# ScienceLogic

# **Monitoring Google Cloud Platform**

Google Cloud Platform PowerPack version 105

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# Chapter

# Introduction

### Overview

This manual describes how to monitor Google Cloud Platform (GCP) resources in SL1 using the Google Cloud Platform PowerPack.

The following sections provide an overview of GCP and the Google Cloud Platform PowerPack:

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### What is Google Cloud Platform?

Google Cloud Platform is a suite of modular, cloud-based products and services that enables users to build, test, deploy, and manage applications for web, mobile, and back-end solutions. It combines physical assets and virtual resources that users can utilize for computing, data storage, networking, and other solutions.

### What Does the Google Cloud Platform PowerPack Monitor?

To monitor GCP resources using SL1, you must install the Google Cloud Platform PowerPack. This PowerPack enables you to discover, model, and collect performance and configuration data about GCP resources.

The Google Cloud Platform PowerPack includes:

- Dynamic Applications to discover, model, and collect configuration data and performance metrics for GCP services and resources
- Device Classes for each type of GCP device that SL1 monitors, plus Device Classes for each region and zone the Google Cloud Platform PowerPack supports
- Event Policies that are triggered when GCP resources meet certain status criteria
- A sample Credential that you can use to create SOAP/XML credentials to monitor GCP devices
- The ScienceLogic Libraries that are utilized by the PowerPack

### What is the GCP Resource Hierarchy?

The GCP resource hierarchy is a tiered methodology that determines GCP resource ownership, in which child resources inherit the access control policies and configuration settings of their parent resources.

The GCP resource hierarchy consists of the following levels:

- Organization. The Organization resource represents an organization, such as a company, and is the top level of the hierarchy for your GCP account. An account can have only one Organization associated with it. Organizations are not required resources, but when an account includes one, every project created by users of that account will belong to that Organization resource by default.
  - Folders. Folders are essentially a tool for organizing resources and creating borders between Projects. For example, they could represent different departments or teams within an Organization. Folders can include one or more Projects or additional sub-folders. Like Organizations, Folders are not required resources.
    - Projects. Projects are the primary resources used for organizing other GCP resources. Unlike
      Organizations and Folders, Projects are required. From the Project level, GCP users can create,
      enable, and use all GCP services and resources; manage APIs and permissions; and perform
      other managerial tasks.

**NOTE**: The Google Cloud Platform PowerPack enables you to discover GCP resources at either the Organization or Project hierarchy level.

### What are GCP Regions and Zones?

GCP resources are hosted in data centers around the globe. A GCP region is an individual data center located in a specific geographic locale. Regional resources are accessible by any resource within the same region. Examples of regional resources include IP addresses, subnets, regionally managed instance groups, and regional operations.

Each region consists of one or more zones. Zone-specific resources are unique to that zone and accessible only by other resources in the same zone. Examples of zone resources include instances, disks, machine types, zone-managed instance groups, and per-zone operations.

Zone names include the region name combined with a letter identifier. For example, "zone a" in the East Asia region is named "asia-east1-a".

The Dynamic Applications in the Google Cloud Platform PowerPack create a "region" component device for each discovered data center region and a "zone" component device for each zone discovered under those regions.

The PowerPack supports the following GCP regions and zones:

- Generic Region/Zone
- Asia East 1 (Taiwan)
- Asia East 2 (Hong Kong)
- Asia Northeast 1 (Tokyo)
- Asia Northeast 2 (Osaka)
- Asia South (Mumbai)
- Asia Southeast 1 (Singapore)
- Australia Southeast 1 (Sydney)
- Europe North 1 (Finland)
- Europe West 1 (Belgium)
- Europe West 2 (London)
- Europe West 3 (Frankfurt)
- Europe West 4 (Eemshaven)
- Europe West 6 (Zurïch)
- North America Northeast 1 (Montréal)
- South America East 1 (São Paulo)
- US Central 1 (lowa)
- US East 1 (South Carolina)
- US East 4 (Northern Virginia)
- US West 1 (Oregon)
- US West 2 (Los Angeles)
- Multi-Region Asia
- Multi-Region Europe North 1 / Europe West 4
- Multi-Region European Union
- Multi-Region United States
- Multi-Region US Central 1 / US East 1

### Installing the Google Cloud Platform PowerPack

Before completing the steps in this manual, you must import and install the latest version of the Google Cloud *Platform* PowerPack.

**NOTE:** ScienceLogic does not recommend using version 101 of the Google Cloud Platform PowerPack because of installation and collection issues which can arise in some system configurations. When upgrading from version 100 to later versions, ScienceLogic recommends that you delete your previously discovered Google Cloud devices as well as version 100 of the PowerPack, and then install version 102 or later. This is because the collections and devices present in version 100 is not compatible with later releases.

TIP: By default, installing a new version of a PowerPack overwrites all content from a previous version of that PowerPack that has already been installed on the target system. You can use the *Enable Selective PowerPack Field Protection* setting in the **Behavior Settings** page (System > Settings > Behavior) to prevent new PowerPacks from overwriting local changes for some commonly customized fields. (For more information, see the *System Administration* manual.)

To download and install a PowerPack:

- 1. Download the PowerPack from the <u>ScienceLogic Support Site</u>.
- 2. Go to the **PowerPack Manager** page (System > Manage > PowerPacks).
- 3. In the **PowerPack Manager** page, click the **[Actions]** button, then select Import PowerPack.
- 4. The Import PowerPack dialog box appears:

Im	ort PowerPack™	×
	Browse for file Browse License: Import	

- 5. Click the [Browse] button and navigate to the PowerPack file.
- 6. When the PowerPack Installer modal appears, click the [Install] button to install the PowerPack.

