Setting Up a Fabric Container

This chapter contains the following sections:

Fabric Application Container

The fabric application container type is used in Dynamic Fabric Automation (DFA) network deployments. Cisco Unified Fabric Automation is a multistage, switching network in which every connected device is reachable through the same number of hops. Cisco Unified Fabric Automation Organization fabric enables the use of a scale-out model for optimized growth.

Cisco UCS Director acts as an orchestration engine and is responsible for creating tenant (Layer 2 and 3) networks which will eventually be populated with virtual machine (VM) virtual network interface cards (vnics). Cisco Unified Fabric Automation essentially provides the scalable network infrastructure for those newly created networks.

Cisco Unified Fabric Automation optimizes data centers through integration. This architecture eliminates the need for overlay networks that can hinder traffic visibility and optimization and reduce scalability when physical server and virtual machine environments are integrated. The architecture enables zero-touch provisioning and greater orchestration, while delivering more predictable performance and latency for large cloud networks.

Note For more information on application containers in a DFA network, see the Cisco UCS Director Unified Fabric Automation Management Guide.

Fabric Application Container Limitations

The following is the limitation of Fabric Container:

- F5 Load Balancing is also supported on Fabric Containers.

Creating Fabric Application Container Policies

Step 1 Choose **Policies** > **Application Containers**.

Step 2 On the **Application Containers** page, click **Virtual Infrastructure Policies**.

Step 3 Click **Add Policy**.

Step 4 On the **Virtual Infrastructure Policy Specification** screen, complete the following fields:

Name	Description
Policy Name field	The name of the policy.
Policy Description field	The description of the policy.
Container Type drop-down list	Choose **Fabric** and click **Next** to confirm your selection and follow the wizard prompts. **Note** For Cisco Dynamic Fabric Automation environment, the creation of a gateway is optional.
Select Virtual Account drop-down list	The chosen virtual account (the cloud on which the gateway VM is created).

Step 5 Click **Next**.

Step 6 On the **Virtual Infrastructure Policy - Fabric Information** screen, complete the following fields:

Name	Description
With VSG check box	Check the check box for VSG support. If checked, enter the information for the **Service Network Configuration** and **Host Network Configuration**.
Fabric account drop-down list	Choose a fabric account.
Switch Type drop-down list	Choose a switch type.
Switch Name drop-down list	Choose a switch.
Alternate Switch Namedrop-down list	Choose an alternate switch name.
Service Network Configuration	

Name	Description
Layer 3 check box	This field appears only when the **With VSG** check box is checked. Check the check box for Layer 3 support. **Note** You must complete the required pre-deployment set up for Layer 3 support which includes vpath partition, and service and classifier network setup. This can be completed by creating and executing an orchestration workflow that contains the following tasks from the task library: • Create Fabric Organization (Create vPath Organization) • Create Fabric Partition (Create vPath partition) • Create Fabric Network (Create vPath classifier network) • AddHostVMKernelPortondvSwitch (Add vmknics to N1kv VEM Cluster) • Create Fabric Network (Create vPath Service Network)
Fabric Organization drop-down list	This field appears only when the **Layer 3** check box is checked. Choose the fabric organization.
Fabric Partition drop-down list	This field appears only when the **Layer 3** check box is checked. Choose the fabric partition.
Fabric Service Network field	This field appears only when the **Layer 3** check box is checked. Click **Select**, check the check box of the fabric service network that you want to use and click **Select**.
Mobility Domain Id (HA) field	This field is auto-populated when the **Auto Select Mobility Domain Id** check box is checked. If the check box is unchecked, enter a mobility domain ID.
Auto Select Mobility Domain Id check box	Check this box to select a mobility domain ID automatically.
Host Network Configuration	
Mobility Domain Id(Service Network + HA) field	This field is auto-populated when the **Auto Select Mobility Domain Id** check box is checked. If the check box is unchecked, enter a mobility domain ID. **Note** If it is Layer 2, the Mobility Domain of the service network and corresponding host network must be the same as the service network, or can be none.

