



# Configuring Network-Related Policies

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## Configuring vNIC Templates

### vNIC Template

This policy defines how a vNIC on a server connects to the LAN. This policy is also referred to as a vNIC LAN connectivity policy.

You need to include this policy in a service profile for it to take effect.

### Configuring a vNIC Template

#### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope org</b> <i>org-name</i>	Enters organization mode for the specified organization. To enter the root organization mode, type / as the <i>org-name</i> .
<b>Step 2</b>	UCS-A /org # <b>create vnic-templ</b> <i>vnic-templ-name</i> [ <b>eth-if</b> <i>vlan-name</i> ] [ <b>fabric</b> { <b>a</b>   <b>b</b> }] [ <b>target</b> [ <b>adapter</b>   <b>vm</b> ]]	Creates a vNIC template and enters organization vNIC template mode.
<b>Step 3</b>	UCS-A /org/vnic-templ # <b>set descr</b> <i>description</i>	(Optional) Provides a description for the vNIC template.

	Command or Action	Purpose
<b>Step 4</b>	UCS-A /org/vnic-templ # <b>set fabric</b> {a   b}	(Optional) Specifies the fabric to use for the vNIC. If you did not specify the fabric when creating the vNIC template in Step 2, then you have the option to specify it with this command.
<b>Step 5</b>	UCS-A /org/vnic-templ # <b>set mac-pool</b> <i>mac-pool-name</i>	Specifies the MAC pool to use for the vNIC.
<b>Step 6</b>	UCS-A /org/vnic-templ # <b>set nw-control-policy</b> <i>policy-name</i>	Specifies the network control policy to use for the vNIC.
<b>Step 7</b>	UCS-A /org/vnic-templ # <b>set pin-group</b> <i>group-name</i>	Specifies the LAN pin group to use for the vNIC.
<b>Step 8</b>	UCS-A /org/vnic-templ # <b>set qos-policy</b> <i>policy-name</i>	Specifies the QoS policy to use for the vNIC.
<b>Step 9</b>	UCS-A /org/vnic-templ # <b>set stats-policy</b> <i>policy-name</i>	Specifies the server and server component statistics threshold policy to use for the vNIC.
<b>Step 10</b>	UCS-A /org/vnic-templ # <b>set type</b> { <b>initial-template</b>   <b>updating-template</b> }	Specifies the vNIC template update type. If you do not want vNIC instances created from this template to be automatically updated when the template is updated, use the <b>initial-template</b> keyword; otherwise, use the <b>updating-template</b> keyword to ensure that all vNIC instance are updated when the vNIC template is updated.
<b>Step 11</b>	UCS-A /org/vnic-templ # <b>commit-buffer</b>	Commits the transaction to the system configuration.

The following example configures a vNIC template and commits the transaction:

```
UCS-A# scope org /
UCS-A /org* # create vnic template VnicTempFoo
UCS-A /org/vnic-templ* # set descr "This is a vNIC template example."
UCS-A /org/vnic-templ* # set fabric a
UCS-A /org/vnic-templ* # set mac-pool pool137
UCS-A /org/vnic-templ* # set nw-control-policy ncp5
UCS-A /org/vnic-templ* # set pin-group PinGroup54
UCS-A /org/vnic-templ* # set stats-policy ServStatsPolicy
UCS-A /org/vnic-templ* # set type updating-template
UCS-A /org/vnic-templ* # commit-buffer
UCS-A /org/vnic-templ #
```

## Deleting a vNIC Template

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope org</b> <i>org-name</i>	Enters organization mode for the specified organization. To enter the root organization mode, type / as the <i>org-name</i> .
<b>Step 2</b>	UCS-A /org # <b>delete vnic-templ</b> <i>vnic-templ-name</i>	Deletes the specified vNIC template.
<b>Step 3</b>	UCS-A /org # <b>commit-buffer</b>	Commits the transaction to the system configuration.