**NOTE:** If you exit the **PowerPack Installer** modal without installing the imported PowerPack, the imported PowerPack will not appear in the **PowerPack Manager** page. However, the imported PowerPack will appear in the **Imported PowerPacks** modal. This page appears when you click the **[Actions]** menu and select *Install PowerPack*.

# Chapter

# 2

# **Configuration and Discovery**

### Overview

The following sections describe how to configure Google Cloud Platform resources for monitoring by SL1 using the Google Cloud Platform PowerPack:

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## Creating a Google Cloud Platform Service Account

To monitor Google Cloud Platform (GCP) resources with SL1, you must first create a GCP **service account** for SL1 in the GCP Console. This service account belongs to SL1 instead of an individual end user, and enables SL1 to communicate with Google APIs when monitoring your GCP resources.

This service account's credentials will include a unique email address and a secret JSON key. You will include this email address and key information when you create the SOAP/XML credential that enables SL1 to monitor your GCP resources.

To create a GCP service account:

- 1. Log in to the GCP Console and go to the Service accounts page. If prompted, select a project.
- 2. Click the [CREATE SERVICE ACCOUNT] button.
- 3. Complete the following fields on the **Create service account** page:

≡	Google Cloud Platform	≵ Example Project → Q.       ▼     0 </th
θ	IAM & admin	Create service account
+ <u>e</u>	IAM	1 Service account details — 😰 Grant this service account access to project (optional) — 3 Grant users access to this service account (optional)
Θ	Identity & Organization	
	Organization policies	Service account details
	Quotas	Service account name
연	Service accounts	Display name for this service account
۰	Labels	Service account ID @example-project-198515.lam.gserviceaccount.com 🗙 C
۵	Settings	
0	Privacy & Security	Service account description Describe what this service account will do
0	Cryptographic keys	
	Identity-Aware Proxy	CREATE CANCEL
8	Roles	
Ξ	Audit Logs	
۲I		

- Service account name. Type a name for the service account.
- Service account ID. This field auto-populates with a service account ID that is based on your Service account name.
- Service account description. Type a description for the service account.
- 4. Click [Create]. Your service account is created, and the Service account permissions page displays.

5. Complete the following fields on the **Service account permissions** page:

≡	Google Cloud Platform	🕈 Example Project 👻	٩	•	5 O O A I 🙆
θ	IAM & admin	Create service account			
+ <u>0</u>	IAM	Service account details — 2 Grant this se	ervice account access to project (optional	) — 3 Grant users access to this service ac	count (optional)
Θ	Identity & Organization				
	Organization policies	Service account permissions (optional)			
	Quotas	Grant this service account access to Example Project so the complete specific actions on the resources in your project.			
연	Service accounts	[Role			
۰	Labels	R = undefined			
٠	Settings	Project Browser			
Ø	Privacy & Security	Access Approval Editor			
0	Cryptographic keys	Android Management Owner			
	Identity-Aware Proxy	App Engine Viewer	Viewer Read access to all resources.		
#	Roles	BigQuery			
≡	Audit Logs	Billing			
		Dinary Authorization			
<1		MANAGE ROLES			

• **Role.** Select Project > Viewer.

**NOTE:** At a minimum, the service account must have a role of "Project" with "Viewer" permissions for the GCP service that you want to monitor.

- 6. Click [Continue]. The Grant users access to this service account page displays.
- 7. Click [Create Key]. The Create key pane appears.
- 8. On the **Create key** pane, select the JSON radio button and then click **[Create]**. The private JSON key is saved to your computer.



- 9. Click [Close], and then click [Done].
- 10. Open the JSON file that was downloaded to your computer and copy the following information:
  - client\_email
  - private\_key

**TIP**: When you copy the private key from the JSON file, it must include the "BEGIN PRIVATE KEY" and "END PRIVATE KEY" lines, including all leading and ending dashes.

*If you are discovering GCP resources at the Project level*, then you can skip the following steps and continue on to the *Enabling Google Cloud APIs* section.

However, **if you are discovering GCP resources at the Organization level**, then you must also do the following:

- 11. In the GCP Console, go to the **IAM** page and select your organization.
- 12. Click [Add].
- 13. Add your service account as a member of the organization, and then add the following mandatory roles:
  - Role > Project > Viewer
  - Role > Resource Manager > Folder Viewer
  - Role > Resource Manager > Organization Viewer
- 14. When you are finished, click **[Save]**.

## Enabling Google Cloud Platform APIs

Before SL1 can monitor GCP, you must also enable two APIs in the GCP portal:

- Cloud Resource Manager API
- Compute Engine API

To enable these GCP APIs:

1. Log in to the GCP Console for your project and go to the API & Services Dashboard page.

2. Click [ENABLE APIS AND SERVICES]. The API Library page appears.

≡	Google Cloud Platform	🐤 Example Project 👻	٩		5	3 Ø Ø A : 🗛
API	APIs & Services	Dashboard 🚦	ENABLE APIS AND SERVICES			
ф Ш &	Dashboard Library Credentials	No APIs or services are e Browse the Library to find and us Popular APIs and service Coogle Drive API Google Drive API allow clients to access resources Google Drive	e hundreds of available APIs and services S S Gmail API Google s Flexible, RESTful access to the	Google Maps Android API Google Maps for your native Android app.	VIEW ALL (185)	
<1						

- 3. In the search bar, type "Cloud Resource Manager API". The page will filter search results while you type.
- 4. Click the Cloud Resource Manager API box.

