



Cisco Prime Network Services Controller Release Notes, Release 3.4.2a

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Cisco Prime Network Services Controller Release Notes

This document describes the features, limitations, and bugs for the Prime Network Services Controller, Release 3.4.2a.

Prime Network Services Controller Overview

The dynamic nature of cloud environments requires organizations to apply and enforce frequent changes to networks. These networks can consist of thousands of virtual services elements, such as firewalls, load balancers, routers, and switches. Cisco Prime Network Services Controller simplifies operations with centralized, automated multi-device and policy management for Cisco network virtual services. For the latest Prime Network Services Controller release updates and overview, see the corresponding Prime Network Services Controller [data sheet](#).

Cisco Prime Network Services Controller (Prime Network Services Controller) is the primary management element for Cisco Nexus 1000V (Nexus 1000V) Switches and Services that can enable a transparent, scalable, and automation-centric network management solution for virtualized data center and hybrid cloud environments. Nexus 1000V switches and services deliver a highly secure multitenant environment by adding virtualization intelligence to the data center network. These virtual switches are built to scale for cloud networks. Support for Virtual Extensible LAN (VXLAN) helps enable a highly scalable LAN segmentation and broader virtual machine (VM) mobility.

Prime Network Services Controller enables the centralized management of Cisco virtual services to be performed by an administrator, through its GUI, or programmatically through its XML API. Prime Network Services Controller is built on an information-model architecture in which each managed device is represented by its subcomponents (or objects), which are parametrically defined. This model-centric approach enables a flexible and simple mechanism for provisioning and securing virtualized infrastructure using Cisco VSG security services.

Prime Network Services Controller New Features and Enhancements

Prime Network Services Controller includes the following new features and enhancements:

- Support for authentication, authorization, and accounting (AAA). Prime Network Services Controller now supports authorization and accounting policies in addition to the already-supported authentication policy.
- Support for SNMP version 3 (SNMP v3).

Requirements Overview

The following topics identify the primary requirements for installing and using Prime Network Services Controller. For a complete set of requirements, see the [Cisco Prime Network Services Controller 3.4 Installation Guide](#).

System Requirements

Requirement	Description
Prime Network Services Controller Virtual Appliance	
Four virtual CPUs	1.8 GHz
Memory	4 GB RAM
Disk space	220 GB on shared NFS or SAN, configured on two disks as follows: <ul style="list-style-type: none"> • Disk 1—20 GB • Disk 2—200 GB
Management interface	One management network interface
Processor	x86 Intel or AMD server with 64-bit processor listed in the VMware compatibility matrix
Prime Network Services Controller Device Adapter	
Two virtual CPUs	1.8 GHz
Memory	2 GB RAM
Disk space	20 GB
Interfaces and Protocols	
HTTP/HTTPS	—
Lightweight Directory Access Protocol (LDAP)	—
Intel VT	
Intel Virtualization Technology (VT)	Enabled in the BIOS

Hypervisor Requirements

Prime Network Services Controller is a multi-hypervisor virtual appliance that can be deployed on VMware vSphere.

- See the [VMware Compatibility Guide](#) to confirm that VMware supports your hardware platform.

Requirement	Description
VMware	
VMware vSphere	5.1, 5.5, and 6.0 with VMware ESXi (English only) 5.0, 5.1, and 5.5 with VMware ESXi (English only)
VMware vCenter	5.1, 5.5, and 6.0 (English only) 5.0, 5.1, and 5.5 with VMware ESXi (English only)



Note

Prime Network Services Controller running as a virtual machine with version 3.4.1b and later can be hosted on VMware vSphere ESXi 6.0 hosts that are managed by VMware vCenter Server 6.0.

Web-Based GUI Client Requirements

Requirement	Description
Operating system	Either of the following: <ul style="list-style-type: none"> • Microsoft Windows • Apple Mac OS
Browser	Any of the following: <ul style="list-style-type: none"> • Google Chrome 32.0 or later (recommended) • Internet Explorer 10.0 or later • Mozilla Firefox 26.0 or later
Flash player	Adobe Flash Player plugin 11.9 or later

Firewall Ports Requiring Access

If Prime Network Services Controller is protected by a firewall, the following ports on the firewall must be open so that clients can contact Prime Network Services Controller.

Port	Description
22	TCP/SSH
80	HTTP
443	HTTPS
843	Adobe Flash

Performance and Scalability

The following table lists the performance and scalability data for Prime Network Services Controller when using VMware.

