



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/>

The Prometheus Node Exporter is automatically available by default.

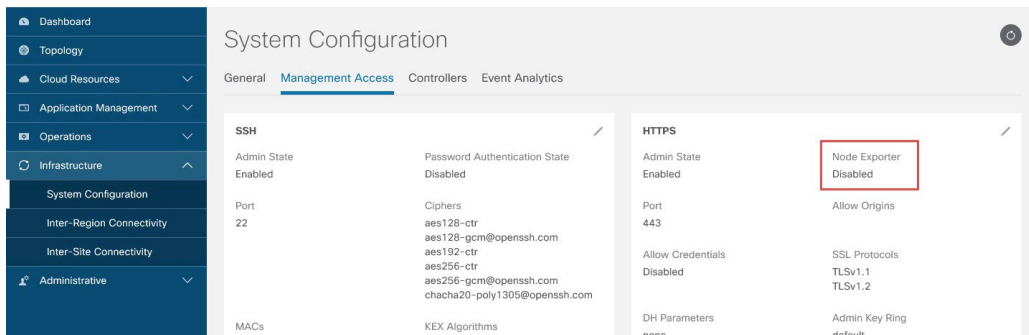
Guidelines and Limitations

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.

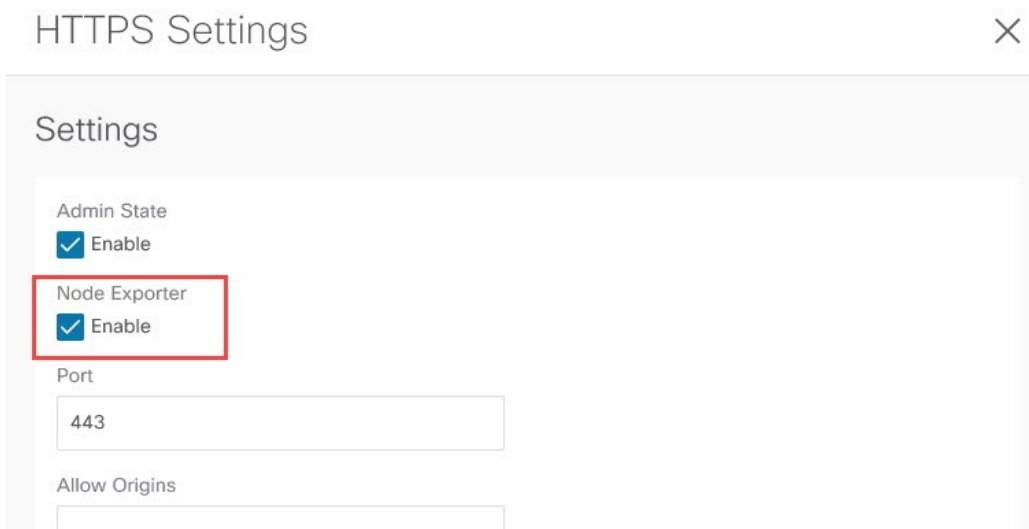


- **Enabled:** The Prometheus Node Exporter has already been enabled. You do not have to continue with these instructions in that case.
- **Disabled:** The Prometheus Node Exporter is not enabled yet. Proceed with these instructions to enable the Prometheus Node Exporter.

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**.



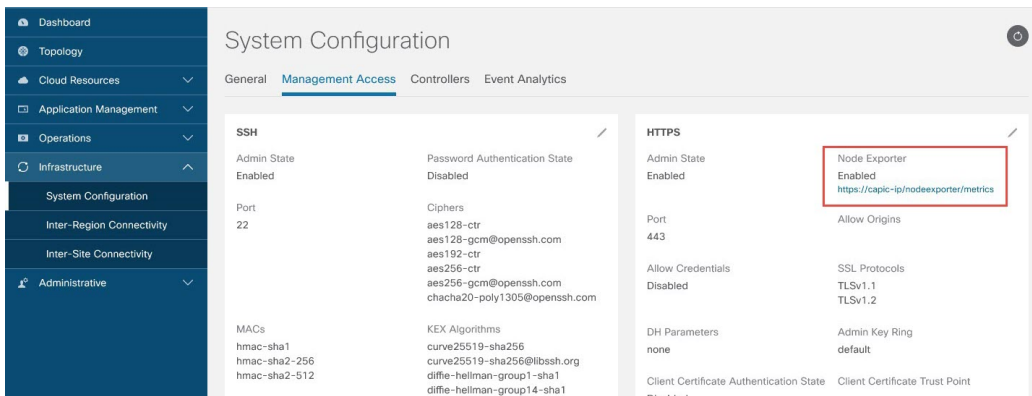
A warning message appears, telling you that saving these settings will restart the web service, and that it will take a moment for it to resume responding to requests. Click **OK** to confirm these changes.