The following example deletes the vNIC template named VnicTempFoo and commits the transaction:

```
UCS-A# scope org /
UCS-A /org* # delete vnic template VnicTempFoo
UCS-A /org* # commit-buffer
UCS-A /org #
```

## Configuring Ethernet Adapter Policies

### Ethernet and Fibre Channel Adapter Policies

These policies govern the host-side behavior of the adapter, including how the adapter handles traffic. For example, you can use these policies to change default settings for the following:

- Queues
- Interrupt handling
- Performance enhancement
- RSS hash
- Failover in an cluster configuration with two fabric interconnects

By default, Cisco UCS provides a set of Ethernet adapter policies and Fibre Channel adapter policies. These policies include the recommended settings for each supported server operating system. Operating systems are sensitive to the settings in these policies. Storage vendors typically require non-default adapter settings. You can find the details of these required settings on the support list provided by those vendors.

**Note**

For Fibre Channel adapter policies, the values displayed by Cisco UCS Manager may not match those displayed by applications such as QLogic SANsurfer. For example, the following values may result in an apparent mismatch between SANsurfer and Cisco UCS Manager:

- Max LUNs Per Target—SANsurfer has a maximum of 256 LUNs and does not display more than that number. Cisco UCS Manager supports a higher maximum number of LUNs.
- Link Down Timeout—In SANsurfer, you configure the timeout threshold for link down in seconds. In Cisco UCS Manager, you configure this value in milliseconds. Therefore, a value of 5500 ms in Cisco UCS Manager displays as 5s in SANsurfer.
- Max Data Field Size—SANsurfer has allowed values of 512, 1024, and 2048. Cisco UCS Manager allows you to set values of any size. Therefore, a value of 900 in Cisco UCS Manager displays as 512 in SANsurfer.

## Configuring an Ethernet Adapter Policy

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope org</b> <i>org-name</i>	Enters organization mode for the specified organization. To enter the root organization mode, type / as the <i>org-name</i> .
<b>Step 2</b>	UCS-A /org # <b>create eth-policy</b> <i>policy-name</i>	Creates the specified Ethernet adapter policy and enters organization Ethernet profile mode.
<b>Step 3</b>	UCS-A /org/eth-policy # <b>set comp-queue count</b> <i>count</i>	(Optional) Configures the Ethernet completion queue profile.
<b>Step 4</b>	UCS-A /org/eth-policy # <b>set descr</b> <i>description</i>	(Optional) Provides a description for the policy.  <b>Note</b> If your description includes spaces, special characters, or punctuation, you must begin and end your description with quotation marks. The quotation marks will not appear in the description field of any <b>show</b> command output.
<b>Step 5</b>	UCS-A /org/eth-policy # <b>set ext-ipv6-rss-hash</b> { <b>ip-hash</b> { <b>disabled</b>   <b>enabled</b> }   <b>tcp-hash</b> { <b>disabled</b>   <b>enabled</b> }}	(Optional) Configures the external IPv6 RSS hash profile.
<b>Step 6</b>	UCS-A /org/eth-policy # <b>set failover timeout</b> <i>timeout-sec</i>	(Optional) Configures the Ethernet failover profile.

	Command or Action	Purpose
<b>Step 7</b>	UCS-A /org/eth-policy # set interrupt {coalescing-time sec   coalescing-type {idle   min}   count count}	(Optional) Configures the Ethernet interrupt profile.
<b>Step 8</b>	UCS-A /org/eth-policy # set ipv4-rss-hash {ip-hash {disabled   enabled}   tcp-hash {disabled   enabled}}	(Optional) Configures the IPv4 RSS hash profile.
<b>Step 9</b>	UCS-A /org/eth-policy # set ipv6-rss-hash {ip-hash {disabled   enabled}   tcp-hash {disabled   enabled}}	(Optional) Configures the IPv6 RSS hash profile.
<b>Step 10</b>	UCS-A /org/eth-policy # set offload {large-receive   tcp-rx-checksum   tcp-segment   tcp-tx-checksum} {disabled   enabled}	(Optional) Configures the Ethernet offload profile.
<b>Step 11</b>	UCS-A /org/eth-policy # set recv-queue {count count   ring-size size-num}	(Optional) Configures the Ethernet receive queue profile.
<b>Step 12</b>	UCS-A /org/eth-policy # set rss receivesidescaling {disabled   enabled}	(Optional) Configures the RSS profile.
<b>Step 13</b>	UCS-A /org/rth-profile # set work-queue {count count   ring-size size-num}	(Optional) Configures the Ethernet work queue profile.
<b>Step 14</b>	UCS-A /org/eth-policy # commit-buffer	Commits the transaction to the system configuration.

