

Event Analytics

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Alarms

This tab displays the alarms that are generated for various categories. This tab displays information such as ID (optional), Severity, Failure Source, Name, Category, Acknowledged, Creation Time, Last Updated (optional), Policy, and Message. You can specify the Refresh Interval in this tab. You can select one or more alarms and then acknowledge or unacknowledge their status using the Change Status drop-down list. In addition, you can select one or more alarms and then click the Delete button to delete them.

Alarms Raised

UI Path: Operations > Event Analytics > Alarms

After you create a new alarm policy, navigate to **Alarms Raised** tab, click **Refresh** icon to view the created alarm.

Click on required **Severity** column, a slide-in pane appears with policy severity details and description.

The following table describes the fields that appear on **Operations > Event Analytics > Alarms > Alarms Raised**.

| Field | Description |
|---------------|---|
| Severity | Specifies the severity of the alarm |
| Source | Specifies the name of the source. |
| Name | Specifies the name of the alarm |
| Category | Specifies the category of the alarm |
| Creation Time | Specifies the time at which the alarm was created |
| Policy | Specifies the policy of the alarm |

| Field | Description |
|----------|---|
| Message | Displays the message. |
| Ack User | Displays the username who acknowledged the alarm. |

The following table describes the action items, in the **Actions** menu drop-down list, that appear on **Alarms Raised** tab.

| Action Item | Description |
|---------------|---|
| Acknowledge | Choose one or multiple alarms and choose Acknowledge . Allows you to bookmark the alarms and adds ack user name to Acknowledged column. |
| Unacknowledge | Choose one or multiple alarms and choose Unacknowledge to remove the bookmarked alarms. Note Only acknowledged alarms can be unacknowledged. |
| Clear | Choose alarm and choose Clear to clear the alarm policy manually. The cleared alarms will be moved to Alarm Cleared tab. |
| Delete Alarm | Choose an alarm and choose Delete to delete the alarm. |



Note

For link-down events, you must setup an external visible IP address for SNMP trap receiver, and configure switch to send SNMP trap to NDFC. Otherwise, the port state change can only be done through polling, which is every 5 minutes.

Alarms Cleared

UI Path: Operations > Event Analytics > Alarms > Alarms Cleared

Alarms Cleared tab has the list of alarms which are cleared in the **Alarms Raised** tab. This tab displays information such as ID (optional), Severity, Failure Source, Name, Category, Acknowledged, Creation Time, Cleared At (optional), Cleared By, Policy, and Message. You can view the cleared alarm details for maximum of 90 days.

You can choose one or more alarms and click the **Actions > Delete** to delete them.

The following table describes the fields that appear on **Alarms Cleared** tab.

| Field | Description |
|---------------|--|
| Severity | Specifies the severity of the alarm. |
| Source | Specifies the IP Address of source alarm. |
| Name | Specifies the name of the alarm. |
| Category | Specifies the category of the alarm. |
| Creation Time | Specifies the time at which the alarm was created. |
| Cleared Time | Specifies the time at which the alarm was cleared. |

| Field | Description |
|------------|--|
| Cleared By | Specifies the user who cleared the alarm. |
| Policy | Specifies the policy of the alarm. |
| Message | Specifies the CPU utilization and other details of alarm |
| Ack User | Specifies the acknowledged user role name. |

The following table describes the action items, in the **Actions** menu drop-down list, that appear on **Alarms Cleared** tab.

| Action Item | Description |
|--------------|--|
| Delete Alarm | Select an alarm and choose Delete to delete the cleared alarm |

Monitoring and Adding Alarm Policies

In Cisco Nexus Dashboard Fabric Controller to enable alarms, Navigate to **Operations** > **Event Analytics** > **Alarms**, click **Alarm Policies** on vertical tab. Ensure that the Enable external alarms check box is selected. You must restart Nexus Dashboard Fabric Controller Server to bring this into effect.

You can forward alarms to registered SNMP listeners in Nexus Dashboard Fabric Controller. From Cisco Nexus Dashboard Fabric Controller web UI, choose **Settings > Server Settings > Alarms**, ensure that the **Enable external alarms** check box is selected. You must restart Nexus Dashboard Fabric Controller Server to bring this into effect.

