



## **Configuring Multiple VPCs/VNets for VRF per Region Using Nexus Dashboard Orchestrator**

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Revised: December 8, 2023,

## New and Changed Information

The following table provides an overview of the significant changes to the organization and features in this guide from the release the guide was first published to the current release. The table does not provide an exhaustive list of all changes made to the guide.

**Table 1: Latest Updates**

Release	New Feature or Update	Where Documented
4.2(2e)	First release of this document.	--

## Summary

The definition of a specific object on Cisco Cloud Network Controller (CCNC), named Cloud Context Profile (`cloudCtxProfile`), allows you to deploy a Virtual Private Cloud (VPC) on AWS Cloud that is also known as Virtual Network (VNet) on Azure Cloud.

Before CCNC release 26.0(2), the creation of a Cloud Context Profile was done automatically, because of the association between a VRF instance and a specific Cloud region. This had two main implications:

1. The name of the `cloudCtxProfile` object was hardcoded as `VRFName-RegionName`.
2. It was only possible to deploy a single VPC (or VNet) mapped to a VRF instance in a single region.

CCNC release 26.0(2) introduces the capability of defining one or more cloud context profiles objects mapped to the same VRF instance, with the result of being able to deploy multiple VPCs (or VNet) for a given VRF instance in the same Cloud Region.



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**Note** A unique name for each tenant must now be explicitly assigned to every Cloud Context Profile defined.

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This new functionality can be configured directly on CCNC or, as discussed in this document, it is also offered on Cisco Nexus Dashboard Orchestrator (NDO) starting from release 4.2(2) for all the Multi-Cloud deployments where NDO interacts with multiple CCNC instances.

Figure 1:

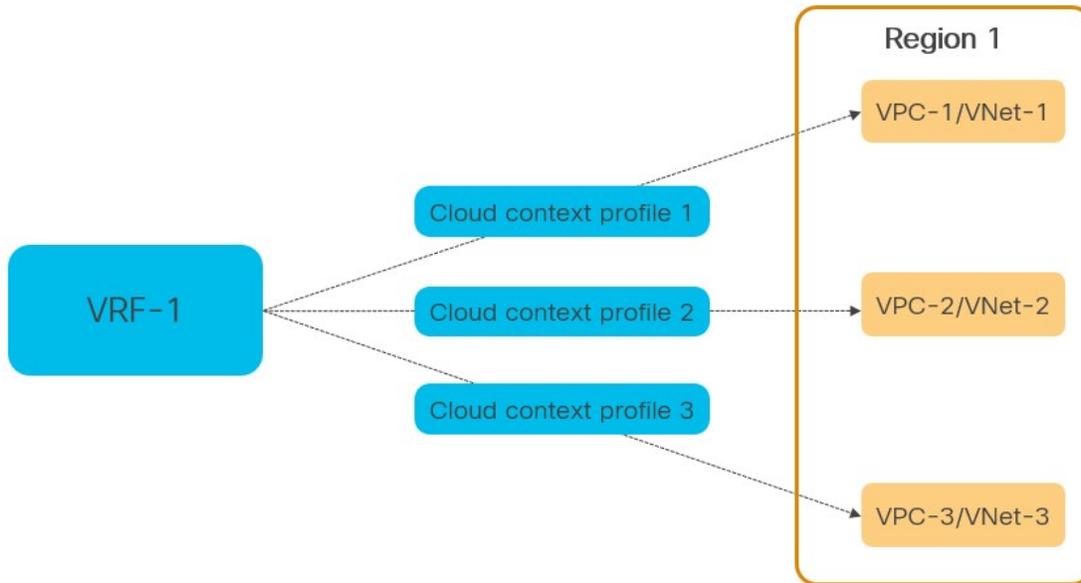


Figure 1 shows the logical mapping between VRF instance, Cloud Context Profiles, VPCs, and Region in the specific example of an AWS or Azure cloud.

