



## Viewing System Details

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## Monitoring VM Host Metrics

Support is available for monitoring metrics for the VM host where the Cisco Cloud Network Controller is deployed using the Prometheus Node Exporter. The Prometheus Node Exporter provides visibility to a wide variety of hardware and kernel-related metrics, where it collects technical information from Linux nodes, such as CPU, disk, and memory statistics. For overview information on the Prometheus Node Exporter, see:

<https://prometheus.io/docs/introduction/overview/>

If your Cisco Cloud Network Controller is running on release 25.0(1) or later, the Prometheus Node Exporter is automatically available by default.

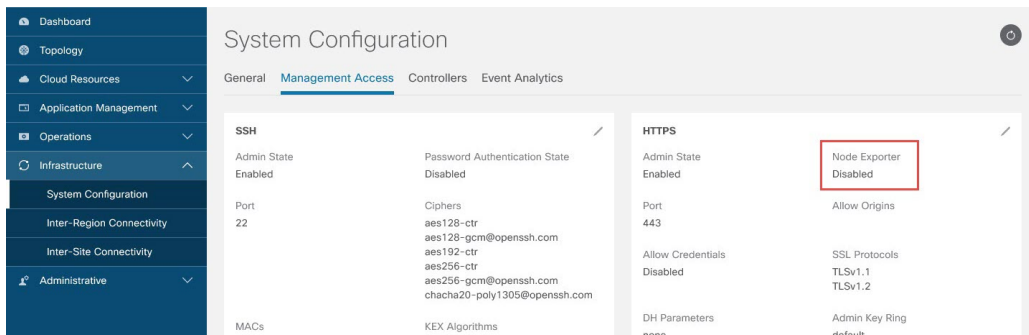
### Guidelines and Limitations

HTTP is not supported for monitoring metrics using the Prometheus Node Exporter. Only HTTPS is supported for monitoring metrics using the Prometheus Node Exporter.

## Monitoring VM Host Metrics Using the GUI

These procedures describe how to enable the Prometheus Node Exporter to monitor VM host metrics using the GUI.

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- Step 1** In the Cisco Cloud Network Controller GUI, navigate to **Infrastructure > System Configuration**, then click on the **Management Access** tab.
- Step 2** In the **HTTPS** area to the right of the window, note the entry in the **Node Exporter** field.

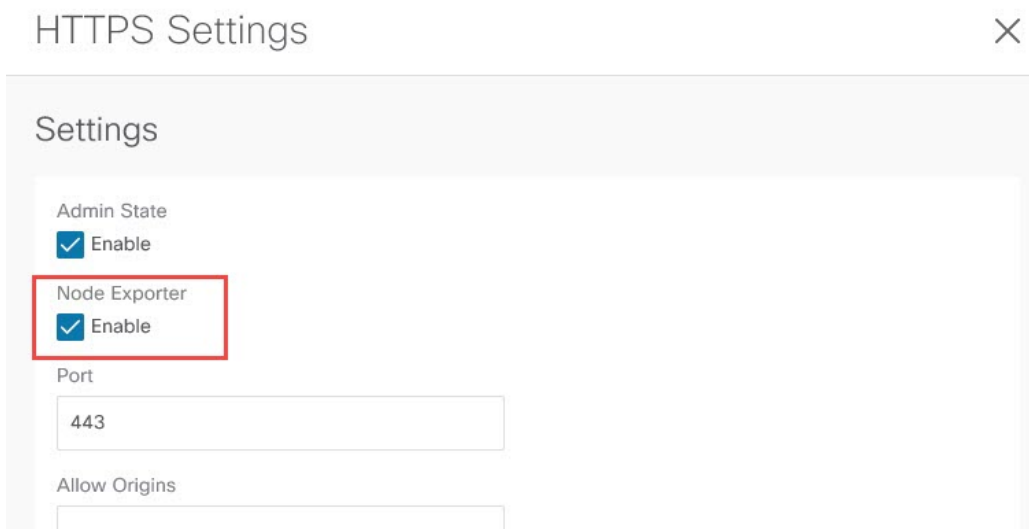


- **Enabled:** The Prometheus Node Exporter has already been enabled. You do not have to continue with these instructions in that case.
- **Disabled:** The Prometheus Node Exporter is not enabled yet. Proceed with these instructions to enable the Prometheus Node Exporter.