You can forward alarms to registered SNMP listeners in Nexus Dashboard Fabric Controller. From Cisco Nexus Dashboard Fabric Controller web UI, choose **Settings > Server Settings > Alarms**, enter an external port address in alarm.trap.listener.address field, click **Apply Changes**, and restart SAN Controller.



Note

Ensure that you select **Forwarding** check box in **Alarm Policy creation** dialog window to enable forwarding alarms to external SNMP listener.

The following table describes the fields that appear on **Operations > Event Analytics > Alarms > Alarms Policies**.

| Field | Description |
|-------------|---|
| Name | Specifies the name of the alarm policy |
| Description | Specifies the description of the alarm policy |
| Status | Specifies the status of the alarm policy: • Activated • Deactivated |

| Field | Description |
|-------------|---|
| Policy type | Specifies the type of the policy: |
| | Device Health Policy |
| | Interface Health Policy |
| | Syslog Alarm Policy |
| Devices | Specifies the devices to which the alarm policy is applied. |
| Interfaces | Specifies the interfaces. |
| Details | Specifies the details of the policy. |

The following table describes the action items, in the **Actions** menu drop-down list, that appear on **Operations** > **Event Analytics** > **Alarms** > **Alarms** Policies.

| Action Item | Description |
|-------------------------|--|
| Create new alarm policy | Choose to create a new alarm policy. See Create new alarm policy section. |
| Edit | Select a policy and choose Edit to edit the alarm policy. |
| Delete | Select a policy and choose Delete to delete the alarm policy. |
| Activate | Select a policy and choose Activate to activate and apply the alarm policy. |
| Deactivate | Select a policy and choose Deactivate to disable and deactivate the alarm policy. |
| Import | Select to import alarm policies in bulk from a .csv file. |
| Export | Select to export alarm policies in bulk from a .csv file. |

You can add alarm policies for the following:

- **Device Health Policy**: Device health policies enable you to create alarms when Device SNMP Unreachable, or Device SSH Unreachable. Also, these policies enable you to monitor chassis temperature, CPU, and memory usage.
- **Interface Health Policy**: Interface health policies enable you to monitor Up or Down, Packet Discard, Error, Bandwidth details of the interfaces. By default all interfaces are selected for monitoring.
- **Syslog Alarm Policy**: Syslog Alarm Policy defines a pair of Syslog messages formats; one which raises the alarm, and one which clears the alarm.

Create new alarm policy

You can add alarm policies for the following:

- Device Health Policy
- Interface Health Policy
- Syslog Alarm Policy

Device Health Policy

Device health policies enable you to create alarms when Device ICMP Unreachable, Device SNMP Unreachable, or Device SSH Unreachable. Also, these policies enable you to monitor chassis temperature, CPU, and memory usage.

Select the devices for which you want to create policies. Specify the policy name, description, CPU Utilization parameters, Memory Utilization parameters, Environment Temperature parameters, device availability.

Interface Health Policy

Interface health policies enable you to monitor Up or Down, Packet Discard, Error, Bandwidth details of the interfaces. By default, all interfaces are selected for monitoring.

Select the devices for which you want to create policies and then specify the following parameters:

- Policy Name: Specify the name for this policy. It must be unique.
- Description: Specify a brief description for this policy.
- Forwarding: You can forward alarms to registered SNMP listeners in Cisco Nexus Dashboard Fabric Controller . From Web UI, choose **Settings > Server Settings > Events**.



Note

Ensure that you select **Forwarding** check box in Alarm Policy creation dialog window to enable forwarding alarms to external SNMP listener.

- Email: You can forward alarm event emails to recipient when alarm is created, cleared or severity changed.
 From Cisco Nexus Dashboard Fabric Controller Web UI, choose Settings > Server Settings > Events.
 Configure the SMTP parameters, click Save, and restart Cisco Nexus Dashboard Fabric Controller services.
- Linkstate: Choose linkstate option to check for the interface link up or down. For the link-down you can raise an alarm and the link-up clear the alarms.
- Bandwidth (In/Out) -
- Inbound errors
- · Outbound errors
- Inbound Discards
- · Outbound Discards

Syslog Alarm

Syslog Alarm Policy defines a pair of Syslog messages formats; one which raises the alarm, and one which clears the alarm.

