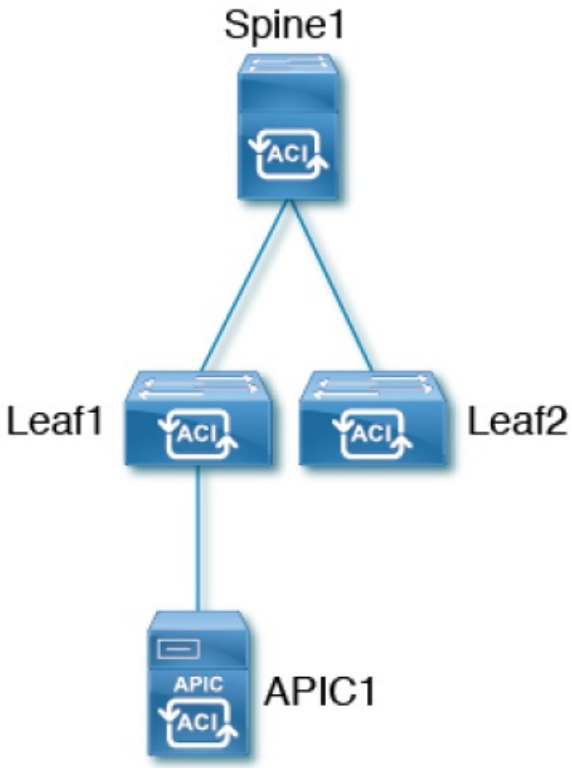
CISCO ACI Simulator VM Installation Guide

Contents

CISCO ACI Simulator VM



Product Information

- **Specifications:**
  - **Release 3.1, 3.2:**
    - **vCPU:** 8
    - **Memory:** 16 GB
    - **Storage:** 80 GB
  - **Release 4.x:**
    - **vCPU:** 12
    - **Memory:** 24 GB
    - **Storage:** 100 GB
  - **Release 5.0, 5.1:**
    - **vCPU:** 12
    - **Memory:** 64 GB
    - **Storage:** 130 GB
  - **Release 5.2, 6.0 (small topology):**
    - **vCPU:** 12 (10,000 MHz reservation)
    - **Memory:** 32 GB
    - **Storage:** 100 GB
  - **Release 5.2, 6.0 (large topology):**
    - **vCPU:** 16 (10,000 MHz reservation)
    - **Memory:** 64 GB
    - **Storage:** 100 GB

Product Usage Instructions

- **About the Cisco ACI Simulator Virtual Machine:**
  - The Cisco ACI Simulator Virtual Machine is a tool that allows you to simulate the ACI environment for testing and demonstration purposes.
  - It includes simulated switches and enables you to connect external management entities such as ESX servers, VMware vCenters, vShields, bare metal servers, Layer 4 to Layer 7 services, AAA systems, and other physical or virtual service appliances.
  - The simulator also facilitates testing by simulating faults and alerts.
- **Simulator VM Topology and Connections:**
  - The ACI Simulator VM supports both small and large topologies.
- **Small Topology:**
  - **In the small topology, the ACI Simulator VM requires the following resources:**
    - **vCPU:** 12 (10,000 MHz reservation)
    - **Memory:** 32 GB
    - **Storage:** 100 GB
- **Large Topology:**
  - **In the large topology, the ACI Simulator VM requires the following resources:**
    - **vCPU:** 16 (10,000 MHz reservation)
    - **Memory:** 64 GB
    - **Storage:** 100 GB
- **Frequently Asked Questions (FAQ):**
  - **Q:** What is the purpose of the Cisco ACI Simulator Virtual Machine?
  - **A:** The Cisco ACI Simulator Virtual Machine is used for testing and demonstration of ACI features. It allows you to simulate an ACI environment and connect various management entities and service appliances.
  - **Q:** What are the virtual machine requirements for different releases?
  - **A:** The virtual machine requirements vary depending on the release. Please refer to the specifications section for detailed information on vCPU, memory, and storage requirements for each release.
  - **Q:** Can the ACI Simulator VM validate a data path?
  - **A:** No, the ACI Simulator VM does not validate a data path as it includes simulated switches.

New and Changed Information

- The following sections provide an overview of the significant changes to the organization and features in this guide up to this current release.
- The tables do not provide an exhaustive list of all changes made to the guide or of the new features up to this release.
- If a table does not exist for a release, then all of the information from the first previous release that has a table also applies to this release.
- For example, none of the 4.1 releases have a table, and as such the information for the 4.0(1) release applies to the 4.1(1)and 4.1(2) releases, as well as to the 4.0(2) and 4.0(3) releases.
- The applicable information includes the virtual machine requirements.