**Step 3** Click the pencil icon in the **HTTPS** area to edit the HTTPS settings.

The **HTTPS Settings** window appears.

**Step 4** Locate the **Node Exporter** field and click **Enable**.



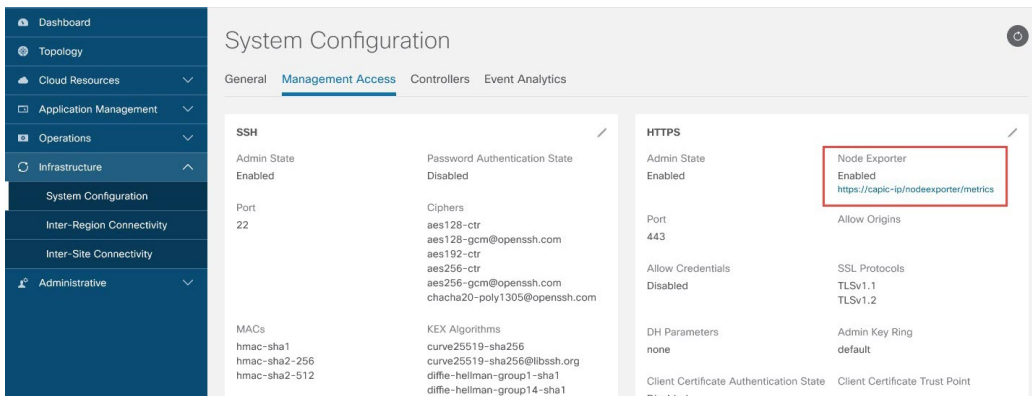
A warning message appears, telling you that saving these settings will restart the web service, and that it will take a moment for it to resume responding to requests. Click **OK** to confirm these changes.

**Step 5** At the bottom of the window, click **Save**.

You are returned to the **System Configuration/Management Access** window. The web service reboots and comes back online in a few seconds.

**Step 6** In the **HTTPS** area to the right of the window, verify that the entry in the **Node Exporter** field is set to **Enabled**.

This verifies that the Prometheus Node Exporter is enabled.



**Step 7** Click the link under the **Enabled** text in the **Node Exporter** area.

Another tab in your browser appears, showing the metrics for the VM host where the Cisco Cloud Network Controller is deployed.

## Monitoring VM Host Metrics Using the REST API

These procedures describe how to enable the Prometheus Node Exporter to monitor VM host metrics using the REST API.

**Step 1** To determine if the Prometheus Node Exporter is enabled or not, send the following GET call:

```
GET https://<cloud-network-controller-ip-address>/api/mo/uni/fabric/comm-default/https.xml
```

Locate the `nodeExporter` field to determine if it is set to `enabled` or `disabled`.

**Step 2** To monitor VM host metrics, send the following post to enable the Prometheus Node Exporter:

```
POST https://<cloud-network-controller-ip-address>/api/mo/uni/fabric/comm-default/https.xml
<commHttps nodeExporter="enabled" />
```

The metrics are displayed for the VM host where the Cisco Cloud Network Controller is deployed.

**Step 3** To view the metrics using REST API, send the following GET call:

```
GET https://<cloud-network-controller-ip-address>/nodeexporter/metrics
```

**Step 4** To disable the Prometheus Node Exporter, send the following post:

```
POST https://<cloud-network-controller-ip-address>/api/mo/uni/fabric/comm-default/https.xml
<commHttps nodeExporter="disabled" />
```

# Viewing Application Management Details

This section explains how to view application management details using the Cisco Cloud Network Controller GUI. The application management details include the information of a specific tenant, application profile, EPG, contract, filter, VRF, service, or cloud context profile.

