

CHAPTER 2

Configuring Global System and Cloud Settings



Note

You typically perform the first two steps below as part of the post-installation set up procedures for Cisco CNAP. For more information, see the section Post-installation Set Up Procedures in *Installing Cisco Cloud Network Automation Provisioner for the Microsoft Cloud Platform, Release 1.1*.

- In the Admin Portal, configure Global Settings for the System (**only required once**).
- Start the Cisco.Network.Provisioner Windows Service, which after a new installation creates the Cloud database.
- In the Admin Portal, configure Global Settings for each Cloud.
- Restart the Cisco.Network.Provisioner Windows Service, which loads the configuration changes to Cisco CNAP service.



Note

Each time you make changes to global system or cloud settings, you must restart the Cisco.Network.Provisioner Windows Service for the updated settings to take effect.

Configuring Global Settings for the System



Note

You typically perform this step as part of the post-installation set up procedures for Cisco CNAP. For more information, see the section Post-installation Set Up Procedures in *Installing Cisco Cloud Network Automation Provisioner for the Microsoft Cloud Platform, Release 1.1*.



Caution

Every time you install Cisco CNAP, the database is recreated. To preserve your data, you should always backup your database before reinstalling Cisco CNAP.

By setting these parameters, you enable Cisco CNAP to communicate with components in the data center, such as the Cisco NSO, SPF, VMM, etc.

Before you begin configuring global settings, complete the steps in the following sections as you will need this information to complete some fields:

- [Creating the Cisco CSR 1000V Template Used by Cisco CNAP](#)
- [Creating the Citrix NetScaler VPX Template Used by Cisco CNAP](#)

Creating the Cisco CSR 1000V Template Used by Cisco CNAP

To create the Cisco CSR 1000V template:

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- Step 1** Obtain a supported Cisco CSR 1000V ISO image.
 - Step 2** Copy the ISO image into the library ISO location of the targeted VMM and refresh the library.
 - Step 3** Create a virtual machine with a blank virtual hard disk using the following configuration parameters (if not specified, the default configuration will be used):

- General hardware configuration:

- One (1) CPU



Note You can configure two (2) or four (4) CPUs. Cisco CNAP supports only one template and all Cisco CSR 1000Vs will be instantiated from the one template. See: <http://www.cisco.com/c/en/us/products/collateral/routers/cloud-services-router-1000v-series/datasheet-c78-733443.html>.

- 4 GB memory

- Hardware bus configuration:

- Virtual hard disk type is fixed and size is 8GB
- Virtual DVD driver connecting to the Cisco CSR 1000V ISO you provided

- Hardware network adapters configuration:

- Add seven (7) additional network adapters and change all eight (8) adapters' MAC addresses to static.

- Advanced hardware configuration:

- Enable high availability and set priority to **High**.
- Change CPU priority to **High**.
- Change Memory weight to **High**.

- Step 4** Boot the virtual machine and follow the prompt to create a default (blank) configuration for the Cisco CSR 1000V.
 - Step 5** Shut down the virtual machine and disconnect the ISO image from the virtual machine virtual DVD driver.
 - Step 6** In VMM, convert the virtual machine into a virtual machine template.
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Creating the Citrix NetScaler VPX Template Used by Cisco CNAP

To create the Citrix NetScaler VPX template:

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- Step 1** Download the Citrix NetScaler Virtual Appliance setup files:
 - a. In a web browser, go to <http://www.citrix.com> and click **My Citrix**.
 - b. Type your username and password.

- c. Click **Downloads**.
- d. In search downloads by Product, select **NetScaler**.
- e. Under Virtual Appliances, click **Netscaler VPX**.
- f. Copy the compressed file to your server.

