



Configuring System-Related Policies

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Configuring the Chassis/FEX Discovery Policy

Chassis/FEX Discovery Policy

The chassis/FEX discovery policy determines how the system reacts when you add a new chassis or FEX. Cisco UCS Manager uses the settings in the chassis/FEX discovery policy to determine the minimum threshold for the number of links between the chassis or FEX and the fabric interconnect and whether to group links from the IOM to the fabric interconnect in a fabric port channel.

Chassis Links

If you have a Cisco UCS domain that has some of the chassis wired with 1 link, some with 2 links, some with 4 links, and some with 8 links we recommend that you configure the chassis/FEX discovery policy for the minimum number links in the domain so that Cisco UCS Manager can discover all chassis.



Tip

If you want to establish highest available chassis connectivity in a Cisco UCS domain where Fabric Interconnect is connected to different types of IO Modules supporting different max number of uplinks, select platform max value. Setting platform max would ensure that Cisco UCS Manager would discover the chassis including the connections and servers only when maximum supported IOM uplinks are connected per IO Module.

After the initial discovery, you must reacknowledge the chassis that are wired for a greater number of links and Cisco UCS Manager configures the chassis to use all available links.

Cisco UCS Manager cannot discover any chassis that is wired for fewer links than are configured in the chassis/FEX discovery policy. For example, if the chassis/FEX discovery policy is configured for 4 links, Cisco UCS Manager cannot discover any chassis that is wired for 1 link or 2 links. Reacknowledgement of the chassis resolves this issue.

The following table provides an overview of how the chassis/FEX discovery policy works in a multi-chassis Cisco UCS domain:

Table 1: Chassis/FEX Discovery Policy and Chassis Links

Number of Links Wired for the Chassis	1-Link Discovery Policy	2-Link Discovery Policy	4-Link Discovery Policy	8-Link Discovery Policy	Platform-Max Discovery Policy
1 link between IOM and fabric interconnects	Chassis is discovered by Cisco UCS Manager and added to the Cisco UCS domain as a chassis wired with 1 link.	Chassis connections and servers cannot be discovered by Cisco UCS Manager and are not added to the Cisco UCS domain.	Chassis connections and servers cannot be discovered by Cisco UCS Manager and are not added to the Cisco UCS domain.	Chassis connections and servers cannot be discovered by Cisco UCS Manager and are not added to the Cisco UCS domain.	Chassis connections and servers cannot be discovered by Cisco UCS Manager and are not added to the Cisco UCS domain.
2 links between IOM and fabric interconnects	Chassis is discovered by Cisco UCS Manager and added to the Cisco UCS domain as a chassis wired with 1 link. After initial discovery, reacknowledge the chassis and Cisco UCS Manager recognizes and uses the additional links.	Chassis is discovered by Cisco UCS Manager and added to the Cisco UCS domain as a chassis wired with 2 link.	Chassis connections and servers cannot be discovered by Cisco UCS Manager and are not added to the Cisco UCS domain.	Chassis connections and servers cannot be discovered by Cisco UCS Manager and are not added to the Cisco UCS domain.	Chassis connections and servers cannot be discovered by Cisco UCS Manager and are not added to the Cisco UCS domain.

Number of Links Wired for the Chassis	1-Link Discovery Policy	2-Link Discovery Policy	4-Link Discovery Policy	8-Link Discovery Policy	Platform-Max Discovery Policy
4 links between IOM and fabric interconnects	Chassis is discovered by Cisco UCS Manager and added to the Cisco UCS domain as a chassis wired with 1 link. After initial discovery, reacknowledge the chassis and Cisco UCS Manager recognizes and uses the additional links.	Chassis is discovered by Cisco UCS Manager and added to the Cisco UCS domain as a chassis wired with 2 links. After initial discovery, reacknowledge the chassis and Cisco UCS Manager recognizes and uses the additional links.	Chassis is discovered by Cisco UCS Manager and added to the Cisco UCS domain as a chassis wired with 4 link.	Chassis connections and servers cannot be discovered by Cisco UCS Manager and are not added to the Cisco UCS domain.	If the IOM has 4 links, the chassis is discovered by Cisco UCS Manager and added to the Cisco UCS domain as a chassis wired with 4 links. If the IOM has 8 links, the chassis is not fully discovered by Cisco UCS Manager.
8 links between IOM and fabric interconnects	Chassis is discovered by Cisco UCS Manager and added to the Cisco UCS domain as a chassis wired with 1 link. After initial discovery, reacknowledge the chassis and Cisco UCS Manager recognizes and uses the additional links.	Chassis is discovered by Cisco UCS Manager and added to the Cisco UCS domain as a chassis wired with 2 links. After initial discovery, reacknowledge the chassis and Cisco UCS Manager recognizes and uses the additional links.	Chassis is discovered by Cisco UCS Manager and added to the Cisco UCS domain as a chassis wired with 4 links. After initial discovery, reacknowledge the chassis and Cisco UCS Manager recognizes and uses the additional links.	Chassis is discovered by Cisco UCS Manager and added to the Cisco UCS domain as a chassis wired with 8 links.	Chassis is discovered by Cisco UCS Manager and added to the Cisco UCS domain as a chassis wired with 8 links.