## Prerequisites

Before you follow the procedures described in this document, you must complete the following basic configuration tasks:

- Deploy and have ready a Cisco Nexus Dashboard cluster.  
This is described in detail in the [Cisco Nexus Dashboard Deployment Guide](#) for your release.
- Onboard one or more cloud sites in the Cisco Nexus Dashboard.  
This is described in detail in the [Cisco Nexus Dashboard User Guide](#) for your release.
- Install and enable Cisco Nexus Dashboard Orchestrator, Release 4.2(2) or later.  
This is described in detail in the [Cisco Nexus Dashboard Orchestrator Deployment Guide](#) for your release.
- Enable the cloud sites for management in the orchestrator service and complete the basic infra configuration.  
This is described in detail in the [Cisco Nexus Dashboard Orchestrator Configuration Guide for ACI Fabrics](#) for your release.

## Creating Schema and Templates

### Before you begin

The following guidelines apply when creating the schemas and templates using the Cisco Nexus Dashboard Orchestrator:

- You must have a user with either `Power User` or `Site Manager` read/write role to create and manage tenants.

- You must have at least one available tenant that you want to incorporate into your site.

For more information, see [Cisco Nexus Dashboard Orchestrator Configuration Guide for ACI Fabrics](#).

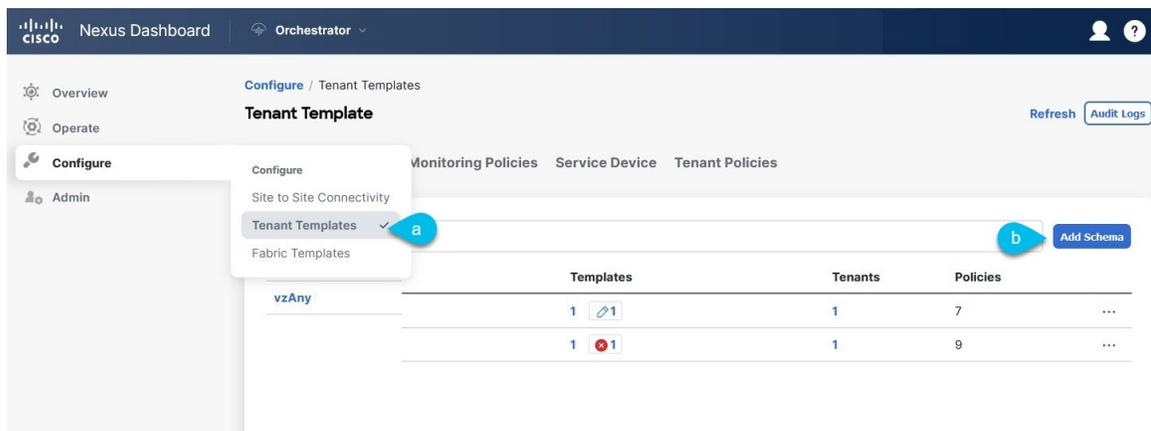
## Procedure

**Step 1** Log in to your Cisco Nexus Dashboard and open the Cisco Nexus Dashboard Orchestrator service.

**Step 2** Create a new schema:

- From the left navigation pane, choose **Configure > Tenant Templates**.
- Under the **Application** tab, click **Add Schema**.

**Figure 2:**



- In the schema creation dialog, provide the **Name** and optional description for the schema and click **Next**.  
By default, the new schema is empty, so you must add one or more templates.

**Step 3** In the schema page, click **Create New Template**.

- In the **Select a Template type** window, choose **ACI Multi-Cloud** and click **Add**.
- Click **Next** to continue adding the template details.