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, cloud context profile, or external network.

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
Tenants	Displays tenants as rows in a summary table.
Application Profiles	Displays application profiles as rows in a summary table.
EPGs	Displays an EPGs as rows in a summary table.
Contracts	Displays a contracts as rows in a summary table.
Filters	Displays filters as rows in a summary table.
VRFs	Displays VRFs as rows in a summary table.
Cloud Context Profiles	Displays cloud context profiles as rows in a summary table.
External Networks	Displays external networks 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 Name == 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.
- **Topology**—Provides visual relationship between an object and other related objects. The chosen object is displayed at the center.
- **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.
- **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, VPC, router, security group (application security group/network security group), endpoint, VM, 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
Regions	Displays regions as rows in a summary table.
VPCs	Displays VPCs as rows in a summary table.
Routers	Displays routers as rows in a summary table.
Endpoints	Displays endpoints as rows in a summary table.
Instances	Displays instances 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 **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.

For the **Endpoints** subtab, you can narrow down the search based on a cloud tag, by entering a **key** or **value** term. If you want to search based on both terms, click the (+) displayed as a superscript to the **key** or **value** term (depending on which was entered first). Cloud tag filters cannot be edited. To modify a search, first delete the filters, and then enter the desired **key** or **value** term again. Search based on multiple cloud tag filters is supported.

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, including the cloud tags associated with endpoints.
- **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.
- **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
Event Analytics	Contains the following subtabs: <ul style="list-style-type: none"> • Faults Tab—Displays faults as rows in a summary table. • Fault Records Tab—Displays fault records as rows in a summary table. • Events Tab—Displays events as rows in a summary table. • Audit Logs Tab—Displays audit logs as rows in a summary table.
Active Sessions	Displays a list of active users who are logged into Cisco Cloud Network Controller.

Subtab Name	Description
Backup & Restore	Contains the following subtabs: <ul style="list-style-type: none"> • Backups Tab—Displays backup as rows in a summary table. • Backup Policies Tab—Displays backup policies as rows in a summary table. • Job Status Tab—Displays the job status as rows in a summary table. • Event Analytics Tab—Contains the following subtabs: <ul style="list-style-type: none"> • Faults Tab—Displays faults as rows in a summary table. • Events Tab—Displays events as rows in a summary table. • Audit Logs Tab—Displays audit logs as rows in a summary table.
Tech Support	Contains the following subtabs: <ul style="list-style-type: none"> • Tech Support Tab—Displays tech support policies as rows in a summary table. • Core Logs Tab—Displays core logs as rows in a summary table.
Firmware Management	Contains the following subtabs: <ul style="list-style-type: none"> • Controllers Tab—Displays general firmware management information, such as Current Firmware Version, Upgrade Status, and so on. • Images Tab—Displays a list of images. • Event Analytics Tab—Contains the following subtabs: <ul style="list-style-type: none"> • Faults Tab—Displays faults as rows in a summary table. • Events Tab—Displays events as rows in a summary table. • Audit Logs Tab—Displays audit logs as rows in a summary table.
Schedulers	Displays scheduler policies as rows in a summary table.
Remote Locations	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
System Configuration	Displays General system configuration information, Management Access information, Controllers , and Event Analytics .
External Connectivity	Displays one pane with a map that contains the inter-region connectivity view.