Step 2 Create the template:

- a. Extract the contents of the compressed file.
- b. There is a folder for Virtual Hard Disks that contains the VHD file, which by default is named “dynamic”. You can rename it.
- c. Copy the VHD to the VMM library.
- d. Refresh the VMM library and ensure you see the new VHD.
- e. Right-click the VHD and select **Create VM Template**.
- f. Set the number of processor to two (2).
- g. Set the RAM to 2048.
- h. By default there is only one network adapter. Add one more. The first network adapter is used for management connectivity and the second one is used for the data path.
- i. Change all adapters’ (two total) MAC addresses to static.
- j. Set the VM to Highly Available.
- k. Finish the creation process.

In summary, you create a virtual machine template with the VHD file using the following configuration parameters (if not specified, the default configuration will be used):

- General hardware configuration:
 - Two (2) CPUs
 - 2 GB memory
- Hardware network adapters configuration:
 - Add one (1) additional network adapter and change all two (2) adapters’ MAC addresses to static.
- Advanced hardware configuration:
 - Enable high availability and set priority to **High**.
 - Change CPU priority to **High**.
 - Change Memory weight to **High**.

Configuring Global System Settings



Note You only need to perform this step once.

Step 1 On the Tenants list screen, click the **Global Settings** tab.

You see the Global System Settings screen, as shown in the following screen.

Figure 2-1 Global System Settings Screen

Service Management Portal | CMATERNO-DEV1 Administrator

cisco datacenter network

Tenants | Network Devices | Shared Services | Address Pool | Network Pool | **Global Settings** | About

Global Settings

System | Cloud

Settings

Group	Name	Value	Description
MSFT SPF	SPFUri	https://10.0.63.7:8090/SC2012R...	URI for the Microsoft Service P...
MSFT SPF	SPFUser	COSNA\Administrator	User Logon for the Microsoft Se...
MSFT SPF	Password	*****	Password for the Microsoft Ser...
Auto Deploy	TokenId	NjllMGQxMDQtNzJmZi00ZTRh...	Valid Smart License Token for ...
Auto Deploy	SmartLicProxy	proxy-ntp-1.cisco.com	Host Name for the Proxy Serve...

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Step 2 Move the cursor over the first row of the settings table and the row is highlighted, as shown in the following screen.

Figure 2-2 Global System Settings Screen—Row Highlighted

The screenshot shows the Service Management Portal interface. The main content area is titled 'cisco datacenter network' and has a navigation bar with tabs: Tenants, Network Devices, Shared Services, Address Pool, Network Pool, Global Settings (selected), and About. Below this is the 'Global Settings' section with sub-tabs for System and Cloud. A table of settings is displayed with the following data:

Group	Name	Value	Description
MSFT SPF	SPFUri	https://10.0.63.7:8090/SC2012R...	URI for the Microsoft Service P...
MSFT SPF	SPFUser	COSNA\Administrator	User Logon for the Microsoft Se...
MSFT SPF	Password	*****	Password for the Microsoft Ser...
Auto Deploy	TokenId	NjllMGQxMDQlNzJmZl00ZTRh...	Valid Smart License Token for ...
Auto Deploy	SmartLicProxy	proxy-ftp-1.cisco.com	Host Name for the Proxy Serve...

The first row of the table is highlighted in yellow. A search bar is located above the table with the text 'global search ...'. At the bottom of the table, there are pagination controls showing '1 2 3 4 5'.

- Step 3** Click the highlighted row.
You see a pop-up window, as shown in the following screen.

Figure 2-3 Global System Settings Screen—Parameter Pop-up Window

The screenshot shows a 'System Settings' pop-up window. It has a title bar with 'System Settings' and a close button. Below the title bar is a 'Category' section. This section contains four fields: 'Setting' with the value 'MSFT SPF', 'Name' with the value 'SPFUri', 'Value' with the value 'https://10.0.63.7:8090/SC2012R2/VMM/Microsoft.N', and 'Description' with the value 'URI for the Microsoft Service Provider Foundation'. At the bottom of the window are two buttons: 'Change' and 'Cancel'. A small vertical number '299722' is visible on the right side of the window frame.