Figure 3:

## Add Application Template

x

**1** Select a Template type      **2** Detail      **3** Summary

**Select a Template Type**  
Let's choose the type of template you want to work with

- ACI Multi-Cloud**
  - On-prem ACI site to site
  - On-prem ACI site to cloud site
  - Cloud site to cloud site
- NDFC**
  - On-prem NDFC site to site
  - NX-OS based network
- Cloud Local**
  - Non-stretched template for cloud site local BGP-IPv4 connected site

**b** Back Next

- c) In the left sidebar, provide the **Display Name** for the template.
- d) (Optional) Provide a **Description**.
- e) From the **Select a Tenant** drop-down list, choose the tenant for this template.

**Note** The user account you are using to create a new schema must be associated with the tenant that you will add to the schema, otherwise the tenant will not be available in the drop-down list. For more information on importing the tenant, see [Cisco Nexus Dashboard Orchestrator Configuration Guide for ACI Fabrics](#).

- f) In the template view page, click **Next**.

Save the template after this initial configuration for extra options (such as site association) to become available.

Figure 4:

## Add Application Template

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Progress bar: 1 Select a Template type, 2 **Detail**, 3 Summary

**Details**

Now name the template and select a tenant

**ACI Multi-Cloud**

- On-prem ACI site to site
- On-prem ACI site to cloud site
- Cloud site to cloud site

**GENERAL**

Display Name \*  
Template 1

Deployment Mode ⓘ

Multi-Site

Autonomous

common Common tenant for use with all other tenants

dcnm-default-tn Default tenant for NDFC sites

infra Infra tenant for use with all other tenants ✓

infra

Cancel

Back Next

Callout letters: c, d, e, f

**Note** Leave the default **Deployment Mode** to the **Multi-Site** option, to stretch the template across multiple sites.

g) Click **Continue** to finish adding the template to the schema.

**Step 4** The next step is to assign the template to sites.

Deploy fabric configuration by deploying one template at a time to one or more sites. You must associate the template with at least one site where you want to deploy the configuration.

a) In the template view page, click **Actions** and choose **Add/Remove Sites**.

b) In the **Add/Remove Sites <template>** dialog, select one or more sites where you want to deploy the template and click **Ok**.

Figure 5:



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## Configuring multiple VPCs/VNets in the same VRF Instance

### Before you begin

You must have the schema and template that is created and a tenant that is assigned to the template, as described in [Creating Schema and Templates](#), on page 3.

This section describes how to create a VRF instance, associate the VRF instance to a specific Cloud region and then define multiple VPC/VNets mapped to that VRF instance.

### Procedure

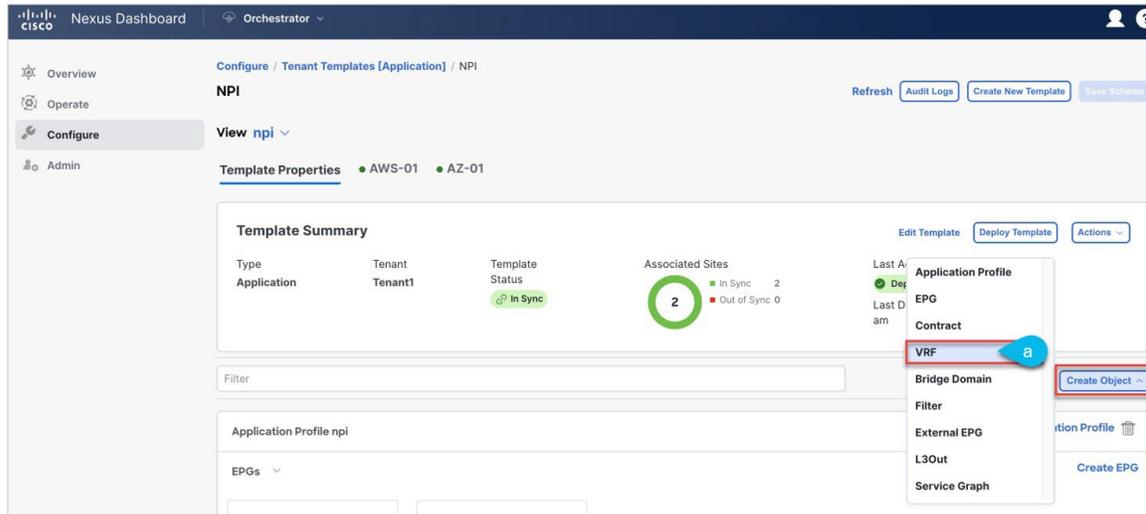
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**Step 1** Choose the schema and template where you want to create the VRF instance.