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

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

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.

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 user, choose User ID == admin (where admin is a user ID.).

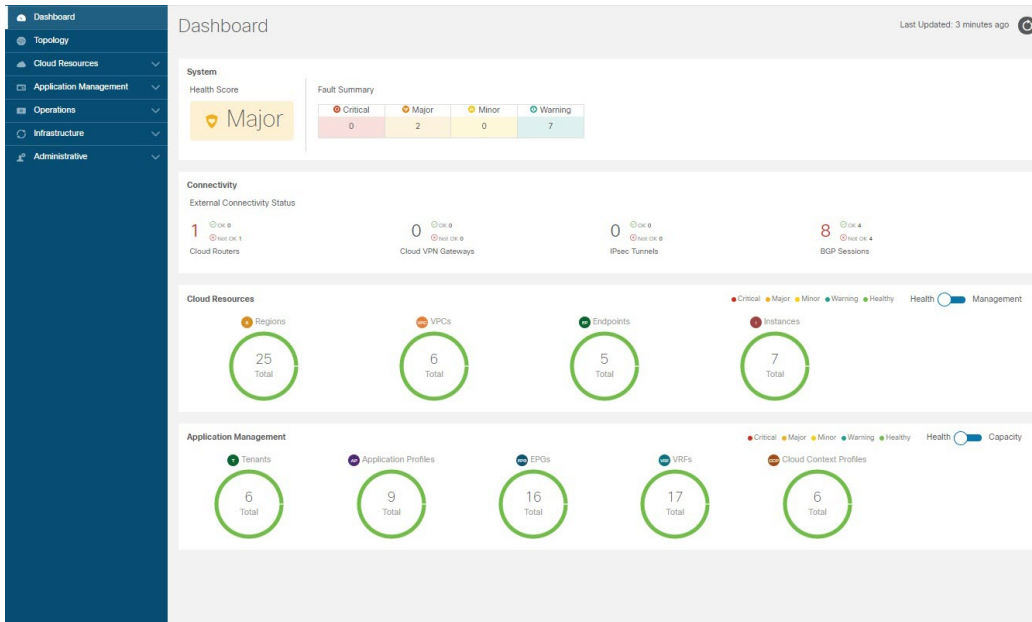
Viewing Health Details Using the Cisco Cloud Network Controller GUI

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
- VPCs
- Endpoints
- Instances

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.



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 Cisco Cloud Network Controller GUI Event Analytics window. The left sidebar is the same as in the dashboard. The main content area is titled 'Event Analytics' and includes tabs for Faults, Fault Records, Events, and Audit Logs. The 'Faults' tab is selected, and the severity is set to 'Major'. The table below shows two fault records:

Acked	Severity	Code	Affected object	Description	Lifecycle	Creation Time
<input type="checkbox"/>	Major	F3881	failedoperholder/failedoper-[acct-tenant1]/region-[global]/ctxprofile-tenant1/vrf/ctaPeer-[acc-[infra]/region-[global]/ctxprofile-[overlay-1]]/ctxpeeroper	Operational State of hcloud.CtaPeer: json: invalid use of string struct tag, trying to unmarshal "project/gcp-ganandkapsic-nprd-67033/global/networks/" into uint84	raised	Aug 28 2021 01:04:51pm -07:00
<input type="checkbox"/>	Major	F3553	failedoperholder/failedoper-[acct-tenant1]/region-[global]/ctxprofile-tenant1/vrf/ctaPeer-[acc-[infra]/region-[global]/ctxprofile-[overlay-1]]/ctxpeeroper	Operational error from Event Channel driver: unable to initialize Event Driver Topic: rpc error: code = PermissionDenied desc = User not authorized to perform this action.	raised	Sep 02 2021 08:52:34pm -07:00