Name	Description
Auto Select Mobility Domain Id check box	Check this box to select a mobility domain ID automatically.
Partition Parameters	
DCI ID field	Enter the DCI ID.
Extend the partition across the fabric check box	Check the check box to enter the partition across the fabric.
Service Node IP Address field	Enter the IP address for the service node.
DNS Server field	Enter the DNS server.
Secondary DNS Server field	Enter the secondary DNS server.
Multi Cast Group Address field	Enter the multi-cast group address.
Profile Name field	Click **Select** to view a list of available profiles. Check the check box of the profile that you want to use and click **Select**.

Step 7 Click **Next**.

Step 8 On the **Virtual Infrastructure Policy - Gateway** screen, check the **Gateway Required** check box if you want to add a gateway for the container.

Step 9 Click **Next**.

Step 10 On the **Virtual Infrastructure Policy - Fencing Load Balancing** screen, check the **F5 Load Balancer Required** check box if you want to add a load balancer for the container.

Step 11 On the **Summary** screen, view the configuration summary and click **Submit**.

Creating Fabric Application Container Template

Before you create an application container, you must create a template.

Note With this template, you can create application containers for use in various networks (including DFA Networks). Changes to the template will not affect the existing application containers created with the template.

Before you begin

Create an application container policy.

Step 1 Choose **Policies** > **Application Containers**.

Step 2 On the **Application Containers** page, click **Application Container Templates**.

Step 3 Click **Add Template**. The **Application Container Template**screen appears. Complete the following fields:

Name	Description
Template Name field	The name of the new template.
Template Description field	The description of the new template.

Step 4 Click **Next**.

Step 5 The **Application Container Template - Select a Virtual infrastructure policy** screen appears. Complete the following selection:

Name	Description
Select Virtual Infrastructure Policy drop-down list	Choose a policy (the policy created for use with your Fabric environment).

Step 6 Click **Next**.

Step 7 On the **Application Container Template - Fabric Networks** screen, click **Add (+)** to add a fabric network. Complete the following fields:

Name	Description
External Partition check box	This field appears only when the gateway is selected in the chosen virtual infrastructure policy. Check the check box to enable the host network for the ASA external partition.
Network Name field	A unique name for the network within the container. You can use a maximum of 128 characters.
Network Role drop-down list	Choose a network role.
Description field	The description of the network.
Multicast Group Address field	The multicast group address.
Profile Name field	Click **Select** to view a list of available profiles. Check the check box of the profile that you want to use and click **Select**.
Gateway IP Address field	The IP address of the default gateway for the network.
Network Mask field	The network mask (for example, 255.255.255.0).
DHCP Server Address field	The IP address of the DHCP server.
vrfdhcp field	The IP address of the VRF DHCP server.
mtuvalue field	The maximum transmission unit (MTU) value.
dhcpServerv6Address field	The IPv6 address of the DHCP server.
vrfv6dhcp field	The IPv6 address of VRF DHCP server.
Gateway IP v6Address field	The IPv6 address of gateway.

Name	Description
Prefix Length field	The prefix length used by the IPv6 address.
DHCP Scope	
DHCP Enabled check box	Check the check box to enable DHCP.
Service Configuration Parameters	
Start IP field	The starting IP address of the network.
End IP field	The ending IP address of the network.
Secondary Gateway field	The IP address of secondary gateway.

Step 8 Click **Submit**.

Step 9 Click **Next**.