**Step 2** Create the VRF instance.

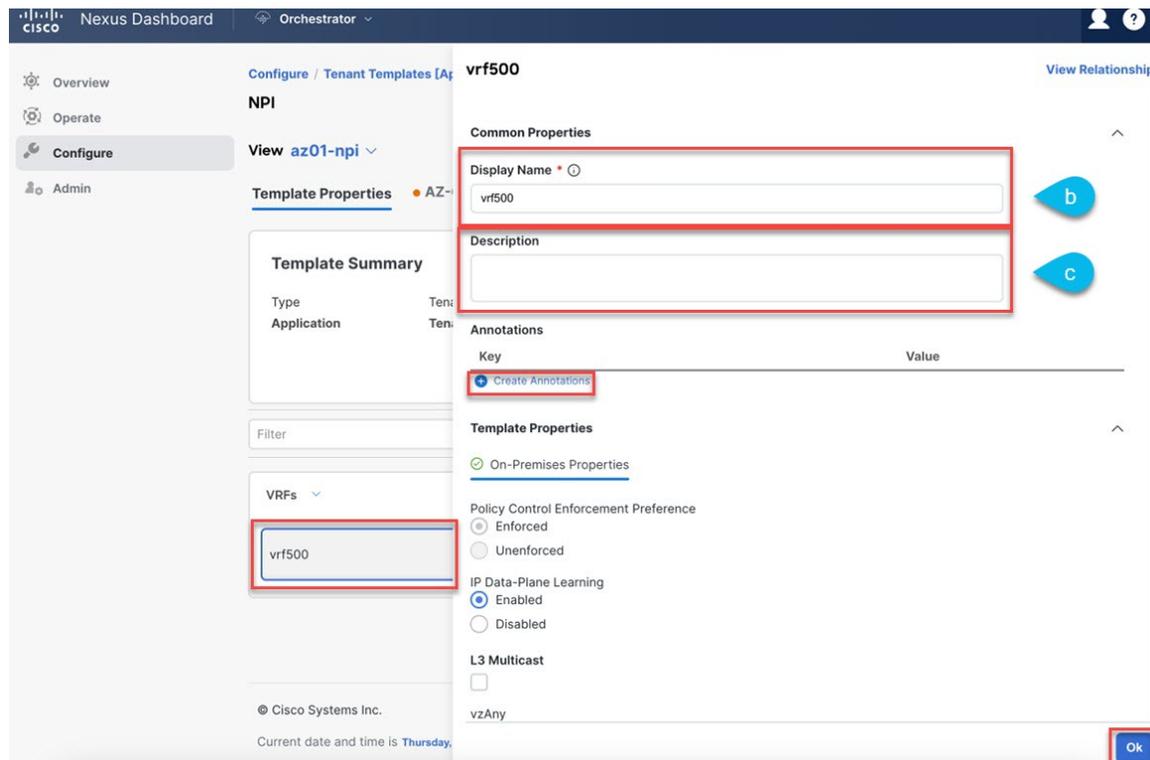
- a) In the main pane, choose **Create Object > VRF**.

Figure 6:



- b) In the properties pane, provide the **Display Name** for the VRF instance.
- c) (Optional) Provide a **Description**.

