Best practices for defining and enforcing policies across your Google Cloud environment

Security Summit Solving for the future of security.

05/17/22





Sri Subramanian

Head of Product, Cloud Identity and Access Management Google Cloud

Vandhana Ramadurai Sr. Product Manager Google Cloud

Why are we here?

Learn how to take a policy driven approach to governing your cloud resources and data

Guidance on best practices for defining and enforcing policies across GCP environment

How GCP Security approaches Policy



Defense in	Policy at	Intelligence &
Depth Controls	Scale	Automation

Defense in Depth Security

GCP Security Policies



IAM Grant

Who can do what on which resource.



IAM Deny

Explicitly block the use of permissions in resources



VPC Service Controls & Firewalls

Constrain data within a VPC and mitigate data exfiltration risks.



Org Policy

Enforce guardrails around which resource configurations are allowed.



Tags

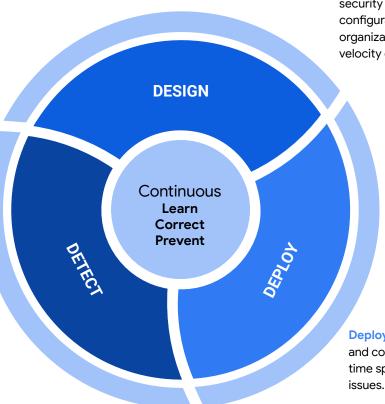
Organize and govern resources across various Business dimensions and conditionally enforce IAM & Org policies using ACLed Tags.



Policy Intelligence

Capabilities which provide more visibility and automation to understand and manage policies to reduce risk. **Policy Lifecycle**

Detect changes to my security posture so that I can understand the impact to risk and my specified business and security outcomes. Report on my security posture for governance and auditing.



Design Security Posture to translate business or security outcomes into underlying policies and configurations so that I can be confident in my organization's posture while meeting my business velocity goals.

Deploy confidently with appropriate business and compliance requirements to reduce risk and time spent remediating downstream security issues.



Design

Proprietary

More than 95% accounts in laaS use less than 3% of the entitlements they are granted.

Gartner[®], Innovation Insight for cloud infrastructure entitlement management, HenriqueTeixeira, Michael Kelley, Abhyuday Data, June 15,2021

GARTNER is a registered trademark and service mark of Gartner, Inc. and/or its affiliates in the U.S. and internationally and is used herein with permission. All rights reserved.

IAM Recommender

Helps remove unwanted access to GCP resources by making smart access recommendations to help improve security and reduce risk.

Safely achieve least-privilege, with least effort

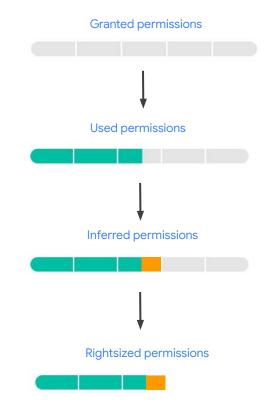
IAM Recommender looks back at the permission usage in the last 90 days and finds unused permissions.

Next, the machine learning model looks at the used permissions and finds "inferred permissions". These permissions have been granted but not used, however, we can predict that the permission will likely be needed in the future based off of similar usage patterns we have observed elsewhere.

IAM Recommender then recommends a new role that removes unused permissions and keeps inferred permissions.

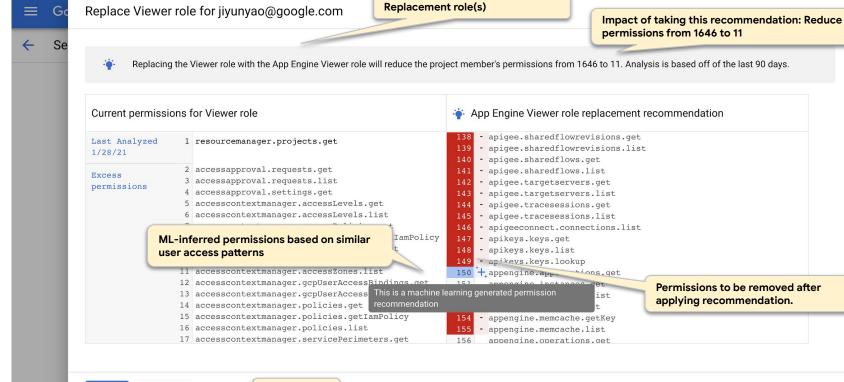
The best part?