Select the devices for which you want to create policies and then specify the following parameters:

- Devices: Define the scope of this policy. Select individual devices or all devices to apply this policy.
- Policy Name: Specify the name for this policy. It must be unique.
- Description: Specify a brief description for this policy.

• Forwarding: You can forward alarms to registered SNMP listeners in Cisco Nexus Dashboard Fabric Controller . From Web UI, choose **Settings > Server Settings > Events**.



Note

Ensure that you select **Forwarding** check box in Alarm Policy creation dialog window to enable forwarding alarms to external SNMP listener.

- Email: You can forward alarm event emails to recipient when alarm is created, cleared or severity changed.
 From Cisco Nexus Dashboard Fabric Controller Web UI, choose Settings > Server Settings > Events.
 Configure the SMTP parameters, click Save, and restart Cisco Nexus Dashboard Fabric Controller services.
- Severity: Define the severity level for this syslog alarm policy. Choices are: Critical, Major, Minor, and Warning.
- Identifier: Specify the identifier portions of the raise & clear messages.
- Raise Regex: Define the format of a syslog raise message. The syntax is as follows: Facility-Severity-Type: Message
- Clear Regex: Define the format of a syslog clear message. The syntax is as follows: Facility-Severity-Type: Message

The Regex definitions are simple expressions but not a complete regex. Variable regions of text are noted using \$(LABEL) syntax. Each label represents a regex capture group (.+), which corresponds to one or more characters. The variable texts found in both raise and clear messages are used to associate the two messages. An Identifier is a sequence of one or more labels that appear in both messages. An Identifier is used to match a clear syslog message to the syslog message that raised the alarm. If the text appears only in one of the messages, it can be noted with a label and exclude it from the identifier.

Example: A policy with "Value": "ID1-ID2",

```
"syslogRaise": "SVC-5-DOWN: $(ID1) module $(ID2) is down $(REASON)" "syslogClear": "SVC-5-UP: $(ID1) module $(ID2) is up."
```

In the example, ID1 and ID2 labels can be marked as an identifier to find the alarm. This identifier will be found in corresponding syslog messages. Label "REASON" is in the raise but not in the clear message. This label can be excluded from the identifier, as it has no impact on the syslog message to clear the alarm.

Table 1: Example 1

| Identifier | ID1-ID2 |
|-------------|---|
| Raise Regex | ETHPORT-5-IF_ADMIN_UP: Interface Ethernet15/1 is admin up . |
| Clear Regex | ETHPORT-5-IF_DOWN_NONE: Interface Ethernet15/1 is down (Transceiver Absent) |

In the above example, the regex expressions are part of the syslog messages that appear in the terminal monitor.

Table 2: Example 2

| Identifier | ID1-ID2 |
|-------------|--|
| Raise Regex | ETH_PORT_CHANNEL-5-PORT_DOWN: \$(ID1): \$(ID2) is down |

| Identifier | ID1-ID2 |
|-------------|--|
| Clear Regex | ETH_PORT_CHANNEL-5-PORT_UP: \$(ID1): \$(ID2) is up |

Table 3: Example 3:

| Identifier | ID1-ID2 |
|-------------|--|
| Raise Regex | ETHPORT-5-IF_SFP_WARNING: Interface \$(ID1), High Rx Power Warning |
| Clear Regex | ETHPORT-5-IF_SFP_WARNING: Interface \$(ID1), High Rx Power Warning cleared |

Endpoint Locator Alarms

Alarms are registered and created under the External alarm category by the Endpoint Locator (EPL).

Alarm Policy

The EPL external alarm category policy is activated when EPL is enabled on a fabric. Alarms are raised for issues such as Duplicate IP addresses, Duplicate MAC addresses, Endpoints appearing on a VRF and Endpoints disappearing from a VRF, Endpoints moving within a fabric, loss of Route Reflector connectivity, and restoration of Route Reflector connectivity. Depending on the issue, the severity level of the alarm policy can be CRITICAL or MINOR.

