Port Monitoring

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Port Monitoring Policy

This feature allows you to save custom Port Monitoring policies in the Cisco SAN Controller database. It allows you to push the selected custom policy to one or more fabrics or Cisco MDS 9000 Series Switches. The policy is designated as active Port-Monitor policy in the switch.

This feature is supported only on the Cisco MDS 9000 SAN Switches and therefore the Cisco SAN Controller user can select the MDS switch to push the policy.

Cisco SAN Controller provides 12 templates to customize the policy. The user-defined policies are saved in the Cisco SAN Controller database. You can select any template or customized policy to push to the selected fabric or switch with the desired port type.

From Cisco SAN Controller Release 12.0.1a, a new port monitory policy **fabricmon_edge_policy** is added.

Note You can edit only user-defined policies.

The following table describes the fields that appear on Cisco Fabric Controller **SAN** > **Port Monitoring**.

Field	Description
Selected Port Monitoring Policy	This drop-down list shows the following templates for policies: • Normal_edgePort • Normal_allPort • Normal_corePort • Aggressive_edgePort • Aggressive_allPort • Aggressive_corePort • Most-Aggressive_edgePort • Most-Aggressive_allPort • Most-Aggressive_corePort • default • slowdrain • fabricmon_edge_policy
Logical Type	Specifies the type of port for selected policies. The available port types are: • Core • Edge • All
Save	Allows you to save your changes for the user-defined policies. **Note** You cannot save configuration changes for default templates.
Save As	Allows you to save an existing policy as a new policy with a different name. This creates another item in the templates as Custom Policy. The customized policy is saved under this category. If you click **Save As** while the policy is edited, the customized policy is saved. To create new policy: • Choose required port monitoring policy, click **Save As**. The **New Port Monitoring Policy** pop window appears. • Enter new policy name and select required logical type and click **Save**.
Delete	Allows you to delete any user-defined policies.

Field	Description
Push to switches	

Field	Description
	Allows you to select a fabric or switch and push the selected policies with the desired port type. The following policies select the Core policy type: • Normal_corePort • Aggressive_corePort • Most-Aggressive_corePort The following policies select the edge policy type: • Normal_edgePort • Aggressive_edgePort • Most-Aggressive_edgePort • fabricmon_edge_policy • slowdrain The following policies select all policy types: • Normal_allPort • Aggressive_allPort • Most-Aggressive_allPort • default Select the parameters and click **Push** to push the policies to the switches in the fabric. For SAN Controller from Release 12.0.1a, you can change required port type for selected policy apart from the pre-defined port. • Choose required policy, click **Push to Switches**. The **Push to Switches** pop up window appears. • Choose required port type and click **Push**. If there is an active policy with the same or common port type, the push command configures the same policy on the selected devices. This policy replaces the existing active policy with the same or common port type. A warning message is displayed for replacing the existing policy. Click **Confirm** to rewrite the policy. A confirmation message is displayed for policy pushed to switches. Click View logs to view log details on the switch or click **OK** to return to the home page. If you click **Push to Switches** while the policy is edited, the customized policy will not be saved.

Field	Description
	SAN Controller enables Fabric Performance Monitor (FPM) feature when you push and activate the edge logical-type policy with FPIN or DIRL port guard. **Note** If you select Cisco MDS 9250i Multiservice Fabric Switch for policy with FPIN or DIRL feature counter, a warning window appears.
Description	Move the pointer to the "i" icon next to the description to view detailed information. Beginning with SAN Controller Release 12.0.1a, the following new counters are introduced: • Rx Datarate Burst • Tx Datarate Burst • SFP Rx Power Low Warning • SFP Tx Power Low Warning • Input Errors
Rising Threshold	Specifies the upper threshold limit for the counter type.
Rising Event	Specifies the type of event to be generated when the rising threshold is reached or crossed.
Falling Threshold	Specifies the lower threshold limit for the counter type.
Alerts	Specifies type of alert for the port. The alerts are syslog, rmon, and oblf. Alert is applicable for Cisco MDS switches with release 8.5(1) only.
Poll Interval	Specifies the time interval to poll for the counter value.
Warning Threshold	Allows you to set an optional threshold value lower than the rising threshold value and higher than the falling threshold value to generate syslogs. The range is 0–9223372036854775807.
Port Guard	Specifies if the port guard is enabled or disabled. The value can be false, flap, or errordisable. The default value is "false". From Cisco SAN Controller Release 12.0.1a, new port guards **FPIN**, **DIRL**, and **cong-isolate-recover** are added for edge port type only. **Note** DIRL is a preview feature in Cisco SAN Controller 12.0.1a. It is recommended not to use in production environment.
Congestion- signal Warning	Indicates the building congestion between ports. This is available only for **TxWait (%)** counter only.