Item	Scalability Numbers
Endpoints (VSGs)	511
Hypervisors	600
Locales	256
Object groups	65536
Orgs	2048
Policies	4096
Policy sets	2048
Rules	16384
Security profiles	2048
Tenants	256
Managed VMs	6000
Users	260
Zones	8192

Hypervisor Support

The following table identifies features that differ with regard to hypervisor support in Prime Network Services Controller 3.4.23.4. Features that are not listed are supported by all hypervisors.

Feature and Device Support	VMware vSphere ESXi 5.1, 5.5, and 6.0
Feature Support	
Automatic deployment of network services	Supported
Licensing for CSR 1000V edge routers and Citrix NetScaler 1000V load balancers	Supported
VM Attribute support	Supported: <ul style="list-style-type: none"> • Cluster Name • Guest OS Full • Name • Hypervisor Name • Parent Application Name • Port Profile Name • Resource Pool • VM DNS Name • VM Name
Device Support	
For detailed information about device support, see Cisco Prime Network Services Controller Supported Devices .	
VSG	Supported

Prime Network Services Controller Upgrade Matrix

The following table lists the supported upgrade paths for Prime Network Services Controller.

Initial Version	Intermediate State(s)	Final Version
2.0.3	2.1 to 3.0.2g to 3.2.2a to 3.4.1d	3.4.2a

Initial Version	Intermediate State(s)	Final Version
2.1	3.0.2 to 3.2.2a to 3.4.1d	3.4.2a
3.0.2	3.2.2a to 3.4.1d	3.4.2a
3.2.1d	3.4.1d	3.4.2a
3.2.2b	3.4.1d	3.4.2a
3.4.1b	3.4.1d	3.4.2a
3.4.1c	3.4.1d	3.4.2a
3.4.1d	N/A	3.4.2a

Important Notes

The following topics provide important information for using Prime Network Services Controller.

Cloned Linux Virtual Machines

When Linux virtual machines are cloned, new MAC addresses are assigned. This causes a MAC address mismatch between the VM settings and the Linux Guest OS. If you encounter this situation, the following message is displayed:

```
The Guest OS either does not contain interface configuration for the VM NICs or the
interfaces are explicitly disabled.
```

For information on how to resolve the MAC address mismatch, see the [VMware Knowledge Base](#).

Editing Firewall Interfaces

We recommend that you do not edit the data interfaces of compute or edge firewalls. Changing the data interface via the Prime Network Services Controller GUI stops communication between the Cisco Nexus 1000V VEM link and the firewall, and thereby stops vPath traffic.

If you change the data interfaces of compute or edge firewalls via the Prime Network Services Controller GUI, make the appropriate configuration changes on the Cisco Nexus 1000V.

Searching with Special Characters

Searching for organization names does not work if the organization names include special characters, such as \$.

User Account Password Expiration

When adding a user account, the administrator can choose to expire the account password and select the date on which it expires. When the expiration date is reached, the account is disabled and the user cannot log in to Prime Network Services Controller until a user with administrator privileges extends the expiration date.

Workflow for Automatically Deploying Network Services

Prime Network Services Controller enables you to automatically deploy compute firewall and load balancer network services by preparing the required networks, defining organizational profiles by configuring service automation policies, and assigning the organizational profiles to the required organization in the tenant hierarchy.

The following table identifies the tasks required to configure Prime Network Services Controller for automatic network service deployment, the related documentation, and the minimum role required for each task.

Task	Related Documentation	Role Required
1. Confirm that the following prerequisites are met: <ul style="list-style-type: none"> • Prime Network Services Controller has been installed and is accessible from VMware. • In Prime Network Services Controller, VMware vCenter has been added as a VM Manager. • The Prime Network Services Controller Device Adapter has been installed and is registered with Prime Network Services Controller. 	Cisco Prime Network Services 3.4 Installation Guide	admin
2. Import service images. Supported service devices are VSG compute firewalls and Citrix NetScaler load balancers.	Importing Service Images, on page 8	admin
3. Configure Management, HA, and vPath networks and subnetworks at root.	Configuring Networks for Network Service Deployment, on page 9	admin
4. Create the policies and profiles for the network services.	Adding a Device Profile, on page 10	admin
5. Create organizational (Org) profiles and add service automation definitions to each profile.	Configuring an Org Profile for Automatic Service Deployment, on page 10	admin

Task	Related Documentation	Role Required
6. In Tenant Management, create the organization where the network services will be deployed and assign an Org profile.	Creating an Organization and Assigning an Org Profile, on page 11	admin or tenant-admin
7. Add a network to the organization to deploy the network service.	Deploying a Network Service, on page 12	tenant-admin
8. Configure additional policies and profiles as needed.	Configuring Additional Policies and Profiles for Network Services, on page 13	tenant-admin
9. Removing an automatically deployed compute firewall network service.	Deleting an Automatically Deployed Compute Firewall Service, on page 13	tenant-admin

Importing Service Images

Prime Network Services Controller enables you to import service images that you can then use to instantiate a device or service VM.

