash Socket Policy Server used by Cisco IMC Supervisor.	TCP/843
Webserver (/HTTP) port to access GUI and API in non-secure mode.	TCP/8080
Webserver (/HTTPS) port to access GUI and API in secure mode.	TCP/8443
The msgsrvr port internally connected with appliance.	TCP/8787



Note If these ports and protocols are blocked by a firewall, you may experience timeouts or internal error when you are upgrading Cisco IMC Supervisor.

Starting with Cisco IMC Supervisor Release 2.2(0.3), port 3306 is no longer an open port. Use the option in the Shell Admin console (Grant/Deny client access to Database port 3306) to decide the external clients that can connect to port 3306.

About Licenses

Cisco IMC Supervisor requires you to have the following valid licenses:

- A Cisco IMC Supervisor base license.
- A Cisco IMC Supervisor bulk endpoint enablement license that you install after the Cisco IMC Supervisor base license.
- A Cisco IMC Supervisor advanced license. You can add, edit, and delete policies and profiles with the base license but you cannot apply a policy or a profile to a server without the advanced license. An error occurs if this license is unavailable when you apply a policy.
- A default embedded Cisco IMC Supervisor evaluation license. The evaluation license is generated automatically when the end user installs Cisco IMC Supervisor and all the services start for the first time. It is applicable for 50 servers.



Important

- If you are using an evaluation license for Cisco IMC Supervisor, note that when this license expires (90 days from the date the license is generated), retrieving inventory and system health information, such as faults, will not work. You will not be able to refresh system data, or even add new accounts. At that point, you must install a perpetual license to use all features of Cisco IMC Supervisor.
- If the number of servers you have added during evaluation exceeds the number of server license purchased, inventory collection will go through fine for the servers already added during evaluation, but will prevent you from adding new servers. For example, if you have added about 100 servers during evaluation and you have purchased a 25 server license, once the evaluation license expires, you will be unable to add new servers. Also, you will be unable to perform configuration related operations without an advanced license.
- While discovering and importing servers, if the number of imported servers exceed the license utilization limit, Cisco IMC Supervisor imports servers only until the limit and displays an error for additional servers.
- Licenses for Cisco IMC Supervisor is based on the number of servers. Cisco UCS S3260 chassis is a 2-server node. As a result, in Cisco IMC Supervisor, the license utilization for this chassis is considered as 2 servers.

The process for obtaining and installing the licenses is the same. For obtaining a license, perform the following procedures:

1. Before you install Cisco IMC Supervisor, generate the Cisco IMC Supervisor license key and claim a certificate (Product Access Key).
2. Register the Product Access Key (PAK) on the Cisco software license site, as described in [Fulfilling the Product Access Key, on page 8](#).
3. After you install Cisco IMC Supervisor, update the license as described in [Updating the License](#).
4. After the license has been validated, you can start to use Cisco IMC Supervisor.

For various other licensing tasks you can perform, see [Licensing Tasks, on page 9](#).

Fulfilling the Product Access Key

Perform this procedure to register the Product Access Key (PAK) on the Cisco software license site.

Before you begin

You need the PAK number.

Procedure

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- Step 1** Navigate to the [Cisco Software License website](#).
- Step 2** If you are directed to the Product License Registration page, you can take the training or click **Continue to Product License Registration**.
- Step 3** On the Product License Registration page, click **Get New Licenses from a PAK or Token**.
- Step 4** In the **Enter a Single PAK or TOKEN to Fulfill** field, enter the PAK number.
- Step 5** Click **Fulfill Single PAK/TOKEN**.
- Step 6** Complete the additional fields in **License Information** to register your PAK:

Field	Description
Organization Name	The organization name.
Site Contact Name	The site contact name.
Street Address	The street address of the organization.
City/Town	The city or town.
State/Province	The state or province.
Zip/Postal Code	The zip code or postal code.
Country	The country name.

- Step 7** Click **Issue Key**.

The features for your license appear, and an email with the Digital License Agreement and a zipped license file is sent to the email address you provided.

Licensing Tasks

You can use the **License** menu to view the license details and the usage of resources. The following licensing procedures are available from **Administration > License** menu.

Tab	Description
License Keys	This tab displays the details of the license used in Cisco IMC Supervisor. You can also use this tab to update, replace and migrate the license. You can update the license when a new version of Cisco IMC Supervisor is available.
License Utilization	This tab shows the licenses in use and details about each license, including license limit, available quantity, status, and remarks. License audits can also be run from this page. Note Licenses for Cisco IMC Supervisor is based on the number of servers. Cisco UCS S3260 chassis is a 2-server node. As a result, in Cisco IMC Supervisor, the license utilization for this chassis is considered as 2 servers.
Resource Usage Data	This tabs displays the details of the various resources used.
Deactivated Licenses	This tab displays a list of deactivated licenses.

Support for Third Party Software

Cisco IMC Supervisor has not tested or qualified any third software to be installed or used, such as security agents, etc. Such third party software installation of any kind may negatively affect the proper functioning of the product and is done at your own risk.