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
<input type="checkbox"/>	Major	F3881	failedoperholder/failedoper-[acct-tenant1]region-[global]chprofile-[tenant1]vrf[cloudpeer-[acct-tenant1]region-[global]chprofile-[overlay-1]]]cloudpeeroper	Operational State of hcloud.CloudPeer: json: invalid use of string struct tag, trying to unmarshal 'projects/gcp-gandalfacp-nprid-67033/global/networks/' into uint64	raised	Aug 28 2021 01:04:51pm -07:00
<input type="checkbox"/>	Major	F3553	failedoperholder/failedoper-[acct-TenantTest]igenericerror	Operational error from Event Channel driver: unable to initialize Event Driver Topic: rpc error: code = PermissionDenied desc = User not authorized to perform this action.	raised	Sep 02 2021 08:52:34pm -07:00
<input type="checkbox"/>	Warning	F3057	licensecont/manager	APIC is in 90 days evaluation period. Navigate to System -> Smart Licensing to register.	raised	Sep 07 2021 11:21:47am -07:00
<input type="checkbox"/>	Warning	F0967	uri[/tenant1/cloudapp-external-ap/cloudextepg-internet/rscons-Allow_access-to_Wordpress	Failed to form relation to MO brc-Allow_access-to_Wordpress of class vzbRCP in context	raised	Sep 07 2021 11:18:21am -07:00
<input type="checkbox"/>	Warning	F0974	uri[/tenant1/cloudapp-external-ap/cloudextepg-internet/rsprov-allow-linux-app-http-https-access	Failed to form relation to MO brc-allow-linux-app-http-https-access of class vzbRCP in context	raised	Sep 07 2021 11:18:21am -07:00
<input type="checkbox"/>	Warning	F0967	uri[/tenant1/cloudapp-linuxapp-ap/cloudextepg-app2/rscons-allow-linux-app-http-https-access	Failed to form relation to MO brc-allow-linux-app-http-https-access of class vzbRCP in context	raised	Sep 07 2021 11:18:21am -07:00
<input type="checkbox"/>	Warning	F0967	uri[/tenant1/cloudapp-linuxapp-ap/cloudextepg-app1/rscons-allow-linux-app-http-https-access	Failed to form relation to MO brc-allow-linux-app-http-https-access of class vzbRCP in context	raised	Sep 07 2021 11:18:21am -07:00
<input type="checkbox"/>	Warning	F0974	uri[/tenant2/cloudapp-frontend/cloudapp-frontend/rsprov-allow-nodejs-app-access	Failed to form relation to MO brc-allow-nodejs-app-access of class vzbRCP in context	raised	Sep 07 2021 11:18:19am -07:00
<input type="checkbox"/>	Warning	F0967	uri[/tenant2/cloudapp-external/cloudextepg-external-epg/rscons-allow-nodejs-app-access	Failed to form relation to MO brc-allow-nodejs-app-access of class vzbRCP in context	raised	Sep 07 2021 11:18:19am -07:00

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**. The health of each region is displayed in the left column of the table in the **Regions** window.

Health	Name	Admin State	Application Management			Cloud Resources	
			Tenants	EPGs	VPCs	Routers	Endpoints
Healthy	asia-east1	managed	0	0	0	0	0
Healthy	asia-east2	managed	0	0	0	0	0
Healthy	asia-northeast1	managed	0	0	0	0	0
Healthy	asia-northeast2	managed	0	0	0	0	0
Healthy	asia-northeast3	managed	0	0	0	0	0
Healthy	asia-south1	managed	0	0	0	0	0
Healthy	asia-southeast1	managed	0	0	0	0	0
Healthy	asia-southeast2	managed	0	0	0	0	0
Healthy	australia-southeast1	managed	0	0	0	0	0
Healthy	europa-central2	managed	0	0	0	0	0
Healthy	europa-north1	managed	0	0	0	0	0
Healthy	europa-west1	managed	0	0	0	0	0
Healthy	europa-west2	managed	0	0	0	0	0
Healthy	europa-west3	managed	0	0	0	0	0
Healthy	europa-west4	managed	0	0	0	0	0
Healthy	europa-west6	managed	0	0	0	0	0
Healthy	northamerica-northeast1	managed	0	0	0	0	0
Healthy	southamerica-east1	managed	0	0	0	0	0
Healthy	us-central1	managed	4	0	0	5	0