After you import an image, Prime Network Services Controller automatically places the file in the correct location and populates the Images table.

Before You Begin

Confirm that the service images are available for importing into Prime Network Services Controller.

Step 1 Choose **Resource Management > Resources > Images**.

Step 2 Click **Import Service Image**.

Step 3 In the Importing Service Image Dialog box:

- a) Enter a name and description for the image you are importing.
 - b) In the Type field, choose the type of image to import.
 - c) In the Version field, enter a version number that you want to assign to the image.
 - d) In the Import area, provide the following information, and then click **OK**:
 - Protocol to use for the import operations: FTP, SCP, or SFTP.
 - Hostname or IP address of the remote host with the images.
 - Account username and password for the remote host.
 - Absolute image path and filename, starting with a slash (/).
-

Configuring Networks for Network Service Deployment

To automatically deploy network services, you must configure the following networks with subnetworks at the root level:

- A management network—This network provides IP addresses for the automatically deployed services.
- A vPath service network—This network is required for deploying compute firewall network services.
- An HA network—This network is required for deploying compute firewall network services in HA mode.

The following guidelines apply when creating networks for automated network service deployment:

- You must use the same Distributed Virtual Switch (DVS) port group for all networks.
- The port group must be accessible from Prime Network Services Controller.

Step 1 Choose **Resource Management > Managed Resources > root**.

Step 2 In the Networks tab, click **Add**.

Step 3 To add a management network, provide the following information and click **OK**:

- a) Enter the network name and description.
- b) In the Role field, choose **Management**.
- c) In the VM Manager area, choose the VMM and the port group.

Step 4 To add an HA network to support compute firewall services in HA mode, provide the following information and click **OK**:

- a) Enter the network name and description.
- b) In the Role field, choose **HA**.
- c) In the VM Manager area, choose the VMM and the port group.

Step 5 To add a vPath service network, provide the following information and click **OK**:

- a) Enter the network name and description.
- b) In the Role field, choose **Service_Vpath**.
- c) In the VM Manager area, choose the VMM and the same port group that you chose for the management network.

Step 6 For each management and vPath network, add a subnetwork as follows:

- a) Choose the network and click **Add** in the Subnetworks area.
 - b) In the Add Subnetwork dialog box, enter the netmask, gateway, and name for the subnetwork.
 - c) In the IP Address Range area, click **Add** and enter the starting and ending IP addresses for the IP address range for the subnetwork.
 - d) Click **OK** to accept your changes.
-

Adding a Device Profile

A device profile is a set of custom security attributes and device policies. Adding a device profile enables you to specify the DNS and NTP servers that the service device is to use in addition to SNMP, syslog, and authentication policies.

For more information about device profiles, see the [Cisco Prime Network Services Controller User Guide](#) or the online help.

Step 1 Choose **Policy Management > Device Configurations > root > Device Profiles**.

Step 2 Click **Add Device Profile**.

Step 3 In the General tab in the Add Device Profile dialog box:

- a) Enter the profile name and description.
- b) If required, select the time zone.
- c) Add a DNS server and domain.
- d) Add an NTP server.
- e) For the SNMP, Syslog, and Auth policies, either use the default policy, select another existing policy, or create a new policy.
- f) In the Policy Engine Logging field, indicate whether logging is enabled or disabled.

Step 4 In the Advanced tab, specify the fault, core file, and log file policies to use for the for the Prime Network Services Controller policy agent, and then click **OK**.

NTP Behavior Post PNSC Upgrade

NTP service does not come up on the terminal when PNSC is upgraded from the previous releases to Release 3.4.1d or later. To access the NTP service, you need to re-login into the same terminal or start a new terminal.

Configuring an Org Profile for Automatic Service Deployment

A network service automation policy specifies the profiles, image, and credentials to be used when deploying a network service. Depending on the type of service, different options are available. For each Org profile, you can create a definition for each network service type: compute firewall and load balancer.

Step 1 Choose **Tenant Management > root > Profile Name > Create** and enter a name for the Org profile.

Step 2 Choose **Resource Management > Managed Resources > root > Service Deployment > Org Profile > profile** where *profile* is the profile you created in the first step.

Step 3 To enable automatic deployment of the service, check the **Enable Automation** check box.

Step 4 Click **Compute Firewall Service** or **Load Balancer Service** to deploy that service using this Org profile.