← Search	Q cloud resource manager api		>
Filter by CATEGORY Developer tools (1) Google Cloud APIs (2)	2 results Cloud Resource Manager API Google The Google Cloud Resource Manager API provides methods for creating, reading, and updating	Google Cloud Deployment Manager V2 API Google The Google Cloud Deployment Manager V2 API provides services for configuring, deploying, and	

- 5. On the Cloud Resource Manager API page, click the [Enable] button.
- 6. Click [Dashboard] on the API & Services left menu and then repeat steps 2-5 to enable the Compute Engine API.

### Creating a SOAP/XML Credential for Google Cloud Platform

To configure SL1 to monitor GCP, you must create a SOAP/XML credential that allows the Dynamic Applications in the Google Cloud Platform PowerPack to connect with your GCP service. An example SOAP/XML credential that you can edit for your own use is included in the Google Cloud Platform PowerPack.

NOTE: If you are using an SL1 system prior to version 11.1.0, the new user interface does not include the Duplicate option for sample credential(s). ScienceLogic recommends that you use the classic user interface and the Save As button to create new credentials from sample credentials. This will prevent you from overwriting the sample credential(s).

To define a SOAP/XML credential:

- 1. Go to the **Credentials** page (Manage > Credentials).
- 2. Locate the GCP: SOAP Credential Example sample credential, click its [Actions] icon (---) and select Duplicate. A copy of the credential, calledGCP: SOAP Credential Example copy appears.
- 3. Click the [Actions] icon (--) for the GCP: SOAP Credential Example copy credential and select *Edit*. The Edit Credential modal page appears.

Name* GCP: SOAP Credential Example				Credential Teste	r
All Organizations S	elect the organizations the credential b	elongs to * 🔹	Timeout (ms) 20000	Select Credential Test	
Content Encoding text/xml	Method ~ POST	HTTP Version ~ http/1.1	v	Select Collector	
URL*				IP or Hostname to test "	
http://example.com/					
HTTP Auth User em7admin		HTTP Auth Password			
Proxy Hostname/IP		Proxy Port O			
optional		Proxy Password			
Proxy User		PTUKY PASAWOR			
optional					
Embedded Password [%P]					
Embed Value [%1] <client_email></client_email>		Embed Value [%2]			
Embed Value [%3]		Embed Value [%4]			
			Add Header		

- 4. Supply values in the following fields:
  - Name. Type a new name for your Google Cloud credential.

### **SOAP Options**

- Embedded Password [%P]. Paste the "private\_key" value from the private key JSON file.
- **Embed Value [%1]**. Type the "client\_email" value from the private key JSON file. For example: myprojectid@myaccount.iam.gserviceaccount.com.

**TIP**: When you copy the "private\_key" from the JSON file, it must include the "BEGIN PRIVATE KEY" and "END PRIVATE KEY" lines, including all leading and ending dashes.

- 5. For all remaining fields, use the default values.
- 6. Click [Save & Close] .

NOTE: The SOAP/XML credential tester is not supported by the Google Cloud Platform PowerPack

### Creating a SOAP/XML Credential in the Classic SL1 User Interface

To configure SL1 to monitor GCP, you must create a SOAP/XML credential that allows the Dynamic Applications in the Google Cloud Platform PowerPack to connect with your GCP service. An example SOAP/XML credential that you can edit for your own use is included in the Google Cloud Platform PowerPack.

To create a SOAP/XML credential to access GCP:

- 1. Go to the Credential Management page (System > Manage > Credentials).
- 2. Locate the GCP: SOAP Credential Example and then click its wrench icon (*P*). The Edit SOAP/XML Credential modal page appears.
- 3. Complete the following fields:

Credential Editor [117]	×
Edit SOAP/XML Credential #117	New Reset
Basic Settings       Profile Name       Content Encoding       Method       HTTP Version         GCP: SOAP Credential - Example       [[text/xml] ~]       [[POST] ~]       [[HTTP/1.1] ~]         URL [ http(s)://Host:Port/Path   %D = Aligned Device Address   %N = Aligned Device Host Name ]       [http://example.com/         HTTP Auth User       HTTP Auth Password       Timeout (seconds)         em7admin       •••••••       2	Soap Options Embedded Password [%P] Embed Value [%1] Embed Value [%2] <client_email> Embed Value [%3] Embed Value [%4]</client_email>
Proxy Settings Hostname/IP Port User	HTTP Headers + Add a header %silo_token=Authorization:Bearer
CURL Options CAINFO CAPATH CLOSEPOLICY CONNECTTIMEOUT COOKIEFILE COOKIEFILE COOKIEFILE COOKIEFILST CRLF	Content-Type: application/json
Save Save As	

### **Basic Settings**

• Profile Name. Type a new name for the credential.

### **SOAP Options**

- Embedded Password [%P]. Paste the "private key" value from the private key JSON file.
- **Embed Value [%1]**. Type the "client\_email" value from the private key JSON file. For example: myprojectid@myaccount.iam.gserviceaccount.com.

**TIP**: When you copy the "private\_key" from the JSON file, it must include the "BEGIN PRIVATE KEY" and "END PRIVATE KEY" lines, including all leading and ending dashes.

- 4. For all remaining fields, use the default values.
- 5. Click the [Save As] button, and then click [OK].

### Creating a Google Cloud Platform Virtual Device

Because the GCP service does not have a static IP address, you cannot discover GCP devices using a regular discovery session. Instead, you must create a **virtual device** that represents the GCP service. A virtual device is a user-defined container that represents a device or service that cannot be discovered by SL1. You can use the virtual device to store information gathered by policies or Dynamic Applications.