Alarms are raised and categorized as CRITICAL for the following events:

- Route Reflector disconnection
- Detection of a duplicate IP address
- Detection of a duplicate MAC address

Alarms are raised and categorized as MINOR for the following events:

- · Movement of an endpoint
- Appearance of a new VRF in a fabric
- Number of endpoints in a fabric goes down to 0
- Number of endpoints in a VRF goes down to 0
- Disappearance of all endpoints from a switch
- Connection of a Route Reflector (RR)

CRITICAL alarms are cleared automatically when the condition is corrected. For example, when the connectivity between NDFC and RR is lost, a CRITICAL alarm is generated. This alarm is automatically cleared when the connectivity between NDFC and RR is restored. Other MINOR alarms are automatically cleared after 30 minutes have passed since the alarm was generated.



Note

You must clear the duplicate MAC and duplicate IP alarms after the condition is resolved.

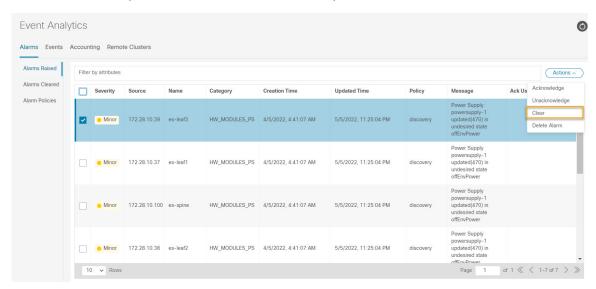
Choose **Event Analytics > Alarms > Alarm Policies** to display the EPL alarm policies. These alarm policies are not editable on the web UI. Choose **Actions > Activate** or **Deactivate** to activate or deactivate the selected policy.

In case an alarm policy is deleted using the NDFC Web UI, any alarms created or cleared for that policy will not be displayed in the **Event Analytics > Alarms > Alarm Policies** tab. To delete a policy, select the checkbox next to the policy and click **Delete**. However, we recommend not deleting a policy from the NDFC Web UI. When a fabric is deleted, the alarm policy along with all the active alarms for the devices in that fabric are deleted.

Endpoint Locator: Active Alarms

Choose **Event Analytics > Alarms > Alarms Raised** to display the active alarms.

To clear active alarms, select the checkbox next to the alarm, click **Actions > Clear**.

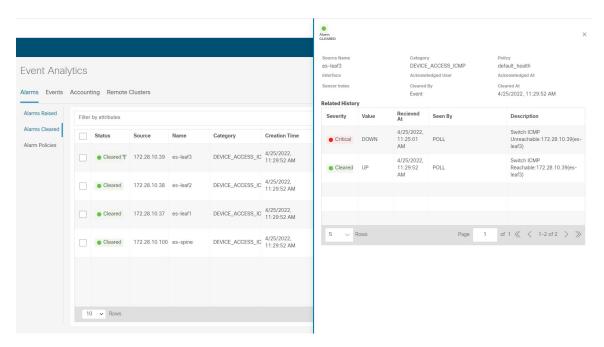


To delete active alarms, select the checkbox next to the alarm and click **Actions > Delete**.

Endpoint Locator: Cleared Alarms

To view the cleared alarms, navigate to **Event Analytics > Alarms > Alarms Cleared**.

Click on required Cleared status column to display detailed information about the required alarm.



To delete a cleared alarm from the list of cleared alarms, select the checkbox next to the alarm and click **Actions > Delete**.

For more information on Alarms and Policies, refer Alarms.

Events

This tab displays the events that are generated for the switches. This tab displays information such as Ack, Acknowledged user, Group, Switch, Severity, Facility, Type, Count, Last Seen, and Description. You can select one or more events and then acknowledge or unacknowledge their status using the Change Status drop-down list. In addition, you can select one or more alarms and then click the Delete button to delete them. If you want to delete all events, click the Delete All button.