- Step 4** You can specify or change the value for the parameter. When you are finished, click **Change**. Click **Cancel** to return to the previous screen without entering/changing any values.
- Step 5** Highlight each row in turn and specify or change the value for each parameter in the pop-up windows. When you are finished with the parameters on the first screen, click **2** at the bottom of the screen to see the next set of values.

There are four screens where you can specify/change System Global Settings. [Table 2-1](#) describes the various fields and their possible values.

Table 2-1 Global System Settings

Group	Name	Sample Values ¹	Description
MSFT SPF	SPFUri	https://{spf-server-name}:8090/SC2012/{provider-service}/{subscription-id}/Microsoft.Management.Odata.svc/	URI for the Microsoft Service Provider Foundation
MSFT SPF	SPFUser	<domain>\<user name>	User logon for the Microsoft Service Provider Foundation
MSFT SPF	Password	*****	Password for the Microsoft Service Provider Foundation
Auto Deploy	TokenID	<Token-string>	Valid Smart License Token for Cisco CRS1000V auto deployment
Auto Deploy	SmartLicProxy		Host Name for the Proxy Server Used for Smart Licensing Validation
Auto Deploy	SmartLicProxyPort		TCP Port for the Proxy Server Used for Smart Licensing Validation
Auto Deploy	PSHost	n.n.n.n	FQN/IP Address of System Center VMM Host
Auto Deploy	PSUser	<domain>\<user name>	User Logon for the Microsoft System Center VMM
Auto Deploy	PSPassword		Password for the Microsoft System Center VMM
Auto Deploy	CSRVmTemplateName	csr1000vfixeddisk	Name of the Cisco CSR 1000V VM Template. For more information, see Creating the Cisco CSR 1000V Template Used by Cisco CNAP .
Auto Deploy	NSVmTemplateName	netScaler1000vfixeddisk	Name of the Citrix NetScaler VPX VM Template. For more information, see Creating the Citrix NetScaler VPX Template Used by Cisco CNAP .
Auto Deploy	ISODestinationFolder	vmm Library on VMM management Server For example: VMMServ-er01\SEALibrary	Folder at the System Center VMM Host to hold Post deployment ISOs
Auto Deploy	CSRUser	admin	Administrator User Logon set at BOOTSTRAP of the Cisco CSR 1000V
Auto Deploy	CSRPassword	*****	Administrator Password set at BOOTSTRAP of the Cisco CSR 1000V. You can change the password when initially defining global settings. Follow good security practices to set a secure password. However once you have onboarded devices, you cannot change the password since that will cause container creation to fail.
Auto Deploy	NSUser	nsroot	Administrator User Logon at BOOTSTRAP of the Citrix NetScaler VPX
Auto Deploy	NSRPassword	*****	Administrator Password set at BOOTSTRAP of the Citrix NetScaler VPX

Table 2-1 Global System Settings

Auto Deploy	VMMgmtNetworkName	MgmtVL0046VMNetwork	VMNetwork used for management of the Cisco CSR 1000s and Citrix NetScaler VPXs. This is not the Logical Switch.
Auto Deploy	NameServer	10.0.43.10	Name Server Address for Virtual Network Devices
Auto Deploy	MgmtDomain	vmc-cosn.cisco.com	Domain name defined on the Management Network
Auto Deploy	VMConfigFileFolder	C:\CNAPTemp\	This directory must be created before creating containers; if this directory is not present, container creation will fail. Directory on the Admin Portal server where the Cisco CSR 1000V and Citrix NetScaler VPX ISOs are created before they are copied to the Microsoft SCVMM. The default is “c:\temp\”. If you change the default, ensure that you include a trailing “\” on the end of the path name.
Auto Deploy	SyslogServer	10.0.63.231	Syslog Server address for Virtual Network Devices.