To create a virtual device that represents your GCP service:

- 1. Go to the **Device Manager** page (Registry > Devices > Device Manager).
- 2. Click the **[Actions]** button and select Create Virtual Device from the menu. The **Virtual Device** modal page appears.
- 3. Complete the following fields:

Virtual Device		×
Create Virtual Device		Reset
Device Name		
Organization	GCP_ViewerProj1	T
Device Class	GCP   Service	•
Collector	CUG2	T
	Add	

- Device Name. Type a name for the device.
- **Organization**. Select the organization for this device. The organization you associate with the device limits the users that will be able to view and edit the device. Typically, only members of the organization will be able to view and edit the device.
- Device Class. Select GCP | Service.
- Collector. Select the collector group that will monitor the device.

4. Click [Add] to create the virtual device.

## Aligning the Google Cloud Platform Dynamic Applications

The Dynamic Applications in the Google Cloud Platform PowerPack are divided into the following types:

- **Discovery**. These Dynamic Applications poll GCP for new instances of services or changes to existing instances of services.
- **Configuration**. These Dynamic Applications retrieve configuration information about each service instance and retrieve any changes to that configuration information.
- Performance. These Dynamic Applications poll GCP for performance metrics.

When configuring SL1 to monitor GCP services, you must manually align Dynamic Applications to discover GCP component devices.

### Discovering Google Cloud Platform Component Devices

To discover all the components of your GCP service, you must manually align two Dynamic Applications with the GCP virtual device. The specific Dynamic Applications that you must align to the virtual device vary based on whether you are discovering GCP resources from the Organization level or the Project level.

- If you are discovering an Organization, you must align the following Dynamic Applications:
  - GCP: Token
  - GCP: Organization Discovery
- If you are discovering GCP resources from the Project level, you must align the following Dynamic Applications:
  - GCP: Token
  - GCP: Project Discovery

To manually align these Dynamic Applications:

- 1. Go to the **Device Manager** page (Registry > Devices > Device Manager).
- 2. Click the wrench icon (*P*) for your GCP virtual device.
- 3. In the **Device Administration** panel, click the **[Collections]** tab. The **Dynamic Application Collections** page appears.
- 4. Click the [Actions] button and select Add Dynamic Application from the menu.

5. In the **Dynamic Application Alignment** modal:

ynamic Application Alignment		Reset
Dynamic Applications	Credentials	
ulk Snippet Configuration:         GCP: Folder Configuration         GCP: Global Backend Bucket Configuration         GCP: Colbal Backend Service Configuration         GCP: Load Balancing Global HTTP(S) Configura         GCP: Load Balancing Global HTTP(S) Configura         GCP: Load Balancing Global SLP Proxy Configura         GCP: Load Balancing Regional Internal TCP/UD         GCP: Load Balancing Regional Network TCP/UE         GCP: Presistent Disk Configuration         GCP: VPC Network Configuration         GCP: VPC Nutwork Configuration         GCP: Coloal Backend Service Performance         GCP: Coloal Backend Service Performance         GCP: Coloal Backend Service Performance         GCP: Storage Bucket Performance         GCP: Coloal Backend Service Performance         GCP: Storage Bucket Performance         GCP: Coloal Backend Bucket Discovery         GCP: Global Backend Service Dis	SOAP/XML Host: GCP Automation SOAP Credential GCP Org SOAP Credential GCP Project SOAP Credential GCP SOAP Credential	

- In the **Dynamic Applications** field, select GCP Token.
- In the Credentials field, select the credential you created for your GCP service.
- 6. Click **[Save]** to align the Dynamic Application with the GCP virtual device.
- 7. Repeat steps 2-6 to align the "GCP Project Discovery" or "GCP Project Discovery" Dynamic Application, depending on whether you are discovering an Organization or a Project.

**NOTE**: You must align the "GCP: Token" Dynamic Application **before** you align the "GCP: Organization Discovery" or "GCP: Project Discovery" Dynamic Application.

When you align the Dynamic Applications with the virtual device representing your GCP service, SL1 creates a component device representing your GCP Organization or Project.

SL1 then automatically aligns several other Dynamic Applications to that component device. These Dynamic Applications discover and create additional component devices representing your GCP resources.

**NOTE:** SL1 might take several minutes to align these Dynamic Applications and create the component devices in your GCP service.

# Configuring the GCP: BigQuery DataSet Discovery Dynamic Application

The "GCP: BigQuery DataSet Discovery" Dynamic Application is set by default to discover only visible datasets. You can optionally edit the Dynamic Application to discover visible and hidden datasets by updating the 'ALL' value in the Dynamic Application snippet to "true".

To edit the snippet:

- 1. Go to the Dynamic Applications Manager page (System > Manage > Applications).
- 2. Find the "GCP: BigQuery DataSet Discovery" Dynamic Application and click its wrench icon (
- 3. In the Dynamic Applications Properties Editor, click the [Snippets] tab.
- 4. In the **Dynamic Applications Snippet Editor & Registry** page, click the wrench icon (*P*) of the "GCP: BigQuery DataSet Discovery" snippet.
- 5. The content of the snippet will appear. Edit the 'false' value in the following snippet text to 'true':

```
subs ={
'PROJECT_ID':project_id,
'ALL':'false' <---- <FLAG>
}
```

6. Click [Save].

## Viewing Google Cloud Platform Component Devices

In addition to the **Device Manager** page (Registry > Devices > Device Manager), you can view the GCP service and all associated component devices in the following places in the user interface:

• The **Device View** modal page (click the bar-graph icon [<sup>111</sup>] for a device, then click the **Topology** tab) displays a map of a particular device and all of the devices with which it has parent-child relationships. Double-clicking any of the devices listed reloads the page to make the selected device the primary device:



• The **Device Components** page (Registry > Devices > Device Components) displays a list of all root devices and component devices discovered by SL1 in an indented view, so you can easily view the hierarchy and relationships between child devices, parent devices, and root devices. To view the component devices associated with the GCP service, find the GCP virtual device and click its plus icon (+):



The Component Map page (Classic Maps > Device Maps > Components) allows you to view devices by
root node and view the relationships between root nodes, parent components, and child components in a
map. This makes it easy to visualize and manage root nodes and their components. SL1 automatically
updates the Component Map as new component devices are discovered. The platform also updates each
map with the latest status and event information. To view the map for the GCP service, go to the
Component Map page and select the map from the list in the left NavBar. To learn more about the
Component Map page, see the Views manual.



### **Relationships Between Component Devices**

In addition to parent/child relationships between component devices, SL1 also creates relationships between the following component devices:

- Compute Instances and Storage Persistent Disks
- Compute Instances and Subnets
- Compute Instances and VPC Networks
- Load Balancing Global HTTPS and Backend Buckets
- Load Balancing Global HTTPS and Backend Services
- Load Balancing Global HTTPS and Default Backend Services
- Load Balancing Global SSL Proxy and Backend Services
- Load Balancing Global TCP Proxy and Backend Services
- Load Balancing Regional Network TCP/UDP and Compute Instances
- VPC Subnets and VPC Networks

**NOTE:** If an instance is configured in GCP to automatically delete any associated read-write persistent disks when the instance is deleted, then that behavior will also occur in SL1: If the instance is deleted, its related persistent disks will also be deleted. This behavior is controlled in GCP on the **VM Instances** page by the Delete boot disk when instance is deleted checkbox for boot disks and the **When deleting instance** field for additional disks.

Additionally, SL1 can also build relationships between GCP VM Instances and Kubernetes Nodes, for users who also have the *Kubernetes* PowerPack installed.

# Chapter



## **Dashboards**

### Overview

The following sections describe the device dashboards that are included in the Google Cloud *Platform* PowerPack:

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### Device Dashboards

The Google Cloud Platform PowerPack includes device dashboards that provide summary information for GCP component devices. Each of the device dashboards in the Google Cloud Platform PowerPack is set as the default device dashboard for the equivalent device class.

### Google Backend Service

Close Summary Performance Topology Configs do	rnals Interfaces		
Logs Events Tickets Software Processes Se Device Dashboard: Google Backend Service V	Vices TCP/UDP Ports Organization		
Device Name automation-tcp-lb	Managed Type Compo		
ID 319	Category Cloud.		
Class GCP	Sub-Class Global		
Organization TestOrg_GoogleCloudPlatformServices Root Device GCP_Virtual_Root_Device	Uptime 0 days, Group / Collector CUG_A		Backend Service
Parent Device Load Balancing Global Service	Group/Conector COG_A	Automation   RS-AUTO-57	🔺 🕮 🚮 🚍 🥓
Device Hostname			automation-tcp-lb
S 1H 6H 12H	24H 7D	14D 30D	90D
Inbound Traffic	Outbound Traffic		
Inbound Frathc	Outbound Traffic		
$\Lambda$ ,			
		///////////////////////////////////////	
	2.58		
	2.50		
08	08 018		
00 04:00 06:00 08:00 10:00 1	2:00 14:00 UB 04:0	00 06:00 08:00 1	0:00 12:00 14:00
- Inbound Traffic		- Outbound Traffic	
New Connections Per Second	Closed Connections Pe	Per Second	
······································		$\wedge \wedge \wedge \rightarrow \rightarrow \wedge \rightarrow \rightarrow \wedge \rightarrow \rightarrow$	V = V M - V - V - V - V - V - V - V - V - V
0.01	0.01		
0 04:00 06:00 08:00 10:00 1	2:00 14:00 04:0	00 06:00 08:00 1	00 12:00 14:00
- New Connections Per Second		- Closed Connections Per Seco	
		Closed Connections Per Sect	and
Frontend RTT	Open Connections		
10			
5	A A.		
0 04:00 06:00 08:00 10:00 1	2:00 14:00 04:00	06:00 08:00 10:0	0 12:00 14:00
- Frontend RTT		- No Matching Data	

The **Google Backend Service** dashboard displays the following information:

- The basic information about the device
- Six instances of the Multi-series Performance Widget that display the following metrics trended over the specified period of time:
  - ° Inbound traffic
  - ° Outbound traffic
  - New connections per second
  - Closed connections per second
  - ° Frontend RTT
  - ° Open connections

### Google Compute Instance

Close         Summary         Performance         Tgpology         Configs           Logs         Events         Tickets         Tickets         Tickets           Device Deshboard         Coogle Compute Instance         V         Tickets         Tickets	Journals Interfaces s Services TCP/UDP Ports	Organization	
Decice Name is use central 1 a instance-1 D 188 Class is GCP Organization (GCP_Org. RectOrexes of GCP_Org.Rect Parent Orexes of GCP_Org.Rect Decice Hostmane		Managed Type Component Device Category Cloud Compute Stub-Class Compute Instance Uptime 0 days, 00:00:00 Group / Collector CUG_Automation   RS-AUTO-67	
S 1H 6H 12H	24H	70 140	) 30D 90D
CPU UNIZADON 1% 0% 00 00 00 00 12:00 - CPU UNIZADON	Availability	Reserved Cores	There are no events or tickets for this device
0 310Ps 2 30Ps 2 10Ps 4 10P	Dopped Packets 10Packets 5Packets 0Packets 01 00 00 00 00 00 00 00 00 00	and a monoral and a source of a	Packets Sett/Received
Disk Dytes Read Write 0x8 03:00 06:00 09:00 12:00 	Dropped Bytes 5008 2508 08 o3 too 06 00 Droppe	MMMMMM	Bytes Sent Riccined           0.5HB           0HB         05:00           0HB         00:00           0HB         00:00           0HB         00:00           0HB         00:00           0HB         00:00