No config or setup required



Boogle Clo	oud Platform	- ACME PR	OD 00 👻									2.	Ļ.	
IAM	+2 ADD -	REMOVE			ns for Project,									
PERMISSIO	ONS RECOMM	IENDATIONS H	Folder, & C	Organizatio	n Level Policie	s								
Permis	sions for proj	ect "ACME	E PROD 00"											
			its resources. Learn r	more				_						
				n. 1		Priority								
*		applying recom	leged roles Owner / Ed mendations to these		missions.	Recommenda	itions.				VIEW RECOMMI	ENDATION	S IN TABI	LE
View By:	MEMBERS ROLES							ſ	Over-gran	ted				
									permissio		Include Goog	gle-provide	i role gra	ints
∓ Filte	er Enter property na	me or value											0	
🗌 Ту	rpe Member 🕇				Name	Role		Se	curity insights 🔞	Inheritance		Condition	s	
□ <u>•</u>	858728829	005-compute@	developer.gserviceac	count.com	Compute Engine default service account	Dataproc Worker		•••27/27 excess	permissions 🝷					1
	858728829	005@cloudserv	vices.gserviceaccount	.com	Google APIs Service Age	nt Storage Object Ad	min		0					1
	abhiyadav@	google.com			Abhi Yadav	Owner		4467/4550 excess	permissions 💌					1
[] 역	acme-prod-	00@appspot.g	serviceaccount.com		App Engine default servi account	ce Editor		•••••4196/4200 excess	permissions 💌					1
□ ≛	admin-dem	o@iam-role-rec	-test.joonix.net			Owner Organization Adm			0		ec-test.joonix.net ec-test.joonix.net			1
	agph@goo	le.com			Andrew Priddle-Higson	BigQuery Admin	Recommer	ndations to rem	ove 0			condition		1
	amolkabe@	google.com			Amol Kabe	Organization Adn	or change	to less permissi	ve Ø	💼 iam-role-r	ec-test.joonix.net			1
	azadeha@g	oogle.com			Azadeh Azarian	Owner	role(s)		Ø	🔠 iam-role-r	ec-test.joonix.net			1
□ ≛	beachy@go	ogle.com			Lindsay Beach	Owner Viewer			O O O		ec-test.joonix.net ec-test.joonix.net			1
	carolynhuy	nh@google.con	n			Security Reviewer			0					1
	christopher	law@google.co	m			Custom Role			0					1
	clairelyles@	google.com				Storage Object Ad	min		0					1
	cloud-secu	ity-ux@google.	.com			Access Context M Identity Platform A Organization Adm	dmin		0	iam-role-r	ec-test.joonix.net ec-test.joonix.net ec-test.joonix.net			1

Recommendations for Human users, Groups, & Service Accounts.



Actions CANCEL

DISMISS APPLY

Use Case - Safely remove unnecessary access to sensitive data

- Identify buckets with public access grants
- Help reduce security risk by removing
 excess permissions

Google Cloud Platfe			ts and resources		I 0 A : 🧯
Cloud Storage	Browser 🛨 CREATE	BUCKET TO DELETE C REFRESH		P	HELP ASSISTANT SHOW INFO PAN
Browser		ing Recommendations		×	
Monitoring		layer of security to your account. You can now view se	curity insights for your buckets in the las	t column of	
Settings		w and directly apply security recommendations.	,		
	VIEW IN TAE	BLE LEARN MORE			
	₩ Filter Filter table				Ø 1
	Name Name	Labels 🕐	Requester Pays 🔞	Encryption 🔞	Security Insights 🕘 PREVI
	srishtc-test-bucket		OFF	Google-managed key	* 501/502 excess permissions
	test_bucker_1206		OFF	Customer-managed key	🐐 199/200 excess permissions 👔
	srishtc-hsm-bucket		OFF	Customer-managed key	43/52 excess permission:
	bucket-of-london	wackylabel : iamtest	OFF	Google-managed key	14/11 excess permission:
	staging.londonfog.google.co	om.a.appspot.com	OFF	Google-managed key	31/34 excess permission:
	londonfog.google.com.a.app	pspot.com	OFF	Google-managed key	48/50 excess permission:
	vm-config.londonfog.google.	e.com.a.appspot.com	OFF	Google-managed key	3/3 excess permissions
	vm-containers.londonfog.go	ogle.com.a.appspot	OFF	Google-managed key	🀐 43/52 excess permissions 👩
	us.artifacts.londonfog.googl	le.com.a.appspot.com	OFF	Google-managed key	48/50 excess permissions
	artifacts.londonfog.google.c	com.a.appspot.com	OFF	Google-managed key	0
	us-central1-composer-test-8:	goog-compo: composer-	t 💙 🔵 OFF	Google-managed key	44/44 excess permissions
	test_bucketz44		OFF	Google-managed key	104/372 excess permissions
	parisfrance		OFF	Google-managed key	👻 31/34 excess permissions 🚷
	deletemebucket	test : value1	OFF	Google-managed key	104/372 excess permissions
😤 Marketplace				Rows per page:	50 ▼ 1-13 of 13 <
				none per page.	