1. The values shown are examples. Use values appropriate for your cloud environment.

Starting the Cisco.Network.Provisioner Windows Service



Note

You typically perform this step as part of the post-installation set up procedures for Cisco CNAP. For more information, see the section Post-installation Set Up Procedures in *Installing Cisco Cloud Network Automation Provisioner for the Microsoft Cloud Platform, Release 1.1*.

The Cisco.Network.Provisioner Windows Service is installed as part of the Cisco CNAP installation process, however it is not started automatically since the Global System settings **must** first be set.

At this point, starting the Cisco.Network.Provisioner Windows Service loads all the global settings into the Cisco CNAP backend orchestrator and creates the Cloud record(s).

Locate and start the Cisco.Network.Provisioner Windows Service.

Configuring Global Settings for Each Cloud

- Step 1** To configure the global settings for each cloud, on the Global Settings screen, click [the Cloud tab](#). You see the Global Cloud Settings screen, as shown in the following screen.

Figure 2-4 Global Cloud Settings Screen

Service Management Portal | CMATERNO-DEV1Administrator

cisco datacenter network

Tenants Network Devices Shared Services Address Pool Network Pool **Global Settings** About

Global Settings

System **Cloud**

Settings

Cloud :
COSNA-Cloud

Cloud Id	Settings	Name	Value	Description
1	MPLS VPN	PEaciL2InterfacePrimary	6	MPLS Network, Primary PE AC...
1	BGP	PEAutoSystemNumber	200	Provider Edge Autonomous Sy...
1	BGP	CEAutoSystemNumber	65001	Customer Edge Autonomous S...
1	APIC	VmmDom	cca	APIC Virtual Machine Manager ...
1	APIC	L2DomainPostfix	asr9K_I2Domain	Name used for the Layer 2 Brid...

global search ...

1 2 3

+ NEW

Step 2 Click the **Cloud:** pull-down menu to select the cloud for which you want to specify settings.



Note

The list of displayed clouds is obtained from the Microsoft System Center Service Provider Foundation Server. The clouds from the SC VMMS appear in this list. The cloud selected will be used to deploy the network services VMs, such as the Cisco CSR 1000V and Citrix NetScaler VPX. Note that there are also network attributes that are modeled as Cloud Global Settings, such as the PEAutoSystemNumber, etc. to allow different data center networks to be used per cloud.

Step 3 Move the cursor over the first row of the settings table and the row is highlighted, as shown in the following screen.

Figure 2-5 Global Cloud Settings Screen—Row Highlighted

Service Management Portal | CMATERNO-DEV1Administrator

cisco datacenter network

Tenants Network Devices Shared Services Address Pool Network Pool Global Settings About

Global Settings

System Cloud

Settings

Cloud : COSNA-Cloud

Cloud Id	Settings	Name	Value	Description
1	MPLS VPN	PEacIL2InterfacePrimary	6	MPLS Network.Primary PE AC...
1	BGP	PEAutoSystemNumber	200	Provider Edge Autonomous Sy...
1	BGP	CEAutoSystemNumber	65001	Customer Edge Autonomous S...
1	APIC	VmmDom	cca	APIC Virtual Machine Manager ...
1	APIC	L2DomainPostfix	asr9k_I2Domain	Name used for the Layer 2 Brid...

global search ...

1 2 3

+ NEW

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- Step 4** Click the highlighted row.
You see a pop-up window, as shown in the following screen.

Figure 2-6 Global Cloud Settings Screen—Parameter Pop-up Window

Cloud Settings

Category

Settings: MPLS VPN

Name: PEaciL2InterfacePrimary

Value: 6

Description: MPLS Network,Primary PE ACI L2 Attachment

Change Cancel

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- Step 5** You can specify or change the value for the parameter. When you are finished, click **Change**. Click **Cancel** to return to the previous screen without entering/changing any values.
- Step 6** Highlight each row in turn and specify or change the value for each parameter in the pop-up windows. When you are finished with the parameters on the first screen, click **2** at the bottom of the screen to see the next set of values.