Figure 7:



**Step 3** (Optional) Add one or more **Annotations**.

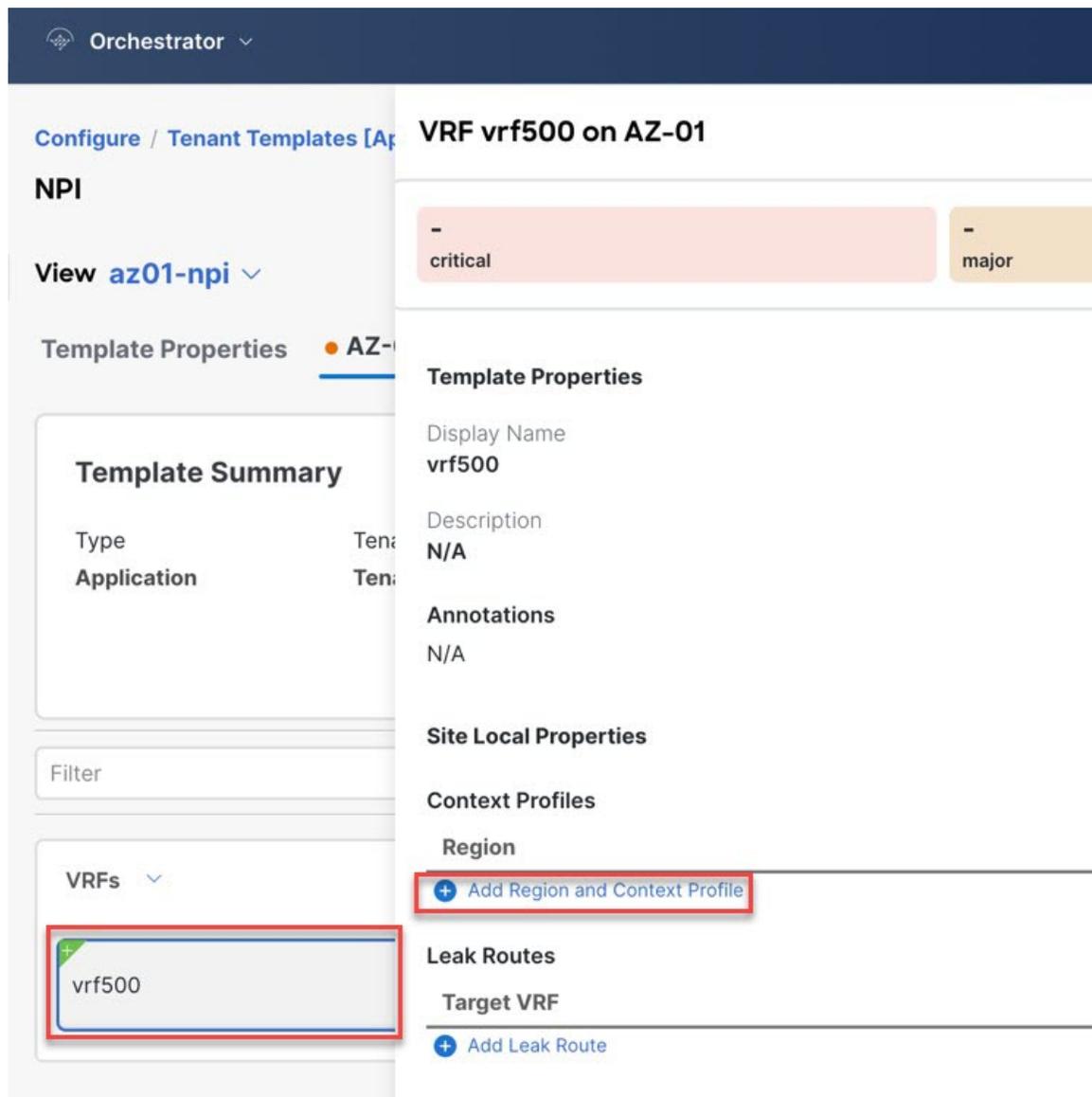
This allows you to add arbitrary `key:value` pairs of metadata to an object as annotations (`tagAnnotation`). Annotations provide any customization that you may require, such as descriptions, markers for personal scripting or API calls, or flags

for monitoring tools or orchestration applications such as your Cisco Nexus Dashboard Orchestrator. Cisco APIC ignores these annotations and merely stores them with other object data, Cisco APIC also does not impose any format nor content restrictions.