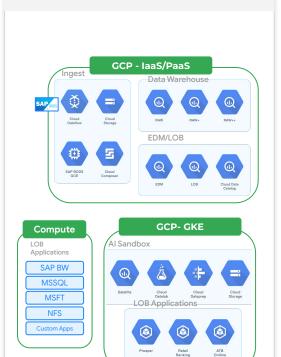


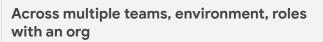
Deploy

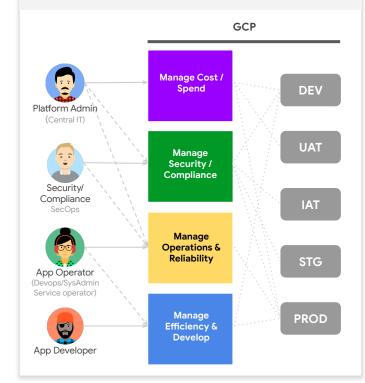
Proprietary

Policy at Scale

Managing 1000s of resources & applications across 1000+ projects







Organization Policies

Enable customers to enforce constraints around which resource configurations are allowed in an organization.

70+ resource-based constraints to

restrict and enforce what and how developers can interact with services and/or resources.

≡	Google Cloud Platform 🖽 iam-role-rec-test.joonix.net 👻 🔍 Search pro		~	۶.	0	۰	+ (
θ	Organization policies							
÷ <u>0</u>	Organization policies for organization "iam-role-rec-							
θ	test.joonix.net"							
٩	Cloud Organization Policies let you constrain access to resources at and below this organization, folder or project. You can edit restrictions on the policy detail page.							
I.						0	Ш	
	Name 1	ID						
연	Allow extending lifetime of OAuth 2.0 access tokens to up to 12 hours	constraints/iam.allowServiceAccountCreder	ntialLifetir	meExten	sion			
5	Allowed AWS accounts that can be configured for workload identity federation in Cloud IAM	constraints/iam.workloadIdentityPoolAwsAc	counts					
_	Allowed Binary Authorization Policies (Cloud Run)	constraints/run.allowedBinaryAuthorizationF	Policies					
	Allowed Destinations for Exporting Resources	constraints/resourcemanager.allowedExport	tDestinati	ions				
	Allowed external Identity Providers for workloads in Cloud IAM	constraints/iam.workloadIdentityPoolProvid	ers					
à	Allowed ingress settings (Cloud Functions)	constraints/cloudfunctions.allowedIngressS	ettings					
-	Allowed ingress settings (Cloud Run)	constraints/run.allowedIngress						
٠	Allowed Sources for Importing Resources	constraints/resourcemanager.allowedImpor	tSources					
c>	Allowed VPC Connector egress settings (Cloud Functions)	constraints/cloudfunctions.allowedVpcConr	nectorEgr	essSetti	ngs			
Ē	Allowed VPC egress settings (Cloud Run)	constraints/run.allowedVPCEgress						
Þ	Allowed Worker Pools (Cloud Build)	constraints/cloudbuild.allowedWorkerPools						

Use Case - Resource Governance at scale

Compliance Admin wants to ensure resources are only created in Europe.

Compliance needs to ensure only compliant services can be used by developers in organization.

	Google Cloud Platform B chak-cloud-testing-or	rg.joonix.net 🔻 🔍 🔍 Search Produ 🗸	.	2 : 🜘
θ	Organization policies		🗐 НЕ	ELP ASSISTANT
•• •	Organization policies for organization testing-org.joonix.net"	"chak-cloud-		
٩	Cloud Organization Policies let you constrain access to reso organization, folder or project. You can edit restrictions on t			
E,	Filter Restrict Resource Service Usage ③ OR Filter Filter by policy name or ID	R 😮 🛛 Google Cloud Platform - Resource Location Restriction 😵	×	0 III
e	Name 个	ID		
-	Google Cloud Platform - Resource Location Restriction	constraints/gcp.resourceLocations		
	Restrict Resource Service Usage	constraints/gcp.restrictServiceUsage		
•				
Ø				