The following table describes the fields that appear on **Operations > Event Analytics > Events**.

| Field | Description |
|----------|--|
| Group | Specifies the Fabric |
| Switch | Specifies the hostname of the switch |
| Severity | Specifies the severity of the event |
| Facility | Specifies the process that creates the events. The event facility includes two categories: NDFC and syslog facility. Nexus Dashboard Fabric Controller facility represents events generated by Nexus Dashboard Fabric Controller internal services and SNMP traps generated by switches. Syslog facility represents the machine process that created the syslog messages. |
| Туре | Specifies how the switch/fabric are managed |

| Field | Description |
|---------------|--|
| Count | Specifies the number of times the event has occurred |
| Creation Time | Specifies the time when the event was created |
| Last Seen | Specifies the time when the event was run last |
| Description | Specifies the description provided for the event |
| Ack | Specifies if the event is acknowledged or not |

The following table describes the action items, in the **Actions** menu drop-down list, that appear on **Operations** > **Event Analytics** > **Events**.

| Action Item | Description |
|---------------|--|
| Acknowledge | Select one or more events from the table and choose Acknowledge icon to acknowledge the event information for the fabric. |
| | After you acknowledge the event for a fabric, the acknowledge icon is displayed in the Ack column next to the Group. |
| Unacknowledge | Select one or more events from the table and choose Unacknowledge icon to acknowledge the event information for the fabric. |
| Delete | Select an event and choose Delete to delete the event. |
| Event Setup | Allows you to setup new event. For more information, see Event Setup, on page 10. |

Event Setup

To setup an event using the Cisco Nexus Dashboard Fabric Controller Web UI, perform the following steps:

Procedure

- Step 1 Choose Operations > Event Analytics > Event Setup. From the Actions menu drop-down list, choose Event Setup.
- **Step 2** In the Receiver tab, perform the following steps:
 - a) Use the toggle button to enable this feature.
 - b) Select **Copy Syslog Messages to DB** and click **Apply** to copy the syslog messages to the database. If this option is not selected, the events will not be displayed in the events page of the Web client. The columns in the second table display the following:
 - Switches sending traps
 - Switches sending syslog
 - Switches sending syslog accounting
 - Switches sending delayed traps

- c) In the Sources tab, the table displays fabrics and switches associate with it. It also displays information about traps and syslogs.
- Step 3 To add and remove notification forwarding for system messages from the Cisco Nexus Dashboard Fabric Controller Web UI, perform the following steps:

Cisco Nexus Dashboard Fabric Controller Web UI forwards fabric events through email or SNMPv1 traps. Some SMTP servers may require addition of authentication parameters to emails that are sent from Nexus Dashboard Fabric Controller to the SMTP servers. You can add authentication parameters to the emails that are sent by Nexus Dashboard Fabric Controller to any SMTP server that requires authentication. Enable this feature on **Settings > Server Settings > Events** tab.

- a) Choose Settings > Server Settings > Events tab. Check Enable Event forwarding check box to enable events forwarding. The events forwarding scope, the recipient email address, severity of the event and type of the event is displayed. The description Regex field is applicable only when the forwarding source is selected as Syslog while adding the events forwarder.
- b) Specify the SMTP Server details and the From email address. Configure the Snooze and Event Count filter
- c) Click Save.
- d) Choose **Operations > Event Analytics**. From the Actions drop-down list, choose **Add Rule**.
- e) In the Forwarding Method, choose either **E-mail** or **Trap**.
 - If you choose **Trap**, **Address** and **Port** field is added to the dialog box.
- f) If you choose the E-mail forwarding method, enter the IP address in the Email Address field. If you choose the Trap method, enter the trap receiver IP address in the Address field and specify the port number.

You can either enter an IPv4 or IPv6 addresses or DNS server name in the Address field.

- g) In the Fabric field, choose all groups or specific fabric for notification. For SAN Installer, select VSAN Scope. You can either choose All or List option. If you select List, provide the list of VSANs for notification.
- h) In the Source field, select Nexus Dashboard Fabric Controller or Syslog.
 - If you select Nexus Dashboard Fabric Controller, then:
 - **1.** From the **Type** drop-down list, choose an event type.
 - 2. Check the **Storage Ports Only** check box to select only the storage ports.
 - 3. From the **Minimum Severity** drop-down list, select the severity level of the messages to receive.
 - 4. Click **Add** to add the notification.
 - If you select Syslog, then:
 - 1. In the **Facility** list, select the syslog facility.
 - **2.** Specify the syslog **Type**.
 - 3. In the **Description Regex** field, specify a description that matches with the event description.
 - **4.** From the **Minimum Severity** drop-down list, select the severity level of the messages to receive.
 - 5. Click **Add** to add the notification.