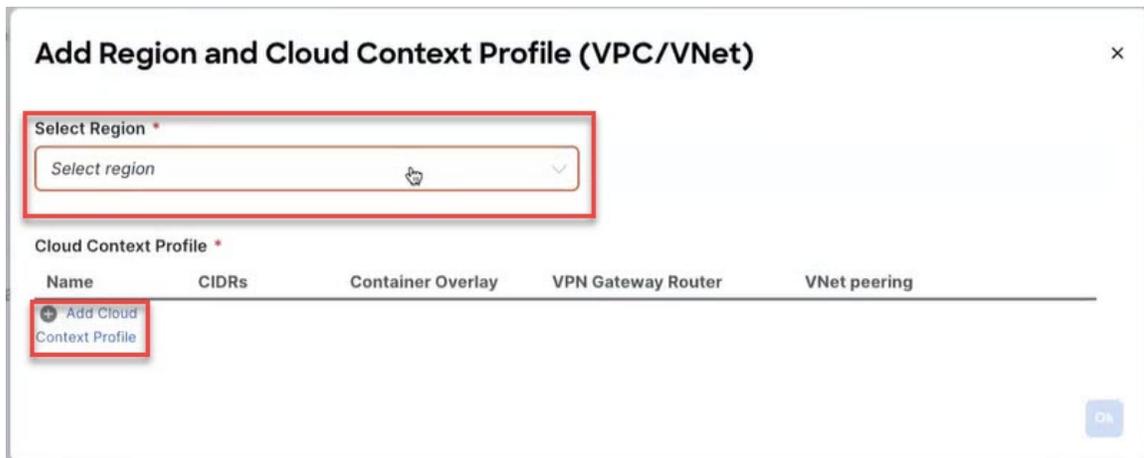
**Step 4** Select the site local template for the Azure/AWS site choose the VRF instance from the list of objects.

a) Click on the **Add Region and Cloud Context Profile**.

*Figure 8:*



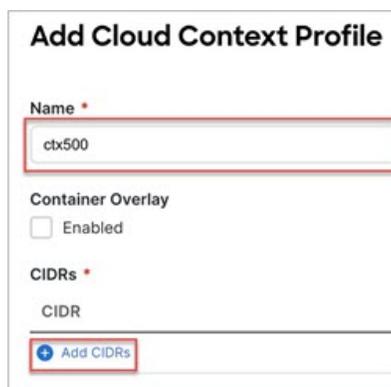
b) In the **Select Region** drop-down list, choose the region on which this VRF instance will be deployed.



c) Click on the **Add Cloud Context Profile** and enter the following information.

- **Name**—Enter the name for the cloud context profile, then click on **Add CIDRs**.

*Figure 9:*



- **CIDR**—Enter the VPC/VNET CIDR information. For example, 51.51.0.0/16.

The CIDR includes the scope of all subnets that are going to be available to a VPC/VNET.

**Note** The VNet CIDR information that you enter in this field cannot overlap with the infra pool. Verify that the CIDR information that you enter in this field does not overlap with the infra pool information that you entered in the **Infra Subnet** field in Step Deploying the Cisco Cloud Network Controller in Azure.

- **CIDR Type**—Select **Primary** or **Secondary**. If this is your first CIDR, choose **Primary** for the CIDR type.
- **Add Subnet**—Enter the subnet information, then click the check mark. For example, 51.51.1.0/24.

d) Click **Save** to exit from the window.

Figure 10:

**Add Cloud Context Profile**

Name \*

ctx500

Container Overlay

Enabled

CIDRs \*

CIDR	Type
51.51.0.0/16	Primary

Add Subnets

Subnet	Name	Hosted VRF	Private Link Labels	VGW Router
51.51.1.0/24	net1			

+ Add Subnet

Cancel Save

- e) For our example use **Add Cloud Context Profile** and follow the **Step c** and **Step d** to add more cloud context profiles to the VPC/VNet in the same region.