**Step 1** From the **Navigation** menu, choose the **Application Management** tab.

When the **Application Management** tab expands, a list of subtab options appear. See the *Application Management Options* table for more information.

**Table 1: Application Management Subtabs**

Subtab Name	Description
<b>Tenants</b>	Displays tenants as rows in a summary table.
<b>Application Profiles</b>	Displays application profiles as rows in a summary table.
<b>EPGs</b>	Displays an EPGs as rows in a summary table.
<b>Contracts</b>	Displays a contracts as rows in a summary table.
<b>Filters</b>	Displays filters as rows in a summary table.
<b>VRFs</b>	Displays VRFs as rows in a summary table.
<b>Services</b>	Contains the following two subtabs and information: <ul style="list-style-type: none"> <li>• <b>Devices</b>—Displays the devices as rows in a summary table.</li> <li>• <b>Service Graphs</b>—Displays service graphs as rows in a summary table.</li> </ul>
<b>Cloud Context Profiles</b>	Displays cloud context profiles as rows in a summary table.

**Step 2** Click the tab that represents the component with the details you want to view.

A summary table appears with items as rows in the table. For example, if you chose the **Tenants** subtab, a list of tenants appear as rows in a summary table

You can filter the rows by clicking the Filter by Attributes bar. Choose the attribute, operator and filter-value. For example, for filtering based on a tenant, choose Tenant == T1 (where T1 is the name of a tenant).

**Step 3** To view a summary pane, click the row that represents the specific component you want to view.

**Step 4** For more information, double-click the summary table row that represents the specific component you want to view.

A new dialog box appears over the **work** pane with any of the following tabs:

**Note** The tabs that appear differ between components and configurations.

- **Overview**—Provides a general overview of cloud resources, configuration relationships, and settings of the component.

- **Cloud Resources**—Contains a list of subtabs that display the cloud resource information related to the component.
- **Configuration**—Contains one or more subtabs that display the configuration information related to the component.
- **Statistics**—Enables you to view statistics based on a chosen sampling interval and statistics type. The **Statistics** tab may contain subtabs, depending on the component you are viewing.
- **Event Analytics**—Contains a list of subtabs that display faults, events, and audit logs.

**Note** The dialog box that appears over the **work** pane contains an **edit** button in the top-right corner between the **refresh** button and the **Actions** button. When clicked, the **edit** button enables you to edit the chosen component.

## Viewing Cloud Resource Details

This section explains how to view cloud resource details using the Cisco Cloud Network Controller GUI. The cloud resource details include the information about a specific region, availability zone, VPC, router, security group, endpoint, instance, and cloud service.

**Step 1** From the **Navigation** menu, choose the **Cloud Resources** tab.

When the **Cloud Resources** tab expands, a list of subtab options appear. See the *Cloud Resource Options* table for more information.

**Table 2: Cloud Resource Subtabs**

Subtab Name	Description
<b>Regions</b>	Displays regions as rows in a summary table.
<b>Availability Zones</b>	Displays the availability zones as rows in a summary table.
<b>VPCs</b>	Displays VPCs as rows in a summary table.
<b>Routers</b>	Displays routers as rows in a summary table.
<b>Security Groups</b>	Displays security groups as rows in a summary table.
<b>Endpoints</b>	Displays endpoints as rows in a summary table.
<b>Instances</b>	Displays the instances as rows in a summary table.
<b>Cloud Services</b>	Contains the following subtabs: <ul style="list-style-type: none"> <li>• <b>Cloud Services</b> Tab—Displays cloud services as rows in a summary table.</li> <li>• <b>Target Groups</b> Tab—Displays target groups as rows in a summary table.</li> </ul>

**Step 2** Click the tab that represents the component with the details you want to view.

A summary table appears with items as rows in the table. For example, if you chose the **Endpoints** subtab, a list of endpoints appear as rows in a summary table

You can filter the rows by selecting an attribute from the drop-down menu when you click the *Filter by attributes* bar. The attributes displayed in the drop-down menu depend on the selected subtab.