Field	Description
Congestion- signal Alarm	Indicates the critical congestion between ports. This is available only for Tx-Wait counter.
Monitor	Indicates the value either true or false.
Edit	Click to edit above details for each row and click tick mark to save configuration changes. **Note** You can overwrite configuration changes saved using Save and Save As option when you edit the configuration for each row.

Configuring SFP Counters

From Cisco MDS NX-OS Release 8.5(1), the SFP counters allow you to configure the low warning thresholds for Tx Power and Rx Power for SFPs. You will receive syslog when these threshold values drop below the configured values.

SFPs are monitored once in every 10 minutes. The rising threshold is the count of Rx or Tx Power times. This power time is less than or equal to the SFPs Rx or Tx Power low warning threshold multiplied by the percentage. Accordingly, you can increment the rising threshold once every 10 minutes. Configuring a rising threshold value that is more than the 600 multiple of the poll interval displays an error.

For example, for a polling interval of 1200, the rising threshold will be 2 (1200/600) and must be more than 2. The SFP counters are not included in the default policy and the only alert action that is available is syslog. You can configure the polling interval using the port monitor counter command.

You can choose one of the following to configure SFP counters, perform the following options:

- Configuring a low warning threshold percentage of 100% allows this counter to trigger when the Rx Power is less than or equal to the SFP's Rx Power low warning threshold.
- Configuring a low warning threshold percentage less than 100% allows this counter to trigger when the Rx Power is above the SFP's Rx Power low warning threshold.
- Configuring a low warning threshold percentage of greater than 100% allows this counter to trigger when the Rx Power is less than the SFP's Rx Power low warning threshold (between low warning and low alarm).

The following are the SFP counters:

- **sfp-rx-power-low-warn**

  Specifies the number of times a SFP's port reached a percentage of the SFP's Rx Power's low warning threshold. This threshold varies depending on the type, speed, and manufacturer of the SFP and this is displayed via show interface transceiver details command. This value is percentage of each individual SFP's Rx Power low warning threshold and not the perfect value. This percentage can be configured in the range of 50 to 150% to allow for alerting at values less than the Rx Power low warning threshold or greater than the Rx Power low warning threshold. This is an perfect value and varies between 50% to 150%. The low warning threshold value is calculated as the actual low warning threshold value of the SFP times the specified percentage. If the Rx power is lesser than or equal to the low warning threshold value, then this counter is incremented.

- **sfp-tx-power-low-warn**

  Specifies the number of times a SFP’s port reached a percentage of the SFP’s Tx Power’s low warning threshold. This threshold varies depending on the type, speed, and manufacturer of the SFP and this is displayed via show interface transceiver details command. This value is percentage of each individual SFP's Tx Power low warning threshold and not the perfect value. This percentage can be configured in the range of 50 to 150% to allow for alerting at values less than the Tx Power low warning threshold or greater than the Tx Power low warning threshold. This is an perfect value and varies between 50% to 150%. The low warning threshold value is calculated as the actual low warning threshold value of the SFP times the specified percentage. If the Tx power is lesser than or equal to the low warning threshold value, then this counter is incremented.

From Cisco MDS NX-OS Release 8.5(1), the datarate burst counters monitor the number of times the datarate crosses the configured threshold datarate in one second intervals. If the number crosses the configured number for rising threshold, the configured alert actions are taken as the condition is met. Datarate burst counters are polled every second. The datarate burst counters are not included in the default policy. For configuring the datarate burst counters, see *Configuring a Port Monitor Policy* section in *Cisco MDS 9000 Series Interfaces Configuration Guide.*