There are three screens where you can specify or change Cloud Global Settings. [Table 2-2](#) describes the various fields and their possible values.

Table 2-2 Global Cloud Settings



Cloud ID	Settings	Name	Sample Values ¹	Description
1	MPLS VPN	PEaciL2InterfacePrimary	5	<p>Bundle-Ethernet or Port-channel interface on the PE connecting to the Cisco ACI Fabric.</p> <p>For the Cisco ASR 9000, the value is in the range <1-65535></p> <p>For the Cisco ASR 1000, the value is the range <1-64>.</p> <p> Note In the current Cisco CNAP release, this value is used on both PE devices. Make sure to use the same interface number when pre-provisioning the PE devices.</p>
1	BGP	PEAutoSystemNumber	200	Provider Edge Autonomous System Number.
1	BGP	CEAutoSystemNumber	65001	Customer Edge Autonomous System Number.
1	APIC	VmmDom	cca	<p>Cisco APIC Virtual Machine Manager (VMM) Domain.</p> <p>The VMM domain is located in the Cisco APIC GUI under VM Networking -> Inventory -> Microsoft.</p>
1	APIC	L2DomainPostfix	asr9k-l2domain	<p>Name used for the Layer 2 Bridge Domain in the Cisco APIC.</p> <p>In the Cisco APIC GUI, navigate to Fabric -> Access Policies -> Physical and External Domains -> External Bridge Domains and select the domain that is assigned to the VLAN pool corresponding to the Network pool defined in Cisco CNAP.</p>
1	APIC	L2extPathNode1	101	<p>Cisco ACI Leaf Node 1 ID which is part of the vPC to PE router.</p> <p>In the Cisco APIC GUI, navigate to Fabric -> Inventory -> Fabric Membership to view the node ID of all switches in the Cisco ACI fabric.</p>
1	APIC	L2extPathNode2	102	<p>Cisco ACI Leaf Node 2 ID which is part of the vPC to PE router.</p> <p>In the Cisco APIC GUI, navigate to Fabric -> Inventory -> Fabric Membership to view the node ID of all switches in the Cisco ACI fabric.</p>

Table 2-2 Global Cloud Settings

1	APIC	L2extIntPath1	vpc_n101_n102_asr9k_pe1	Policy Group name for the vPC connecting the Cisco ACI leaf pair to PE1. In the Cisco APIC GUI, navigate to Fabric -> Access Policies -> Interface Policies -> Profiles and select the interface profile corresponding to the vPC. Use the Policy Group name associated with this interface profile.
1	APIC	L2extIntPath2	vpc_n101_n102_asr9k_pe2	Policy Group name for the vPC connecting the Cisco ACI leaf pair to PE2.
1	MPLS VPN	PEacilL2InterfaceSecondary		Bundle-Ethernet or Port-channel interface on PE2 connecting to the Cisco ACI Fabric.  Note This value is not used in the current Cisco CNAP release.
1	APIC	VmmCntrl	cca-scvm	Cisco APIC Virtual Machine Manager (VMM) Controller defined under the VmmDom (VMM Domain) described above. The VMM controller name is located in the Cisco APIC GUI under VM Networking -> Inventory -> Microsoft -> <domain> -> Controllers .
1	Shared Service	SharedServiceVmNetwork	SharedSvcVMNetwork	Specify the pre-configured VM network for Shared Services with a manually-provisioned PE.
1	Shared Service	SharedServiceASAContextName	Shared-SVC-FW	Specify the pre-configured Cisco ASA context Name for Shared Services with a manually-provisioned PE.

1. The values shown are examples. Use values appropriate for your cloud environment.

Restarting the Cisco.Network.Provisioner Windows Service

At this point, restarting the Cisco.Network.Provisioner Windows Service loads the configuration changes into the Cisco CNAP backend orchestrator.

Locate and restart the Cisco.Network.Provisioner Windows Service.