Table 1: New Features and Changed Behavior in the Cisco ACI Simulator VM for Cisco APIC Release 5.2(1)

Feature or Change	Description	Where Documented
Small and large topology	You can now choose between a small or large topology.	About the Cisco ACI Simulator Virtual Machine, on Simulator VM Topology and Connections, on

Table 2: New Features and Changed Behavior in the Cisco ACI Simulator VM for Cisco APIC Release 5.0(1)

Feature or Change	Description	Where Documented
New virtual machine requirements	The virtual machine requirements are higher starting with the 5.0(1) release.	About the Cisco ACI Simulator Virtual Machine,

Table 3: New Features and Changed Behavior in the Cisco ACI Simulator VM for Cisco APIC Release 4.2(1)

Feature or Change	Description	Where Documented
Installing ACI Simulator VM	From this release onwards, you do not need a challenge key nor an activation token to install the Cisco ACI simulator virtual machine.	Installing the Cisco ACI Simulator Virtual Machine,

Table 4: New Features and Changed Behavior in the Cisco ACI Simulator VM for Cisco APIC Release 4.0(1)

Feature or Change	Description	Where Documented
Hardware resources	The hardware resource requirements were increased.	About the Cisco ACI Simulator Virtual Machine,

Table 5: New Features and Changed Behavior in the Cisco ACI Simulator VM for Cisco APIC Release 3.1(1)

Feature or Change	Description	Where Documented
Initial release	This guide was introduced.	–

Infrastructure Controller

About the Application Policy Infrastructure Controller

- The Cisco Application Centric Infrastructure (ACI) is a distributed, scalable, multitenant infrastructure with external end-point connectivity controlled and grouped through application-centric policies.
- The Application Policy Infrastructure Controller (APIC) is the unified point of automation, management, monitoring, and programmability for the ACI.
- The APIC supports the deployment, management, and monitoring of any application anywhere, with a unified operations model for the physical and virtual components of the infrastructure.
- The APIC programmatically automates network provisioning and control that is based on the application requirements and policies.

- It is the central control engine for the broader cloud network; it simplifies management and allows flexibility in how application networks are defined and automated.
- It also provides northbound Representational State Transfer (REST) APIs.
- The APIC is a distributed system that is implemented as a cluster of many controller instances.

About the Cisco ACI Simulator Virtual Machine

- The Cisco ACI Simulator intends to provide real, fully-featured Cisco Application Policy Infrastructure Controller (APIC) software, along with a simulated fabric infrastructure of leaf switches and spine switches in one virtual machine. Because the ACI
- The simulator includes Cisco APICs with real production software, you can use it to understand features, exercise APIs, and initiate integration with third-party orchestration systems and applications. The native GUI and CLI of the Cisco APIC use the same
- APIs that are published to third parties.
- The ACI Simulator includes simulated switches, so you cannot validate a data path.
- The simulator allows you to connect external management entities such as ESX servers, VMware vCenters, vShields, bare metal servers, Layer 4 to Layer 7 services, AAA systems, and other physical or virtual service appliances. In addition, the ACI Simulator allows the simulation of faults and alerts to facilitate testing and to demonstrate features.

The ACI Simulator virtual machine requirements are as follows:

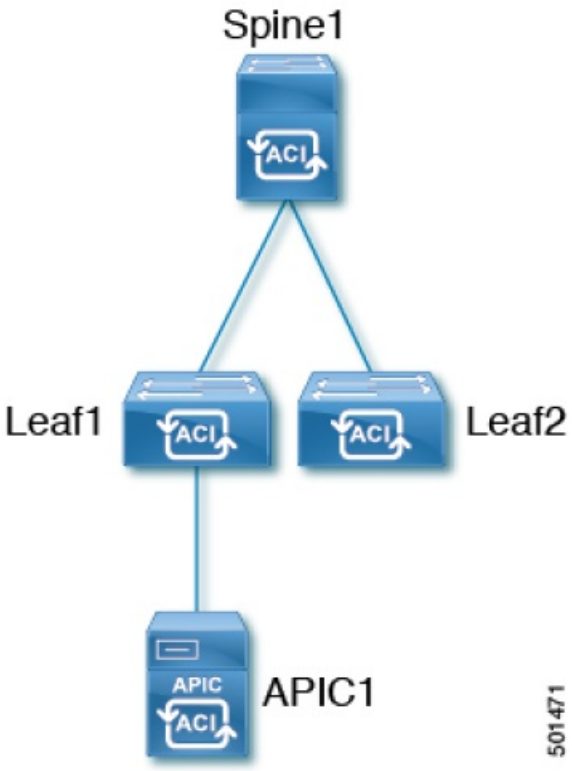
Release	vCPU	Memory	Storage
3.1, 3.2	8	16 GB	80 GB
4.x	12	24 GB	100 GB
5.0, 5.1	12	64 GB	130 GB
5.2, 6.0 (small topology)	12 (10,000 MHz reservation)	32 GB	100 GB
5.2, 6.0 (large topology)	16 (10,000 MHz reservation)	64 GB	100 GB