Step 5 In the Network Service dialog box, provide the information as described in the following table, and then click **OK**. Different fields are available depending on the type of service.

Note You must set the Admin state to *enable* to deploy the service.

Field	Description
Properties	
Admin State	Whether the Administrative state of the network service is enabled or disabled. You must choose enable to deploy the service.
HA Mode	(Compute firewall only) Whether the service should operate in standalone or active standby mode.
Deployment Size	(Compute firewall only) Size of the deployment: small, medium, or large. For more information, see the online help.
Enable License	(Load balancer only) Check the check box to use an existing license for the service.
Feature License	(Load balancer only) Choose the license to use for the service.
Profiles	
Device Config Profile	The device configuration profile to use for the service.
Access	
Login User	User account for administrative access.
Login Password	User password for administrative access.
Confirm Password	Confirming password entry.
VM Image Table	
<i>image</i>	Choose the service image to use to deploy the network service.

Creating an Organization and Assigning an Org Profile

After you configure the service automation policies for an Org profile, create the tenant or other organization on which you want to deploy the network service. Creating the organization includes assigning the Org profile that will be used to automatically deploy network services.

Before You Begin

Determine the level in the hierarchy where the organization that will be configured to automatically deploy network services will reside.

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- Step 1** Choose **Tenant Management > root** and navigate to the level where you want to add the organization that will deploy network services using the Org profile. For example, to assign an Org profile to a tenant, click **Create Tenant** at the root level. Similarly, to assign an Org profile at the Application level, navigate to the VDC and click **Create Application**.
- Step 2** In the Create dialog box, enter a name for the organization and, from the **Profile** drop-down list, choose the Org profile to assign to the organization.
- Step 3** Click **OK**.
-

Deploying a Network Service

After you create the organization where network services will be deployed and assign an Org profile, you can deploy the network service. To deploy the network service, create a network on the organization.

The following guidelines apply when deploying a network service:

- Only one compute firewall service can be automatically instantiated for an organization by adding a Layer 2 network with any role.
- Only one load balancer service can be automatically instantiated for an organization by adding a Layer 2 network with the role Service_LB.

Before You Begin

- For a compute firewall network service, confirm that Management and vPath networks have been configured at root.
- For a load balancer network service, confirm that a Management network has been configured at root.

-
- Step 1** Choose **Resource Management > Managed Resources > root > tenant** or **tenant > org**.
- Step 2** In the Networks tab, create the network for the service to be deployed, being sure to choose the correct role for the service.
The network service is then automatically deployed. To monitor progress, choose **Resource Management > Managed Resources > root > tenant** or **tenant > org** and click the **Network Services** tab.
- Step 3** For load balancer network services only, create a new virtual server profile and policies before adding a VIP to the automatically instantiated load balancer. For more information, see [Creating a Virtual Server Profile, on page 13](#).
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Creating a Virtual Server Profile

You can create a virtual server profile that you can then apply to virtual servers. For more information, see the [Cisco Prime Network Services Controller User Guide](#) or the online help.

-
- Step 1** Choose **Policy Management > Service Profiles > root > tenant > Load Balancer > Virtual Server Profiles**.
 - Step 2** Click **Add Virtual Server Profile**.
 - Step 3** In the Add Virtual Server Profile dialog box, enter a name and description for the profile, and then click **Add Service**.
 - Step 4** In the Add Service dialog box, enter service information in the General and Server Farm tabs.
 - Step 5** When you are done, click **OK** in the open dialog boxes.
-

Configuring Additional Policies and Profiles for Network Services

After deploying a network service, you might need to apply new policies and profiles to the network service. To apply new policies and profiles to a specific, deployed network service, create the policies and profiles at the same organizational level as the deployed service. For example, if a compute firewall network service has been deployed for a VDC, create the new policies and profiles at the VDC level.

Deleting an Automatically Deployed Compute Firewall Service

You cannot delete an automatically deployed compute firewall by deleting the network of a specific client. However, you can delete an automatically deployed compute firewall service from the Managed Resources Network Services tab in Prime Network Services Controller.



Note If you delete the vPath network from root, it will remove all compute firewalls from all tenants and subordinate organizations.

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- Step 1** Choose the organization in which the network service has been deployed (**Resource Management > Managed Resources > root > tenant > org**).
 - Step 2** Click the **Network Services** tab.
 - Step 3** Choose the automatically deployed compute firewall service and click **Delete**.
-

Using the Bug Search Tool

This topic explains how to use the Bug Search Tool to search for a specific bug or to search for all bugs in a release.