The following example configures an Ethernet adapter policy:

```
UCS-A# scope org /
UCS-A /org* # create eth-policy EthPolicy19
UCS-A /org/eth-policy* # set comp-queue count 16
UCS-A /org/eth-policy* # set descr "This is an Ethernet adapter policy example."
UCS-A /org/eth-policy* # set ext-ipv6-rss-hash ip-hash disabled
UCS-A /org/eth-policy* # set failover timeout 300
UCS-A /org/eth-policy* # set interrupt count 64
UCS-A /org/eth-policy* # set ipv4-rss-hash ip-hash disabled
UCS-A /org/eth-policy* # set ipv6-rss-hash ip-hash disabled
UCS-A /org/eth-policy* # set offload large-receive disabled
UCS-A /org/eth-policy* # set recv-queue count 32
UCS-A /org/eth-policy* # set rss receivesidescaling enabled
UCS-A /org/eth-policy* # set work-queue
UCS-A /org/eth-policy* # commit-buffer
UCS-A /org/eth-policy #
```

## Deleting an Ethernet Adapter Policy

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope org</b> <i>org-name</i>	Enters organization mode for the specified organization. To enter the root organization mode, type / as the <i>org-name</i> .
<b>Step 2</b>	UCS-A /org # <b>delete eth-policy</b> <i>policy-name</i>	Deletes the specified Ethernet adapter policy.
<b>Step 3</b>	UCS-A /org # <b>commit-buffer</b>	Commits the transaction to the system configuration.

The following example deletes the Ethernet adapter policy named EthPolicy19:

```
UCS-A# scope org /
UCS-A /org* # delete eth-policy EthPolicy19
UCS-A /org* # commit-buffer
UCS-A /org #
```

## Configuring Network Control Policies

### Network Control Policy

This policy configures the network control settings for the Cisco UCS instance, including the following:

- Whether the Cisco Discovery Protocol (CDP) is enabled or disabled
- How the VIF behaves if no uplink port is available in end-host mode

### Configuring a Network Control Policy

#### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope org</b> /	Enters the root organization mode.
<b>Step 2</b>	UCS-A /org # <b>create nwctrl-policy</b> <i>policy-name</i>	Creates a network control policy with the specified policy name, and enters organization network control policy mode.
<b>Step 3</b>	UCS-A /org/nwctrl-policy # { <b>disable</b>   <b>enable</b> } <b>cdp</b>	Disables or enables Cisco Discovery Protocol (CDP).
<b>Step 4</b>	UCS-A /org/nwctrl-policy # <b>set uplink-fail-action</b> { <b>link-down</b>   <b>warning</b> }	Specifies the action to be taken when no uplink port is available in end-host mode.

	Command or Action	Purpose
		Use the <b>link-down</b> keyword to change the operational state of a vNIC to down when uplink connectivity is lost on the fabric interconnect, and facilitate fabric failover for vNICs. Use the <b>warning</b> keyword to maintain server-to-server connectivity even when no uplink port is available, and disable fabric failover when uplink connectivity is lost on the fabric interconnect. The default uplink failure action is link-down.
<b>Step 5</b>	UCS-A /org/nwctrl-policy # <b>commit-buffer</b>	Commits the transaction to the system configuration.

The following example creates a network control policy named ncp5, enables CDP, sets the uplink fail action to link-down, and commits the transaction:

```
UCS-A# scope org /
UCS-A /org # create nwctrl-policy ncp5
UCS-A /org/nwctrl-policy* # enable cdp
UCS-A /org/nwctrl-policy* # set uplink-fail-action link-down
UCS-A /org/nwctrl-policy* # commit-buffer
UCS-A /org/nwctrl-policy #
```

## Deleting a Network Control Policy

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope org /</b>	Enters the root organization mode.
<b>Step 2</b>	UCS-A /org # <b>delete nwctrl-policy</b> <i>policy-name</i>	Deletes the specified network control policy.
<b>Step 3</b>	UCS-A /org # <b>commit-buffer</b>	Commits the transaction to the system configuration.

The following example deletes the network control policy named ncp5:

```
UCS-A# scope org /
UCS-A /org # delete nwctrl-policy ncp5
UCS-A /org* # commit-buffer
UCS-A /org #
```