Simulator VM Topology and Connections

In the 5.2 release and later, you can choose a small or large topology for the ACI Simulator. Before the 5.2 release, you can use only the small topology.
The small topology contains the following components:

- One spine switch (spine1)
- Two leaf switches (leaf1, leaf2)
- One instance of Cisco APIC (apic1)

The following diagram shows the components and connections simulated within the simulator VM server:



The large topology contains the following components:

- Two spine switches (spine1, spine2)
- Two leaf switches (leaf1, leaf2)
- Three instances of Cisco APIC (apic1, apic2, apic3)

Guidelines and Limitations

Follow these guidelines and limitations:

- Only VMware vSphere is supported.
- With the ACI VM simulator, policies can be configured and deployed, but traffic between endpoints (physical or virtual) is not possible.

Installing the Cisco

Installing the Cisco ACI Simulator Virtual Machine
Procedure

- **Step 1** Download the Open Virtualization Appliance (OVA) file.
- **Step 2** Enable Promiscuous Mode and Forged Transmits on the VMware vSwitch to which the simulator is connected:
  - **a)** In the VMware vSphere Web Client, navigate to host > Configuration > Virtual Switches, and choose the switch.
  - **b)** Click the Edit icon. The vSwitch Properties dialog appears.
  - **c)** For the Promiscuous Mode drop-down list, choose Accept.
  - **d)** For the Forged Transmits drop-down list, choose Accept.

- **Step 3** Confirm that the virtual machine allocated the required CPU and memory.
- **Step 4** Power on the virtual machine. In release 4.2(1) and later, you do not need a challenge key nor an activation token.
- **Step 5** For releases before 4.2(1), open the console to the activation screen. If the Simulator virtual machines network Interfaces are attached to a port group with a DHCP server on the subnet, it will have been assigned an IP that can be used to connect remotely via SSH. If you do not have DHCP available on the relevant subnet, you will need to copy the Activation Challenge Key manually as well as enter it manually in the console session which can be tedious and leave room for typos. After the activation screen is opened, perform the following actions:
    - **a)** Open your SSH client and start a session using the provided IP address.
      b) Log in using activation and the password activation and copy the activation challenge key provided.
      c) Send the activation challenge key to your local Cisco account team.
- **Step 6** For releases before 4.2(1), after you have received the activation token information from the account team, copy and paste the token into the Enter Activation Token prompt. The simulator can take up to 30 minutes to activate depending on the VMware vSphere host's resources.
- **Step 7** Complete the first setup and accept all of the default settings except for the password, IP address netmask, and the gateway. If you change any of the settings other than the password, IP address netmask, or gateway, the installation will succeed, but the Cisco Application Policy Infrastructure Controller (APIC) will fail to discover the virtual leaf switches and spine switches.
- **Step 8** For Network Settings, enter your management IP address with the subnet and your gateway IP address.
- **Step 9** Complete the setup by providing an admin password.
- **Step 10** Review your configuration. Click y/n to edit or n to continue.
- **Step 11** After the setup process is completed, you should be able to connect to the simulator Cisco APIC GUI using the assigned management IP address.
- **Step 12** For best-effort support assistance with the Cisco ACI Simulator virtual machine, open a case here: **https://community.cisco.com/t5/application-centric/bd-p/12206936-discussions-aci**. The Simulator virtual machine is not supported through regular TAC channels.

CONTACT

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- Cisco has more than 200 offices worldwide.
- Addresses, phone numbers, and fax numbers are listed on the
- **Cisco Website at www.cisco.com/go/offices**.

- **Revised:** December 4, 2023

Documents / Resources

	**CISCO ACI Simulator VM** [pdf] Installation Guide ACI Simulator VM, ACI, Simulator VM, VM

References

- **User Manual**