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- Step 1** Go to <http://tools.cisco.com/bugsearch>.
- Step 2** In the Log In screen, enter your registered Cisco.com username and password, and then click **Log In**. The Bug Search page opens.
- Note** If you do not have a Cisco.com username and password, you can register for them at <http://tools.cisco.com/RPF/register/register.do>.
- Step 3** To search for a specific bug, enter the bug ID in the Search For field and press **Enter**.
- Step 4** To search for bugs in the current release:
- In the Search For field, enter Cisco Prime Network Services Controller and press **Enter**. Leave the other fields empty.
 - When the search results are displayed, use the filter tools to find the types of bugs you are looking for. You can search for bugs by status, severity, modified date, and so forth.
- Tip** To export the results to a spreadsheet, click the **Export Results to Excel** link.
-

Open Bugs

The following table lists the open bugs in Prime Network Services Controller, Release 3.4.2a.

Bug ID	Description
CSCur75807	Service automation fails without an error message for new tenants if all existing management IP addresses assigned to the Layer 2 network have been used.
CSCva31672	Prime Network Services Controller VM manager loses host when removed from Cisco Nexus 1000V DVS and added back.
CSCva39184	Hypervisor TAB under VM Manager does not clean Host on removal.
CSCvc09685	PNSC: VSM role shows as standalone mode even when VSM is in primary HA mode.
CSCva74135	PNSC: Simultaneously updating the <i>org</i> and service path association results in failure.
CSCvb84497	Cleanup or modification of authorization methods on PNSC are not updated on VSG.
CSCvb85575	Evaluation of PNSC for CVE-2016-5195 (DIRTY CoW).

Bug ID	Description
CSCvc19722	VSM going to failed to apply state on deleting service node and path using PNSC.

Resolved Bugs

The following table lists the resolved bugs in Prime Network Services Controller, Release 3.4.2a.

Bug ID	Description
CSCus06535	Prime Network Services Controller 3.4 Apache multiple security vulnerabilities.
CSCus99427	Prime Network Services Controller allows arbitrary command execution through local-mgmt commands.
CSCuv95049	vNIC is left with 0.0.0.0 effective IP.
CSCuw60397	Prime Network Services Controller documentation shows not recommended and incorrect procedure for VSG.
CSCux11433	Prime Network Services Controller Hosts missing in VM managers under Resource Management.
CSCux41689	Prime Network Services Controller deploys wrong vService path to VSM port profile.
CSCux47495	Prime Network Services Controller reboot cause SYNC issue of VM details under tenant.
CSCux66636	Prime Network Services Controller Validation check must be included during Import/Export operation.
CSCuy54525	Evaluation of Cisco Virtual Network Management Center for OpenSSL March 2016.
CSCuy93196	Prime Network Services Controller not showing correct status for vCenter after the vCenter reloads.
CSCva05707	Duplicate VM are being shown on PNSC VM Managers or Visore.
CSCuz52433	Evaluation of Cisco Virtual Network Management Center for OpenSSL May 2016.
CSCvb48602	Evaluation of vnmc for Openssl September 2016.
CSCva65209	Evaluation of vnmc for NTP_April_2016 .

Related Documentation

Prime Network Services Controller

The Prime Network Services Controller documentation is available on [Cisco.com](http://www.cisco.com) at the following URL:

<http://www.cisco.com/c/en/us/support/cloud-systems-management/prime-network-services-controller/tsd-products-support-series-home.html>

Cisco Nexus 1000V Series Switch Documentation

The Cisco Nexus 1000V Series switch documentation is available on [Cisco.com](http://www.cisco.com) at the following URL:

<http://www.cisco.com/c/en/us/support/switches/nexus-1000v-switch-vmware-vsphere/tsd-products-support-series-home.html>

Cisco Prime Data Center Network Manager Documentation

The Cisco Prime Data Center Network Manager (DCNM) documentation is available on [Cisco.com](http://www.cisco.com) at the following URL:

<http://www.cisco.com/c/en/us/support/cloud-systems-management/prime-data-center-network-manager/tsd-products-support-series-home.html>

Cisco Virtual Security Gateway Documentation

The Cisco Virtual Security Gateway (VSG) documentation is available on [Cisco.com](http://www.cisco.com) at the following URL:

<http://www.cisco.com/c/en/us/support/switches/virtual-security-gateway/tsd-products-support-series-home.html>

Accessibility Features in Prime Network Services Controller

All product documents are accessible except for images, graphics, and some charts. If you would like to receive the product documentation in audio format, braille, or large print, contact accessibility@cisco.com.

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see [What's New in Cisco Product Documentation](#).

To receive new and revised Cisco technical content directly to your desktop, you can subscribe to the [What's New in Cisco Product Documentation RSS feed](#). RSS feeds are a free service.

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