The **Google Compute Instance** dashboard displays the following information:

- The basic information about the device
- A list of events and tickets for the device
- Nine instances of the Multi-series Performance Widget that display the following metrics trended over the specified period of time:
  - CPU utilization
  - Availability
  - ° Reserved cores
  - Disk IOPS
  - Dropped packets
  - Packets sent and received
  - Disk read/write bytes count
  - Dropped bytes
  - ° Bytes sent/received

### Google Compute Instance Service

	Performance Top Tickets	ology <u>C</u> onfigs	Journals Interfac	es Deservation					
Logs Events Device Dashboard: Google Compute Instance Set	-	ware Processes	s services ICP/0DP	Ports Organization					
Device Name us-central1-a Co					Component Device				
ID 82					Cloud Service				
Class GCP Organization GCP Project					Compute Service 0 days, 00:00:00				Instance Service
Root Device GCP_Project_Ro	iot				CUG_Automation   R	S-AUTO-57			
Parent Device us-central1-a									🔺 🔍 📶 🗇 🥜
Device Hostname									us-central1-a Compute
✓ 1H	6H	12H	24H	7D		141	) 30D	90D	
Top 10 Instances By CPU Utilization			Top 10 Instances By Disk Write IOPs				Top 10 Instances By Packets Received		
us-central1-a rramirez-instance-us-			us-central1-a nillca-us-central1-ig3-sjbj		_		us-central1-a rvillca-us-central1-ig3-sjbj		
central1-a									
us-central1-a rvillca-us-central1-ig3-sjbj			us-central1-a rramirez-instance-us- central1-a		_		us-central1-a rvillca-us-central1-ig3-g8vz		
			us-central1-a rvillca-us-central1-iq3-fhsm				us-central1-a rvillca-us-central1-ig3-fhsm		
us-central1-a rvillca-us-central1-ig3-fhsm			us-central i-a milica-us-central i-igo-insm				us-central 1-a Milca-us-central 1-igo-insm		
					_				
			us-central1-a rvillca-us-central1-ig3-g8vz				us-central1-a rramirez-instance-us-		
us-central1-a rvillca-internal-client-tester- load-balancing							central1-a		
					_				
			us-central1-a rvillca-internal-client-tester-				us-central1-a rvillca-internal-client-tester-		
us-central1-a rvillca-us-central1-ig3-g8vz			load-balancing				load-balancing		
0%	0.1% 0.2% 0	3% 0.4% 0.5%		0 0.05 0.1		0.2 0.25		v 1	2 3
GCP: VM Instanc	e Performance CPU Utilizati	on	GCP: VM Instat GCP: VM Instat	nce Performance Disk Rea nce Performance Disk Wri	te Ops Count		GCP: VM Instance Pe GCP: VM Instance Pe	formance Network Sent Packets formance Network Received Pa	Count ckets Count

The Google Compute Instance Service dashboard displays the following information:

- The basic information about the device
- Three instances of the Multi-series Performance Widget that display the following metrics trended over the specified period of time:
  - Top 10 instances by CPU utilization
  - Top 10 instances by disk write IOPS
  - Top 10 instances by packets received

### Google Global HTTP(S) Load Balancer



The Google Global HTTP(S) Load Balancer dashboard displays the following information:

- The basic information about the device
- A list of events and tickets for the device
- Five instances of the Multi-series Performance Widget that display the following metrics trended over the specified period of time:
  - ° Latency
  - ° Request counts
  - ° Frontend RTT
  - ° Request bytes
  - ° Response bytes

### Google Persistent Disk

Close <u>Summary P</u> erformance T <u>o</u> pology <u>C</u> onfigs Journals	Interfaces			
Logs <u>Events</u> <u>Tickets</u> Software Processes Services  2evice Dashboard: [Google Persistent Disk ♥	TOP/UDP Ports Organization			
Descritation us central a automation we a1 D 3/3 Class GCP Organization Teachy CooleCloudPlatformServices Rout Druces GCP_Vintur Stock Performances Performances Descritationer	Uptime 0			Persistent Disk
S 1H 6H 12H	24H 7D	14D	30D	90D
Dak Throttied Byte Count. Dak ReadWite Byte C Some 25me 25me 25me	Sount	mmm	There are no events or ti	ckets for this device
0mB 06:00 09:00 12:00 15:00 06B	06:00 09:00 — Disk Read Bytes Count — Disk Write B			
Disk Read Operations 0.05Read Operations	Disk Write Opera 40Write Ops 20Write Ops		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	hilling
0225Read Ops 0Read Ops 06'00 00'00 10'00 12'00 - Disk Read Ops Count	14:00 0Write Ops	04:00 06:00	08 <sup>1</sup> 00 10 <sup>1</sup> 00 — Disk Write Ops Count	12:00 14:00
Disk Throttled Read Operations	Disk Throttled Wr	ite Operations		
0.05Read Ops	0.05Write Ops 0.025Write Ops			
6Read Ops 04'00 06'00 08'00 10'00 12'00	14:00 0Write Ops	04:00 06:00	08:00 10:00 — Disk Throttled Write Ops Count	12:00 14:00