**Step 3** To view a summary pane, click the row that represents the specific component you want to view.

**Step 4** For more information, double-click the summary table row that represents the specific component you want to view.

A new dialog box appears over the **work** pane with any of the following tabs:

**Note** The tabs that appear differ between components and configurations.

- **Overview**—Provides a general overview of cloud resources, configuration relationships, and settings of the component.
- **Cloud Resources**—Contains a list of subtabs that display the cloud resource information related to the component.
- **Application Management**—Contains a list of subtabs that display the ACI relation information related to the component.
- **Statistics**—Enables you to view statistics based on a chosen sampling interval and statistics type. The **Statistics** tab may contain subtabs, depending on the component you are viewing.
- **Event Analytics**—Contains a list of subtabs that display faults, events, and audit logs.

## Viewing Operations Details

This section explains how to view operations details using the Cisco Cloud Network Controller GUI. The operations details include the information of a specific fault, event, audit log, active sessions, backup and restore policies, tech support policies, firmware management, scheduler policies, and remote locations.

**Step 1** From the **Navigation** menu, choose the **Operations** tab.

When the **Operations** tab expands, a list of subtab options appear. See the *Operations Options* table for more information.

**Table 3: Operations Subtabs**

Subtab Name	Description
<b>Event Analytics</b>	Contains the following subtabs: <ul style="list-style-type: none"> <li>• <b>Faults</b> Tab—Displays faults as rows in a summary table.</li> <li>• <b>Events</b> Tab—Displays events as rows in a summary table.</li> <li>• <b>Audit Logs</b> Tab—Displays audit logs as rows in a summary table.</li> </ul>
<b>Active Sessions</b>	Displays a list of active users as rows in a summary table.

Subtab Name	Description
<b>Backup &amp; Restore</b>	Contains the following subtabs: <ul style="list-style-type: none"> <li>• <b>Backups</b> Tab—Displays backups as rows in a summary table.</li> <li>• <b>Backup Policies</b> Tab—Displays backup policies as rows in a summary table.</li> <li>• <b>Job Status</b> Tab—Displays the job status as rows in a summary table.</li> <li>• <b>Event Analytics</b> Tab—Contains the following subtabs:               <ul style="list-style-type: none"> <li>• <b>Faults</b> Tab—Displays faults as rows in a summary table.</li> <li>• <b>Events</b> Tab—Displays events as rows in a summary table.</li> <li>• <b>Audit Logs</b> Tab—Displays audit logs as rows in a summary table.</li> </ul> </li> </ul>
<b>Tech Support</b>	Contains the following subtabs: <ul style="list-style-type: none"> <li>• <b>Tech Support</b> Tab—Displays tech support policies as rows in a summary table.</li> <li>• <b>Core Logs</b> Tab—Displays core logs as rows in a summary table.</li> <li>• <b>Per-Feature Containers</b> Tab—Displays the per-feature containers as rows in a summary table.</li> </ul>
<b>Firmware Management</b>	Contains the following subtabs: <ul style="list-style-type: none"> <li>• <b>General</b> Tab—Displays general firmware management information.</li> <li>• <b>Images</b> Tab—Displays a list of images.</li> <li>• <b>Event Analytics</b> Tab—Contains the following subtabs:               <ul style="list-style-type: none"> <li>• <b>Faults</b> Tab—Displays faults as rows in a summary table.</li> <li>• <b>Events</b> Tab—Displays events as rows in a summary table.</li> <li>• <b>Audit Logs</b> Tab—Displays audit logs as rows in a summary table.</li> </ul> </li> </ul>
<b>Schedulers</b>	Displays scheduler policies as rows in a summary table.
<b>Remote Locations</b>	Displays remote locations as rows in a summary table.

**Step 2** Click the tab that represents the component you want to view.

A summary table appears with items as rows in the table. For example, if you chose the **Active Sessions** subtab, a list of active sessions appear as rows in a summary table.