Note The Minimum Severity option is available only if the Event Type is set to **All**.

The traps that are transmitted by Cisco Nexus Dashboard Fabric Controller correspond to the severity type. A text description is also provided with the severity type.

```
trap type(s) = 40990 (emergency)
40991 (alert)
40992 (critical)
40993 (error)
40994 (warning)
40995 (notice)
40996 (info)
40997 (debug)
textDescriptionOid = 1, 3, 6, 1, 4, 1, 9, 9, 40999, 1, 1, 3, 0
```

i) Click Add Rule.

Step 4 To add rules to the Event Suppression from the Cisco Nexus Dashboard Fabric Controller Web UI, perform the following steps:

Cisco Nexus Dashboard Fabric Controller allows you to suppress the specified events that are based on the user-specified suppressor rules. Such events will not be displayed on the Cisco Nexus Dashboard Fabric Controller Web UI and SAN Client. The events will neither be persisted to Nexus Dashboard Fabric Controller database, nor forwarded via email or SNMP trap.

You can view, add, modify, and delete suppressor rules from the table. You can create a suppressor rule from the existing event table. Select a given event as the template and invoke the rule dialog window. Event details are automatically ported from the selected event in the event table to the input fields of the rule creation dialog window.

Note You cannot suppress EMC Call Home events from the Cisco Nexus Dashboard Fabric Controller Web UI.

- a) Specify the **Name** for the rule.
- b) Select the required **Scope** for the rule that is based on the event source.

In the **Scope** drop-down list, the LAN groups and the port groups are listed separately. You can choose **SAN/LAN**, **Port Groups** or **Any**. For SAN and LAN, select the scope of the event at the Fabric or Group or Switch level. You can only select groups for Port Group scope. If use select **Any** as the scope, the suppressor rule is applied globally.

c) Enter the **Facility** name or choose from the SAN/LAN Switch Event Facility List.

If you do not specify a facility, wildcard is applied.

d) From the drop-down list, select the **Event Type**.

If you do not specify the event type, wildcard is applied.

e) In the **Description Matching** field, specify a matching string or regular expression.

The rule matching engine uses regular expression that is supported by Java Pattern class to find a match against an event description text.

f) Check the Active Between box and select a valid time range during which the event is suppressed.

By default, the time range is not enabled, i.e., the rule is always active.

Note

In general, you must not suppress accounting events. Suppressor rule for Accounting events can be created only for certain rare situations where Accounting events are generated by actions of Nexus Dashboard Fabric Controller or switch software. For example, lots of 'sync-snmp-password' AAA syslog events are automatically generated during the password synchronization between Nexus Dashboard Fabric Controller and managed switches. To suppress Accounting events, navigate to the Suppressor table and invoke the Add Event Suppressor Rule dialog window.

g) Click Add Rule.

Accounting

You can view the accounting information on Cisco Nexus Dashboard Fabric Controller Web UI.

The following table describes the fields that appear on **Operations > Event Analytics > Accounting**.

| Field | Description |
|-------------|---|
| Source | Specifies the source |
| User Name | Specifies the user name. |
| Time | Specifies the time when the event was created |
| Description | Displays the description. |
| Group | Specifies the name of the group. |

The following table describes the action items, in the **Actions** menu drop-down list, that appear on **Operations** > **Event Analytics** > **Accounting**.

| Action Item | Description |
|-------------|---|
| Delete | Select a row and choose Delete to delete accounting information from the list. |

Remote Clusters

This tab displays the clusters and the number of Fabrics in each cluster in your setup.

Click on the Cluster Name to see the summary information. You can click on the launch icon to view the detailed summary of the Cluster.

Remote Clusters