The **Google Persistent Disk** dashboard displays the following information:

- The basic information about the device
- A list of events and tickets for the device
- Six instances of the Multi-series Performance Widget that display the following metrics trended over the specified period of time:
  - Disk throttled byte count
  - Disk read/write byte count
  - Disk read operations
  - Disk write operations
  - Disk throttled read operations
  - ° Disk throttled write operations

### Google Persistent Disk Service

Close         Summary         Performance         Topology         Config           Logs         Events         Tickets         Stoffware         Process           Device Dashboard:         Google Persistent Disk Service         V         V	IS Journals Interfaces res Services TCP/UDP Ports	Organization		
Original accential a Persitent Dak Service     D 153     Olass GOP     Organization GOP Project     Red Device Oper Project Red     Parent Device oper service Red     Parent Device Service Red     Parent Device Service Red     Parent Device Red     Pa		Managed Type Component Device Category Colou Service Sub-Class Persisten Dick Service Usime 0 days, 00:00:00 Group / Collector CUG_Automation   RS-AUTO-S7		Persistent Disk Service
S 1H 6H 12H	24H	7D 14	D 30D	90D
Top Disks by Write Byte Count	Top 10 Disks By Disk Write IOPs		Top 10 Instances By Throttled Write Bytes Count	
us central 1-a nilica-us central 1-ig3-g%z:	us-central1-a rvillca-us-central1-ig3-sjbj: [0]	_	us-central1-a rvilica-us-central1-ig3-g8vz	-
us-entral1-a nilca-us-central1-ig3-sjig (0	us-central1-a rramirez-instance-us- central1-a: [0]	_	us-central1-a nilica-us-central1-ig3fhsm: 3153845049	
us-central 1-a nilca-us-central 1-g3-fram: [0]	us-centrai1-a rvilica-us-centrai1-ig3-g8vz: [0]	_	us-central1-a nillca-us-central1-ig3-sjbj	
us-central1-a resmirez-instance-us- central1-a_(0)	us-central1-a nilica-internal-client-tester- load-balancing: [0]	_	us-central1-a nvilCa-internal-client-tester- load-balancing	
us-central 1-a nilica-internal-client-tester- load-balancing: [0]	us-central1-a nillca-us-central1-ig3-fhsm: [0]		us-central1-a rramirez-instance-us- central1-a	
0kB 50kB 100kB 150kB	0	2.5 5 7.5 10 unt Disk Write Ops Count	0kB 10kB 20kB	30kB 40kB 50kB ed Write Bytes Count

The Google Persistent Disk Service dashboard displays the following information:

- The basic information about the device
- Three instances of the Multi-series Performance Widget that display the following metrics trended over the specified period of time:
  - Top 10 disks by write byte count
  - Top 10 disks by disk write IOPS
  - Top 10 instances by throttled write bytes count

### Google Project

Close Summary	Performance	Topology	Configs	Journals Interfac	es							
Logs <u>E</u> vents	Tickets	Software	Processes	Services TCP/UDP	Ports Organizatio	n						
Device Dashboard: Google Project  V Device Name RS-auto-project						Component Device						-
ID 157	ect					Cloud.Service						
Class GCP					Sub-Class							111
Organization TestOrg Goo	gleCloudPlatformServices					0 days, 00:00:00						111
Root Device GCP_Virtual	Root_Device				Group / Collector	CUG_Automation   RS-AL	UTO-57					<b>.</b> .
Parent Device GCP_Virtual_	Root_Device										L 🙁 📶 🖶 🥜	
Device Hostname											RS-auto-project	
												=
⊠ 1H	6H		12H	24H	7(	b   .	14	D	30D	90D		
Top VMs By CPU Ultilization				Top Disks By Disk Write Operations				Top Storage Buckets By Netw	ork Received Bytes			
us-central1-b automation-ig-ssl-us- central1-1				us-central1-b automation-vm-client: [0]								
us-central1-b automation-ig-ssl-us- central1-2				us-central1-a automation-vm-a2: [0]								
us-east1-b automation-ig-ssl-us-east1-1				us-central1-a automation-vm-a1: [0]								
us-east1-b automation-ig-ssl-us-east1-2		_		us-central1-b automation-www-video: [0]			-1					
us-central1-b automation-www-video				us-central1-c automation-vm-c2: [0]				us automation-video-bucket				
us-central1-c automation-vm-c1				us-central1-c automation-vm-c1: [0]				us automation-video-bucket				
us-central1-c automation-vm-c2		_		us-central1-b automation-www: [0]								
us-central1-a automation-vm-a2				us-central1-b automation-www2: [0]								
us-central1-c automation-ig-us-central1-2				us-central1-b automation-www1: [0]								
us-central1-a automation-vm-a1				us-central1-b automation-www3: [0]								
0%	0.1% 0.2%	0.3% 0.4%	0.5%		10	20	30	0k				30kB
	CPU Utilization			Disk Read C	ps Count 🛛 Disk Writ	e Ops Count		Network S	Sent Bytes Count 🛛 I	etwork Received Bytes	Count	

The Google Project dashboard displays the following information:

- The basic information about the device
- Three instances of the Multi-series Performance Widget that display the following metrics trended over the specified period of time:
  - Top VMs by CPU utilization
  - Top disks by write operations
  - ° Top storage buckets by network received bytes