You can filter the rows by clicking the *Filter by Attributes* bar. Choose the attribute, operator and filter-value. For example, for filtering based on a username, choose username == user1 (where user1 is a user logged into Cisco Cloud Network Controller).

**Step 3** To view a summary pane, click the row that represents the specific component you want to view.

**Step 4** For more information, double-click the summary table row that represents the specific item you want to view.

A new dialog box appears over the **work** pane that displays additional information about the item you chose from the summary table.

## Viewing Infrastructure Details

This section explains how to view infrastructure details using the Cisco Cloud Network Controller GUI. The infrastructure details include information about system configuration, inter-region connectivity, and external connectivity.

**Step 1** From the **Navigation** menu, choose the **Infrastructure** tab.

When the **Infrastructure** tab expands, a list of subtab options appear. See the *Infrastructure Options* table for more information.

**Table 4: Infrastructure Subtabs**

Subtab Name	Description
<b>System Configuration</b>	Displays <b>General</b> system configuration information, <b>Management Access</b> information, <b>Controllers</b> , and <b>Event Analytics</b> .
<b>Inter-Region Connectivity</b>	Displays one pane with a map that contains the inter-region connectivity view and additional panes for each region.
<b>Inter-Site Connectivity</b>	Displays one pane with a map that contains the inter-site connectivity view and additional panes for each region.

**Step 2** Click the tab that represents the component with the details you want to view.

## Viewing Administrative Details

This section explains how to view administrative details using the Cisco Cloud Network Controller GUI. The administrative details include the information about authentication, security, users, and smart licensing..



**Step 1** From the **Navigation** menu, choose the **Administrative** tab.

When the **Administrative** tab expands, a list of subtab options appear. See the *Administrative Options* table for more information.

**Table 5: Administrative Subtabs**

Subtab Name	Description
<b>Authentication</b>	<p>Displays the <b>Authentication Default Settings</b>, <b>Login Domains</b>, and <b>Providers</b> subtabs, which contain the information described below:</p> <ul style="list-style-type: none"> <li>• <b>Authentication Default Settings</b> Tab—Displays settings information.</li> <li>• <b>Login Domains</b> Tab—Displays the login domains as rows in a summary table.</li> <li>• <b>Providers</b> Tab—Displays the providers as rows in a summary table.</li> <li>• <b>Event Analytics</b> Tab—Displays the <b>Faults</b>, <b>Events</b>, and <b>Audit Logs</b> subtabs, each with the corresponding information displayed as rows in a summary table.</li> </ul>
<b>Security</b>	<p>Contains the following list of subtabs:</p> <ul style="list-style-type: none"> <li>• <b>Security Default Settings</b> Tab—Enables you to view the default security settings information.</li> <li>• <b>Security Domains</b> Tab—Enables you to view security domain information in a summary table.</li> <li>• <b>Roles</b> Tab—Enables you to view the role information in a summary table.</li> <li>• <b>RBAC Rules</b> Tab—Enables you to view RBAC rule information in a summary table.</li> <li>• <b>Certificate Authorities</b> Tab—Enables you to view the certificate authority information in a summary table.</li> <li>• <b>Key Ring</b> Tab—Enables you to view key ring information in a summary table.</li> </ul>
<b>Users</b>	<p>Contains the following subtabs:</p> <ul style="list-style-type: none"> <li>• <b>Local</b> Tab—Displays local users as rows in a summary table.</li> <li>• <b>Remote</b> Tab—Displays remote users as rows in a summary table.</li> </ul>

Subtab Name	Description
Smart Licensing	<p>Contains the following subtabs:</p> <ul style="list-style-type: none"> <li>• <b>General</b> Tab—Displays the licenses as rows in a summary table.</li> <li>• <b>Faults</b> Tab—Displays faults as rows in a summary table.</li> </ul>

**Step 2** Click the tab that represents the component you want to view.

For some options, a summary table appears with items as rows in the table (For example, if you choose the **Users** tab, a list of users appear as rows in a summary table). To view a summary pane, click the row that represents the specific component you want to view. To view more information, double-click the summary table row that represents the specific item you want to view. A new dialog box appears over the **work** pane that displays additional information about the item you chose from the summary table.