Link Grouping

For hardware configurations that support fabric port channels, link grouping determines whether all of the links from the IOM to the fabric interconnect are grouped into a fabric port channel during chassis discovery. If the link grouping preference is set to port channel, all of the links from the IOM to the fabric interconnect

are grouped in a fabric port channel. If set to no group, links from the IOM to the fabric interconnect are not grouped in a fabric port channel.

Once a fabric port channel is created, links can be added or removed by changing the link group preference and reacknowledging the chassis, or by enabling or disabling the chassis from the port channel.

**Note**

The link grouping preference only takes effect if both sides of the links between an IOM or FEX and the fabric interconnect support fabric port channels. If one side of the links does not support fabric port channels, this preference is ignored and the links are not grouped in a port channel.

Configuring the Chassis/FEX Discovery Policy

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope org /	Enters the root organization mode. Note The chassis/FEX discovery policy can be accessed only from the root organization.
Step 2	UCS-A /org # scope chassis-disc-policy	Enters organization chassis/FEX discovery policy mode.
Step 3	UCS-A /org/chassis-disc-policy # set action {1-link 2-link 4-link 8-link platform-max}	Specifies the minimum threshold for the number of links between the chassis or FEX and the fabric interconnect.
Step 4	UCS-A /org/chassis-disc-policy # set descr description	(Optional) Provides a description for the chassis/FEX discovery policy. Note 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 show command output.
Step 5	UCS-A /org/chassis-disc-policy # set link-aggregation-pref {none port-channel}	Specifies whether the links from the IOMs or FEXes to the fabric interconnects are grouped in a port channel. Note The link grouping preference only takes effect if both sides of the links between an IOM or FEX and the fabric interconnect support fabric port channels. If one side of the links does not support fabric port channels, this preference is ignored and the links are not grouped in a port channel.
Step 6	UCS-A /org/chassis-disc-policy # set qualifier qualifier	(Optional) Uses the specified server pool policy qualifications to associate this policy with a server pool.

	Command or Action	Purpose
Step 7	UCS-A /org/chassis-disc-policy # commit-buffer	Commits the transaction to the system configuration.

The following example scopes to the default chassis/FEX discovery policy, sets it to discover chassis with four links to a fabric interconnect, provides a description for the policy, specifies the server pool policy qualifications that will be used to qualify the chassis, and commits the transaction:

```
UCS-A# scope org /
UCS-A /org # scope chassis-disc-policy
UCS-A /org/chassis-disc-policy* # set action 4-link
UCS-A /org/chassis-disc-policy* # set descr "This is an example chassis/FEX discovery
policy."
UCS-A /org/chassis-disc-policy* # set qualifier ExampleQual
UCS-A /org/chassis-disc-policy* # commit-buffer
UCS-A /org/chassis-disc-policy #
```

The following example scopes to the default chassis/FEX discovery policy, sets it to discover chassis with eight links to a fabric interconnect, provides a description for the policy, sets the link grouping preference to port channel, specifies the server pool policy qualifications that will be used to qualify the chassis, and commits the transaction:

```
UCS-A# scope org /
UCS-A /org # scope chassis-disc-policy
UCS-A /org/chassis-disc-policy* # set action 8-link
UCS-A /org/chassis-disc-policy* # set descr "This is an example chassis/FEX discovery
policy."
UCS-A /org/chassis-disc-policy* # set link-aggregation-pref port-channel
UCS-A /org/chassis-disc-policy* # set qualifier ExampleQual
UCS-A /org/chassis-disc-policy* # commit-buffer
UCS-A /org/chassis-disc-policy #
```

What to Do Next

To customize fabric port channel connectivity for a specific chassis, configure the chassis connectivity policy.

Configuring the Chassis Connectivity Policy

Chassis Connectivity Policy

The chassis connectivity policy determines the whether a specific chassis is included in a fabric port channel after chassis discovery. This policy is helpful for users who want to configure one or more chassis differently from what is specified in the global chassis discovery policy. The chassis connectivity policy also allows for different connectivity modes per fabric interconnect, further expanding the level of control offered with regards to chassis connectivity.

By default, the chassis connectivity policy is set to global. This means that connectivity control is configured when the chassis is newly discovered, using the settings configured in the chassis discovery policy. Once the chassis is discovered, the chassis connectivity policy controls whether the connectivity control is set to none or port channel.

**Note**

The chassis connectivity policy is created by Cisco UCS Manager only when the hardware configuration supports fabric port channels. At this time, only the 6200 series fabric interconnects and the 2200 series IOMs support this feature. For all other hardware combinations, Cisco UCS Manager does not create a chassis connectivity policy.

Configuring a Chassis Connectivity Policy

Changing the connectivity mode for a chassis could result in decreased VIF namespace.

**Caution**

Changing the connectivity mode for a chassis results in chassis reacknowledgement. Traffic may be disrupted during this time.

