How to Install Cisco iNode Manager

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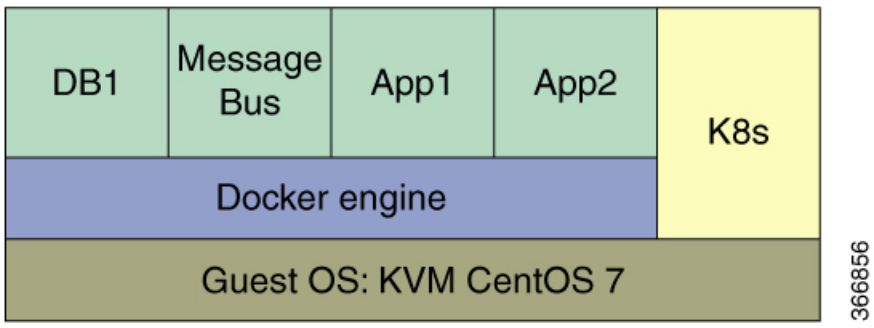
Installation Overview

The Cisco iNode Manager application is based on the next generation architecture that includes Kubernetes and Docker containers. It includes a platform that is extensible and scalable.

The Cisco iNode Manager installer is a self-contained package. The Cisco iNode Manager application installation includes a KVM-based guest OS running CentOS7 that runs Docker images orchestrated by Kubernetes.



The Cisco iNode Manager application is supported on both bare metal server with a CentOS 7 OS and VMware ESXi virtual machine (VM) with VM-in-VM configuration.

Note

- If you are using a VM, you must enable the HW virtualization.
- You must have access to the Internet for installing the Cisco iNode Manager application. If necessary, use a proxy server.

System Requirements

Note The iNode Manager requires the iNode software version to be at 2.0 or later.

Table 1: System Requirements for Cisco iNode Manager Application

Requirement	Description
Operating system	CentOS Linux 7 (core; English distributions only)
CPE OS name	cpe:/o:centos:centos:7
Kernel	Linux 3.10.0-514.6.1.el7.x86_64
Architecture	x86-64
Host version	The Cisco Crosswork Network Automation VM runs on a CentOS 7.2 host Ubuntu 14.04 LTS is also supported Nested virtualization is not supported
Memory	64 GB
Swap space	4 GB
Disk space	600 GB
CPU	4 cores (16 CPUs)
Interface	Two physical interfaces: • One interface for management traffic • One interface for data traffic
Processor speed	2.10 GHz or higher
L1 cache	32 K
L2 cache	256 K
L3 cache	30720 K

Open Ports for Cisco iNode Manager

The following table lists the open ports that Cisco iNode Manager application uses to listen for connection requests from devices. For security hardening, this table also specifies whether it is safe to disable the port without any adverse effects to the product.

Disbale the ports that are not needed and are not secure.

Table 2: Open Ports for Cisco iNode Manager

Port	Protocol	Usage	Safe to Disable?	Procedure to Disable
22	TCP	To initiate SSH connections with the server, and to copy files to the Cisco iNode Manager server using SCP or SFTP.	Depends	This might be still needed by older managed devices that only supports TFTP and not SFTP or SCP.
30604	TCP	For browser access to the Cisco iNode Manager server via HTTPS.	No	-
30629	TCP	To allow iNodes to register with iNode Manager.	No	-
8514	UDP	To receive syslog messages from network devices.	No	-
8190	TCP	To receive GCP messages from the RPD	No	-

Install the OS

Procedure

Step 1 Install Linux, such as CentOS7 on the host system or the VM.

Step 2 Log in as `root` and add a user.

```
adduser inadmin
passwd inadmin
```

Step 3 Make sure that the user is a member of the group which has the privilege to use the `sudo` command.

```
usermod -G wheel inadmin
```

Configure Network

If the system is not already configured on the network, configure the system using the following procedure.

Procedure

Step 1 Set up a static IP address on CentOS7 by using the `nmtui` command.

```
nmtui
```

Step 2 Do the following using the text-based menu system.

a) Edit a connection.
b) Change the IP address from `Automatic` to `Manual`.
c) Set the static IP addresses and Gateway according to your network.
d) Set a DNS according to your network.
e) Set the interface to automatically connect by checking the box.
f) To quit `nmtui` interface, use `OK`, `Back`, and `Quit` as needed after saving the changes.

Step 3 Reboot the system and log back in as `inadmin` to verify that the network is up.

```
reboot
```

Log in as `inadmin` rather than `root`.

Install Additional Linux Packages

Install the following additional packages using the following commands. You must have network connectivity to install these packages.

```
sudo yum install -y wget
sudo yum install -y sshpass
sudo yum clean all
```

Ping a website and verify the network connectivity.

Snapshot of Virtual Machine

Note If you are installing the application on a bare metal server, ignore this section.

If you are using a VM, power off and create a snapshot.

```
sudo poweroff
```

Use the virtualization software to take a snapshot and then power the VM back on.

Install Cisco iNode Manager

Procedure

Step 1 Download the Cisco iNode Manager release image tarball (which is about 30 GB) from Cisco Software Central.

Step 2 Unzip and untar the file into a sub directory:

```
mkdir inodemanager
tar -xvf inodemanager-v1.0.0.180911150500-k8s.tar -C inodemanager
```

Step 3 Run the installer.

```
./install.sh inodemanager
```

The installation may prompt you to enter the `sudo` password twice. At the end of the installation, the script prompts you to set the password for the `inodemanager` instance. Note the password you set here.

Note You must watch the installation and provide the `sudo` password the second time before it times out. Or the installation might fail.

The installer automatically adds a DNS entry in `/etc/hosts` to identify the new VM.

Step 4 Add routes to the VM for both management and CIN network if applicable. Then, run the `iptables.sh` and `ip6tables.sh` scripts individually for the management and CIN network as applicable.

```
./iptables.sh <HostOS_IP> <GuestOS_IP>
./ip6tables.sh  <HOST_IPv6_ADDRESS>  <GuestOS_IPv6_ADDRESS>
```

Note The IP address of the VM is displayed during the install process. To get the MAC and IP address of the VM, do the following:

MAC Address:

```
sudo virsh domiflist vmname | grep robot-br1
```

IP Address:

```
sudo virsh net-dhcp-leases robot-br1 | grep MAC
```

Access iNode Manager

Access the iNode Manager Web UI using the following URL, where the IP address is the address of the host machine or VM.

```
https://<host_machine>:30604
```

You may have to accept the validity of the system's certificate. The default login credentials are the following:

- Username: `admin`
- Password: `admin`

How to Uninstall the Cisco iNode Manager

Note Be aware that this procedure removes all of your Cisco iNode Manager data.

Procedure

Step 1 (Recommended) Back up your current data. Uninstalling the Cisco iNode Manager application will permanently delete all data on the bare metal server.

Step 2 On the bare metal server, enter the following commands to remove the VM:

```
sudo virsh destroy VM_name
sudo virsh undefine VM_name
```

Step 3 To remove the VM network, enter the following commands:

```
sudo virsh destroy VM_name
sudo virsh undefine VM_name
```