**Note** You can filter the rows by entering an attribute in the *Filter by Attributes* bar.

## Viewing Health Details Using the Cisco Cloud Network Controller GUI

This section explains how to view health details using the Cisco Cloud Network Controller GUI. You can view health details for any object that you can see in the Cloud Resources area in the Cisco Cloud Network Controller GUI, such as the following:

- Regions
- Availability Zones (for AWS cloud sites)
- VPCs (for AWS cloud sites)
- VNETs (for Azure cloud sites)
- Routers
- Security Groups
- Endpoints
- Instances
- Cloud Services

**Step 1** From the **Navigation** menu, choose the **Dashboard** tab.

The **Dashboard** window for the Cisco Cloud Network Controller system appears. From this window, you can view the overall health status of your system.

The screenshot shows the Dashboard window with the following sections:

- Health Summary:** Major (indicated by a yellow shield icon).
- Fault Summary:** A bar chart showing fault counts by severity: Critical (2), Major (14), Minor (4), and Warning (2).
- Inter-Site Connectivity Status:** 4 CSRs, 4 IPsec Tunnels, 4 OSPF, and 0 BGP Sessions.
- Inter-Region Connectivity Status:** 4 CSRs, 0 Virtual Networks, 0 IPsec Tunnels, and 0 BGP Sessions.
- Smart License Registration State:** Unregistered (indicated by a yellow triangle icon).
- Smart License Authorization Status:** Evaluation (76 days remaining).
- Cloud Resources Summary (Azure):**
  - Regions: 0 Total
  - Virtual Networks: 2 Total
  - Routers: 4 Total
  - Endpoints: 0
  - Virtual Machines: 0

**Step 2** Click within the Fault Summary area in the **Dashboard** window.

The **Event Analytics** window appears, showing more detailed information for the specific fault level that you clicked. The following screen shows an example **Event Analytics** window for the faults listed with critical severity.

The screenshot shows the Event Analytics window with the following details:

- Severity Filter:** Critical (indicated by a red 'X' icon).
- Table:**

Acked	Severity	Code	Affected object	Description	Lifecycle	Creation Time
<input type="checkbox"/>	Critical	F0104	topology/pod-1/node-1/sys/caggr-[po1.1]	Bond Interface po1.1 on node 1 of fabric mininet with hostname capic1 is now down	raised	Sep 11 2019 05:22:33pm
<input type="checkbox"/>	Critical	F0104	topology/pod-1/node-1/sys/caggr-[po1]	Bond Interface po1 on node 1 of fabric mininet with hostname capic1 is now down	raised	Sep 11 2019 05:22:33pm
- Footer:** 10 Rows, Page 1 of 1, 1-2 of 2.

**Step 3** Click the **X** next to the Severity level to display Event Analytics information for all faults.

The information provided in the **Event Analytics** window changes to show the events with critical, major, and warning levels of severity.