### Google Regional TCP/UDP Load Balancer

Clo		immary	Performance	Topology	Configs	La como da	In the state sector						
Log		vents	Tickets	Topology	Connigs		P/UDP Ports	Organizatio	n				
	board: Google Reg			Connaro	11000000	00111000		organizatio					
1		us-west1 to-de						Managed Type	Component Device				
	ID	213						Category	Cloud Network				<b>—</b>
	Class								Load Balancing Regional Internal TO	P/UDP			Load Balancer
		GCP_Project							0 days, 00:00:00				Reg Internal
		GCP_Project_F					G	roup / Collector	CUG_Automation   RS-AUTO-57				🔺 🕫 🔐 🗇 🥜
		Load Balancing	Regional Service										us-west1 to-delete-be
	Device Hostname												us nest no cente de
8	1H		6H		12H	24H		70		4D	30D	90D	
					1211	2411					005		
RTT Latence													
30ms													
										There are no even	ts or tickets for this device		
20ms					1								
					٨								
					Λ								
10ms				A A A	1								
	1/1			$\Lambda \Lambda \Lambda$									
	IN	Λ	~~	$1 \leq 1 \leq 1$			~ ~						
0ms													
	10:00		11:00	12:00	13:00	14 00	15:00						
				- RTT Latencies									
	Inbound/Outbound							Packets Inbou	nd/Outbound				
125kiB	-						0.					~ ~ ~	~ ~ ~ ~ ~
1000	$\sim$	$\sim$	$\sim$			~~~~	~~~	2000Packets	~~~~	$\sim$			$\sim$ $\sqrt{-}$
100kiB								Looor denote					
75kiB								1500Packets					
1000													
50kiB								1000Packets					
JUND													
25kiB		~	~~~	~~~~	~~~~			500Packets					
					_								
0kiB	10:00		11:00	12:00	13:00	14:00	15:00	0Packets	10:00	11:00	12:00 13:00	14:00	15:00
	10:00					14.00	15:00		10.00			14:00	15:00
			- Inbound T	hroughput — Outb	ound Throughput					<ul> <li>Inbound Packe</li> </ul>	ts — Outbound Packets		

The Google Regional TCP/UDP Load Balancer dashboard displays the following information:

- The basic information about the device
- A list of events and tickets for the device
- Three instances of the Multi-series Performance Widget that display the following metrics trended over the specified period of time:
  - RTT latency
  - Throughput inbound/outbound
  - Packets inbound/outbound

### Google Storage Bucket

Close Summary Performance Topology Configs Journals Inter	
Logs Events Tickets Software Processes Services TCP/UC	DP Ports Organization
Device Dashboard: Google Storage Bucket \vee	
Device Name us automation-video-bucket	Managed Type Component Device
ID 336	Category Cloud Storage
Class GCP Organization TestOrg GoogleCloudPlatformServices	Sub-Class Storage Bucket Uptime 0 days, 00.00.00 Storage Bucket
Root Device GCP_Vitual_Root_Device	Group Collector, CIIG Automation   BSAI IT0-57
Parent Device us Storage Service	
Device Hostname	us automation-video-ju
S 1H 6H 12H 24H	7D 14D 30D 90D
Network Sent/Received Byte Counts	
	**
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	A MARK
20kB	There are no events or tickets for this device
0kB 04:00 06:00 08:00 10:00 12:00 14:00	
Network Sent Bytes Count — Network Received Bytes Count	
Object ACL Access and Mutation Counts	API Request Count
Odjet ACCess and Midlandi Counts	
0.01	
	A A 0.05
0.005 \_^_ /\ /\ /\ \ \ \ \ \ \	
<sup>-</sup> 04:00 06:00 08:00 10:00 12:00 14:00	04:00 06:00 08:00 10:00 12:00 14:00
- Object ACL Access Count - Object ACL Mutation Count	- API Request Count
Storage Object Count	Total Bytes
2	
1	2MB
0 04:00 06:00 08:00 10:00 12:00 14:00	04:00 06:00 06:00 10:00 12:00 14:00
Storage Object Count	- Total Bytes

The **Google Storage Bucket** dashboard displays the following information:

- The basic information about the device
- A list of events and tickets for the device
- Five instances of the Multi-series Performance Widget that display the following metrics trended over the specified period of time:
  - ° Network sent/received byte counts
  - Object ACL access and mutation counts
  - API request count
  - Storage object count
  - Total bytes

### Google Storage Bucket Service

Cise         Summary         Performance         Topology         Configs           Loss         Events         Titletts         Titletts         Titletts           werke Dathabaut (coold storage boutst Evence)         Distance         Titletts         Titletts           Datestandi         13 Starge Strice         Titletts         Titletts         Titletts           Distance         13 Starge Strice         Titletts         Titletts         Titletts           Organization         Titletts         Titletts         Titletts         Titletts           Organization         Titletts         Titletts         Titletts         Titletts           Device Other Vintual Root_Device         Parent Device is         Titletts         Titletts         Titletts	OrdSINE2EDD Used Service Cutopy Clend Service Userse Userse Ordsy, 00 00 00 Group / Collector UUG_Automation   RS-AUTO-57	Storge Snice Nutli-egonal
원 1H 6H 12H	24H 7D 14	D 30D 90D
Top Storage Buckets By Network Sent Bytes	Top Storage Buckets By Size	Top Storage Buckets By ACL Access Count
		ur automation-ideo-bachet
UKB 5kB 10kB 15kB 20kB 25kB 30kB	UMB 1MB 2MB 3MB	Object ACL Mutation Count Object ACL Access Count

The **Google Storage Bucket Service** dashboard displays the following information:

- The basic information about the device
- Three instances of the Multi-series Performance Widget that display the following metrics trended over the specified period of time:
  - ° Top storage buckets by network sent bytes
  - Top storage buckets by size
  - Top storage buckets by ACL access count

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