Step 10 On the **Application Container Template - VMs** screen, click **Add (+)** to add a VM. The **Add Entry to Virtual Machines** screen appears. Complete the following fields:

Name	Description
VM Name field	The VM name.
Description field	The description of the VM.
Provision VM using Content Library Template check box	Check to view and choose a VM template from the content library VM templates. If unchecked, you have to choose VM template from VM image templates.
Content Library VM Template field	This field appears only when the **Provision VM using Content Library VM Template** check box is checked. Click **Select** to view a list of available VM templates. Check the check box of the template that you want to use and click **Select**.
VM Image drop-down list	This field appears only when the **Provision VM using Content Library Template** check box is unchecked. Choose the image to be deployed.
Number of Virtual CPUs drop-down list	The number of virtual CPUs to be allocated to the VM.
Memory drop-down list	The memory to be allocated (in MB).
CPU Reservation (MHz) field	The CPU reservation for the VM.
Memory Reservation (MB) field	The memory reservation for the VM.
Disk Size (GB) field	The custom disk size for the VM. To use the template disk size, specify the value of 0. The specified disk size overrides the disk size of the selected image.

Name	Description
VM Password Sharing Option drop-down list	Choose an option for how to share the VM's username and password with the end users. If **Share after password reset** or **Share template credentials** is chosen, the end user needs to specify a username and password for the chosen templates.
Use Network Configuration from Image check box	If checked, use the network configuration from the image and the configuration is applied to the provisioned VM.
VM Network Interface field	Click **Select** to view a list of available VM network interfaces. Check the check box of the VM network interface that you want to use and click **Select**.
Maximum Quantity field	The maximum number of instances that can be added in this container after it is created.
Initial Quantity field	The number of VM instances to provision when the container is created.

Step 11 Click **Next**. The **Application Container Template - Deployment Policies** screen appears.

You must select the compute, storage, network, system policy, and cost model required for VM provisioning. A policy is a group of rules that determine where and how a new VM is to be provisioned within an application container (based on the availability of system resources).

- The network policy is used only to deploy the outside interface of the virtual firewall (container gateway).

  Note If the gateway type is CISCO ASAv for the container, the network policy must first add the ASAv management interface and then the outside interface in the VM networks, in the same order.

- The selected *Portgroup in Network Policy* should be on the host on which the Gateway VM is provisioned.
- The network policy can use either a *Static IP Pool* or *DHCP*. However, for a container-type VSG or ASA the network policy should use a Static IP Pool only. The VSG or ASA VM requires IP addresses as input. There is no current provision to specify DHCP for deploying a VSG or ASA VM.
- The network adapter settings for a provisioned VM (container gateway) should be similar to the settings in the template. You may or may not have to check the *Copy Adapter from Template* check box in the network policy used for this application container.

Complete the following fields:

Name	Description
Compute Policy drop-down list	Choose a computer policy.
Storage Policy drop-down list	Choose a storage policy.
Network Policy drop-down list	Choose a network policy.
Systems Policy drop-down list	Choose a systems policy.
Cost Model drop-down list	Choose a cost model.

Step 12 Click **Next**. The **Application Container Template - Options** screen appears.

In this page, you can select options to enable or disable certain privileges for the self-service end user. Complete the following fields:

Field	Description
End User Self-Service Policy drop-down list	Choose a self-service policy for end users.
Enable Self-Service Deletion of Containers check box	Check to allow end users to delete application containers created with this template.
Enable VNC Based Console Access check box	Check to allow virtual network computing (VNC) access to VMs on the container host.
Technical Support Email Address text field	Enter a comma-separated list of email addresses. Automated notifications are sent to these emails.

Step 13 Click **Next**. The **Application Container Template - Setup Workflows** screen appears. Complete the following field:

Name	Description
Container Setup Workflow drop-down list	Choose a container setup workflow. By default, none of the workflow is selected. You can skip this step if the gateway type chosen for this container is **Linux** and the **Virtual Machine Portgroup** is selected in the network policy associated with the container. Choosing a specific workflow is required only if you chose CISCO ASA as the container gateway or **Distributed Virtual Portgroup** as the network policy. For a CISCO ASAv gateway type, choose the **Application Container with ASAv Gateway**. **Note** You must perform some prerequisite steps before you can initiate the task for creating an application container template.

Step 14 Click **Next**. The **Application Container Template - Summary**screen appears, displaying your current settings.

Step 15 Click **Submit** to complete the creation of the application container template.