## Viewing Health Details Using the Cisco Cloud Network Controller GUI

Acked	Severity	Code	Affected object	Description	Lifecycle	Creation Time
No	Critical	F0104	topology/pod-1/node-1/ryu/caggr-[po1.1]	Bond interface po1.1 on node 1 of fabric mininet with hostname capic1 is now down	raised	Sep 11 2019 05:22:33pm
No	Critical	F0104	topology/pod-1/node-1/ryu/caggr-[po1]	Bond interface po1 on node 1 of fabric mininet with hostname capic1 is now down	raised	Sep 11 2019 05:22:33pm
No	Major	F3442	acct-{infra}/region-{eastus}/context-{eventy-1}-addr-[10.10.0.128/25]/csr-[cl_routerp_eastus_1_0]/instoper	Operational State of the hcloudInstanceOper is down with [computeVirtualMachinesClientCreateOrUpdate: Failure sending request: StatusCode=404 -- Original Error: Code= "ResourceGroupNotFound" Message="Resource group 'APFC-infra-mininet-fchazet-centralus' could not be found."]	raised	Sep 11 2019 07:38:27pm
No	Major	F3442	acct-{infra}/region-{centralus}/context-{eventy-1}-addr-[10.10.0.0/25]/csr-[cl_routerp_centralus_1_0]/instoper	Operational State of the hcloudInstanceOper is down with [computeVirtualMachinesClientCreateOrUpdate: Failure sending request: StatusCode=404 -- Original Error: Code= "ResourceGroupNotFound" Message="Resource group 'APFC-infra-mininet-fchazet-centralus' could not be found."]	raised	Sep 11 2019 07:38:27pm
No	Major	F3442	acct-{infra}/region-{eastus}/context-{eventy-1}-addr-[10.10.0.0/25]/csr-[cl_routerp_eastus_0_0]/instoper	Operational State of the hcloudInstanceOper is down with [computeVirtualMachinesClientCreateOrUpdate: Failure sending request: StatusCode=404 -- Original Error: Code= "ResourceGroupNotFound" Message="Resource group 'APFC-infra-mininet-fchazet-centralus' could not be found."]	raised	Sep 11 2019 07:39:27pm
No	Major	F3442	acct-{infra}/region-{centralus}/context-{eventy-1}-addr-[10.10.0.0/25]/csr-[cl_routerp_centralus_0_0]/instoper	Operational State of the hcloudInstanceOper is down with [computeVirtualMachinesClientCreateOrUpdate: Failure sending request: StatusCode=404 -- Original Error: Code= "ResourceGroupNotFound" Message="Resource group 'APFC-infra-mininet-fchazet-centralus' could not be found."]	raised	Sep 11 2019 07:45:10pm
No	Major	F3527	acct-{infra}/region-{eastus}/context-{eventy-1}-addr-[10.10.0.128/25]/csr-[cl_routerp_eastus_0_0]/license/oper	Operational State of the HcpPlatformLicense is down with administrative-down	raised	Sep 11 2019 05:21:24pm
No	Major	F3527	acct-{infra}/region-{centralus}/context-{eventy-1}-addr-[10.10.0.0/25]/csr-[cl_routerp_centralus_1_0]/license/oper	Operational State of the HcpPlatformLicense is down with administrative-down	raised	Sep 11 2019 05:21:35pm
No	Major	F0101	topology/pod-1/node-1/ryu/chp-[jdev/vcb]-[jdev/vcb]	Storage unit rdw/vcb on node 1 with hostname capic1 has failed.	raised	Sep 11 2019 05:22:33pm

**Step 4** From the **Navigation** menu, choose the **Cloud Resources** tab.

When the **Cloud Resources** tab expands, a list of subtab options appear. See the *Administrative Options* table for more information.

**Step 5** Choose any item under the **Cloud Resources** tab to display health information for that component.

For example, the following figure shows health information that might be displayed when you click on **Cloud Resources > Regions**, then you select a specific region.

Name	Admin State	Tenants	EPGs	AZs	Virtual Networks
eastus	managed	N/A	N/A	N/A	N/A
eastus2	managed	N/A	N/A	N/A	N/A
westus	managed	N/A	N/A	N/A	N/A
centralus	managed	N/A	N/A	N/A	N/A
koreasouth	unmanaged	N/A	N/A	N/A	N/A
francecentral	unmanaged	N/A	N/A	N/A	N/A
eastasia	unmanaged	N/A	N/A	N/A	N/A
canadeast	unmanaged	N/A	N/A	N/A	N/A
brazilouth	unmanaged	N/A	N/A	N/A	N/A
australiaseast	unmanaged	N/A	N/A	N/A	N/A
australacentral2	unmanaged	N/A	N/A	N/A	N/A
koreacentral	unmanaged	N/A	N/A	N/A	N/A
ukwest	unmanaged	N/A	N/A	N/A	N/A
southindia	unmanaged	N/A	N/A	N/A	N/A
southeastasia	unmanaged	N/A	N/A	N/A	N/A