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope org <i>org-name</i>	Enters the organization mode for the specified organization. To enter the root organization mode, enter / as the <i>org-name</i> .
Step 2	UCS-A /org # scope chassis-conn-policy <i>chassis-num</i> [a b]	Enters chassis connection policy organization mode for the specified chassis and fabric.
Step 3	UCS-A /org/chassis-conn-policy # set link-aggregation-pref { global none port-channel }	Specifies whether the links from the IOMs or FEXes to the fabric interconnects are grouped in a port channel. <ul style="list-style-type: none"> • None—No links are grouped in a port channel • Port Channel—All links from an IOM to a fabric interconnect are grouped in a port channel. • Global—The chassis inherits this configuration from the chassis discovery policy. This is the default value.
Step 4	UCS-A /org/chassis-conn-policy # commit-buffer	Commits the transaction to the system configuration.

The following example shows how to change the fabric port channel connectivity for two chassis. Chassis 6, fabric A is changed to port channel and chassis 12, fabric B is changed to discrete links:

```
UCS-A# scope org /
UCS-A /org # scope chassis-conn-policy 6 a
UCS-A /org/chassis-conn-policy # set link-aggregation-pref port-channel
UCS-A /org/chassis-conn-policy* # up
UCS-A /org* # scope chassis-conn-policy 12 b
UCS-A /org/chassis-conn-policy* # set link-aggregation-pref none
UCS-A /org/chassis-conn-policy* # commit-buffer
UCS-A /org/chassis-conn-policy #
```

Configuring the Rack Server Discovery Policy

Rack Server Discovery Policy

The rack server discovery policy determines how the system reacts when you add a new rack-mount server. Cisco UCS Manager uses the settings in the rack server discovery policy to determine whether any data on the hard disks are scrubbed and whether server discovery occurs immediately or needs to wait for explicit user acknowledgement.

Cisco UCS Manager cannot discover any rack-mount server that has not been correctly cabled and connected to the fabric interconnects. For information about how to integrate a supported Cisco UCS rack-mount server with Cisco UCS Manager, see the appropriate [rack-mount server integration guide](#).

Configuring the Rack Server Discovery Policy

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope org /	Enters the root organization mode. Note The rack server discovery policy can be accessed only from the root organization.
Step 2	UCS-A /org # scope rackserver-disc-policy	Enters organization rack server discovery policy mode.
Step 3	UCS-A /org/rackserver-disc-policy # set action {immediate user-acknowledged}	Specifies the way the system reacts when you add a new rack server.
Step 4	UCS-A /org/rackserver-disc-policy # set descr <i>description</i>	(Optional) Provides a description for the rack server discovery policy. Note 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 show command output.
Step 5	UCS-A /org/rackserver-disc-policy # set scrub-policy <i>scrub-pol-name</i>	Specifies the scrub policy that should run on a newly discovered rack server.
Step 6	UCS-A /org/rackserver-disc-policy # commit-buffer	Commits the transaction to the system configuration.

The following example scopes to the default rack server discovery policy, sets it to immediately discover new rack servers, provides a description for the policy, specifies a scrub policy called scrubpoll, and commits the transaction:

```
UCS-A# scope org /
UCS-A /org # scope rackserver-disc-policy
UCS-A /org/rackserver-disc-policy* # set action immediate
UCS-A /org/rackserver-disc-policy* # set descr "This is an example rackserver discovery
policy."
UCS-A /org/rackserver-disc-policy* # set scrub-policy scrubpoll
UCS-A /org/rackserver-disc-policy* # commit-buffer
UCS-A /org/rackserver-disc-policy #
```

Configuring the Aging Time for the MAC Address Table

Aging Time for the MAC Address Table

To efficiently switch packets between ports, the fabric interconnect maintains a MAC address table. It dynamically builds the MAC address table by using the MAC source address from the packets received and the associated port on which the packets were learned. The fabric interconnect uses an aging mechanism, defined by a configurable aging timer, to determine how long an entry remains in the MAC address table. If an address remains inactive for a specified number of seconds, it is removed from the MAC address table.

You can configure the amount of time (age) that a MAC address entry (MAC address and associated port) remains in the MAC address table.

Configuring the Aging Time for the MAC Address Table

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope eth-uplink	Enters Ethernet uplink mode.
Step 2	UCS-A /eth-uplink # set mac-aging { <i>dd hh mm ss</i> mode-default never }	Specifies the aging time for the MAC address table. Use the mode-default keyword to set the aging time to a default value dependent on the configured Ethernet switching mode. Use the never keyword to never remove MAC addresses from the table regardless of how long they have been idle.
Step 3	UCS-A /eth-uplink # commit-buffer	Commits the transaction to the system configuration.

The following example sets the aging time for the MAC address table to one day and 12 hours and commits the transaction:

```
UCS-A# scope eth-uplink
UCS-A /eth-uplink # set mac-aging 01 12 00 00
UCS-A /eth-uplink* # commit-buffer
UCS-A /eth-uplink #
```