Figure 11:

## Add Region and Cloud Context Profile (VPC/VNet)

Select Region  
australiaeast

Cloud Context Profile \*

Name	CIDRs	Container Overlay	VPN Gateway Router	VNet peering
ctx500	51.51.0.0/16	Disabled	Disabled	Enabled

+ Add Cloud Context Profile

**Step 5** Click **Ok** to finish adding the cloud context profile to the VRF instance.

## Add Region and Cloud Context Profile (VPC/VNet)

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Select Region  
australiaeast

### Cloud Context Profile \*

Name	CIDRs	Container Overlay	VPN Gateway Router	VNet peering	
ctx500	51.51.0.0/16	Disabled	Disabled	Enabled	 
ctx600	61.61.0.0/16	Disabled	Disabled	Enabled	 

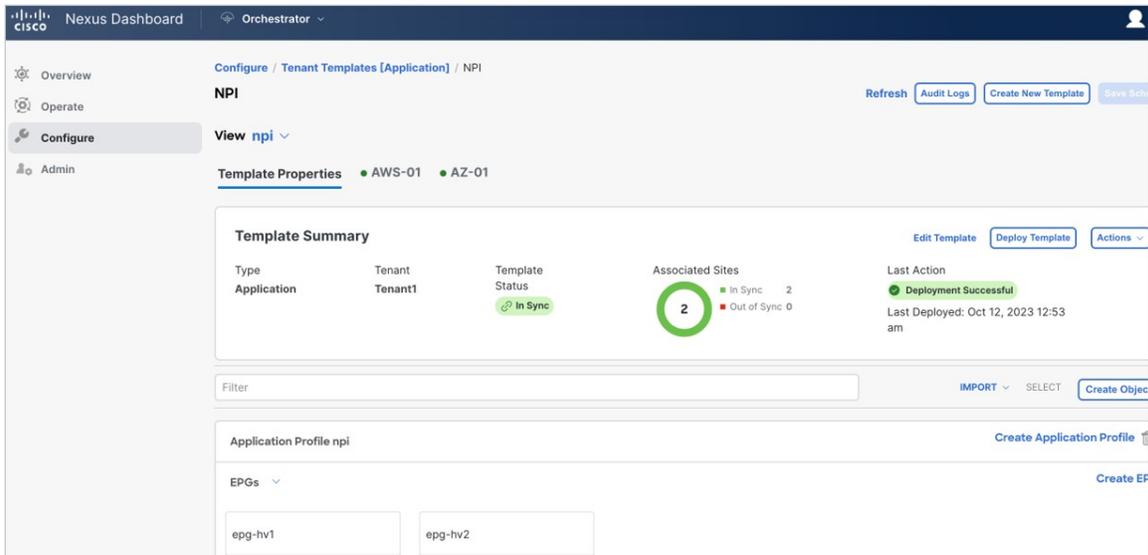
[+ Add Cloud Context Profile](#)



Figure 12:

**Step 6** Click on the **Deploy Template** button at the top-right corner of the screen to deploy the schema to the sites.

Figure 13:



The screenshot shows the Cisco Nexus Dashboard interface for configuring a Tenant Template (NPI). The page is titled "Configure / Tenant Templates [Application] / NPI". The main content area displays the "Template Properties" for the "npi" template, which is currently "In Sync". The "Associated Sites" section shows 2 sites "In Sync" and 0 sites "Out of Sync". The "Last Action" section indicates a "Deployment Successful" on Oct 12, 2023 at 12:53 am. The page includes a sidebar with navigation options (Overview, Operate, Configure, Admin) and a main content area with buttons for "Edit Template", "Deploy Template", and "Actions".

### What to do next

You should see a message saying **Deployment Successful** at this point.





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