≡ Google Cloud Platform 🗈 chak-cloud-testing-org.joonix.net 👻

Þ. 🕕 🛛

0	IAM & Admin	Organization policies		HELP ASSISTANT
	IAM	Name 🛧	ID	
-		Allow extending lifetime of OAuth 2.0 access tokens to up to 12 hours	constraints/iam.allowServiceAccountCredentialLifetimeExtension	
Θ	Identity & Organization	Allowed AWS accounts that can be configured for workload identity federation in Cloud IAM	constraints/iam.workloadIdentityPoolAwsAccounts	
2	Policy Troubleshooter	Allowed Binary Authorization Policies (Cloud Run)	constraints/run.allowedBinaryAuthorizationPolicies	
		Allowed Destinations for Exporting Resources	constraints/resourcemanager.allowedExportDestinations	
Шģ	Policy Analyzer	Allowed external Identity Providers for workloads in Cloud IAM	constraints/iam.workloadIdentityPoolProviders	
	Organization Policies	Allowed ingress settings (Cloud Functions)	constraints/cloudfunctions.allowedIngressSettings	
0-E	Service Accounts	Allowed ingress settings (Cloud Run)	constraints/run.allowedIngress	
_		Allowed Integrations (Cloud Build)	constraints/cloudbuild.allowedIntegrations	
•	Workload Identity Federat	Allowed Sources for Importing Resources	constraints/resourcemanager.allowedImportSources	
٠	Labels	Allowed VPC Connector egress settings (Cloud Functions)	constraints/cloudfunctions.allowedVpcConnectorEgressSettings	
	Tags	Allowed VPC egress settings (Cloud Run)	constraints/run.allowedVPCEgress	
	Taga	Allowed VPC Service Controls mode for Anthos Service Mesh Managed Control Planes	constraints/meshconfig.allowedVpcscModes	
\$	Settings	Allowed Worker Pools (Cloud Build)	constraints/cloudbuild.allowedWorkerPools	
0	Privacy & Security	Compute Storage resource use restrictions (Compute Engine disks, images, and snapshots)	constraints/compute.storageResourceUseRestrictions	
		Datastream - Block Public Connectivity Methods	constraints/datastream.disablePublicConnectivity	
B	Identity-Aware Proxy	Define allowed external IPs for VM instances	constraints/compute.vmExternalIpAccess	
6	Manage Resources	Define trusted image projects	constraints/compute.trustedImageProjects	
		Disable All IPv6 usage	constraints/compute.disableAllIpv6	
Ē	Release Notes	Disable Automatic IAM Grants for Default Service Accounts	constraints/iam.automaticlamGrantsForDefaultServiceAccounts	
		Disable BigQuery Omni for Cloud AWS	constraints/bigguery.disableBQOmniAWS	
<1		Disable BigQuery Omni for Cloud Azure	constraints/bigquery.disableBQOmniAzure	Show debug pa

Tags are access controlled resources

Centralized Governance for Tagging Taxonomy

- Tags Defined at the Organization level
- Tag Keys & Values must defined before use

Delegation of Tag Usage to Users

• IAM policies control standard CRUD Ops of Tags & Tag Attachment Ops

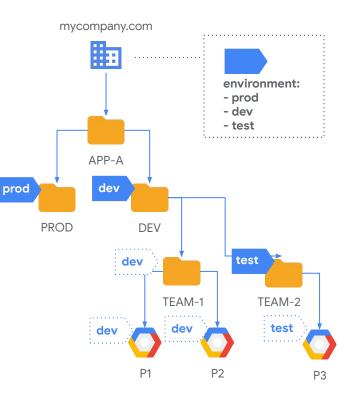
Resource management

Tags group resources according to custom business dimensions (in

addition to resource hierarchy organization)

Policy At Scale

Tags can be conditioned in a policy (IAM & Organization Policies)



=	Google Cloud Platform	chak-cloud-testing-org.joonix.net Search Products, resources, docs (/)	×	>.	1	?	•	
9	IAM & Admin	← Policy details ✓ EDIT			E	HELP AS	SSIST/	ANT
	IAM	You can specify <u>value groups</u> , collections of locations that are curated by Google to provide a simple way to define your resource locations. To use value groups in your						
9	Identity & Organization	organization policy, prefix your entries with the string in :, followed by the value group.						
2	Policy Troubleshooter	If the suggested_value field is used in a location policy, it should be a region or a zone. If the value specified is a region, a UI for a zonal resource may pre-populate any						
1	Policy Analyzer	zone in that region. If the value specified is a zone, a UI for a regional resource may pre- populate the region enclosing the zone.						
	Organization Policies	By default, resources can be created in any location.						1
2	Service Accounts	Applies to						
82	Workload Identity Federat	Organization "chak-cloud-testing-org.joonix.net"						
٠	Labels	Inheritance @						
	Tags	Custom						
¢	Settings	ID						
0	Privacy & Security	constraints/gcp.resourceLocations						
.	Identity-Aware Proxy	Effective policy @						
¢.	Manage Resources	Allowed						
È	Release Notes	europe-central2-locations						
<1		europe-central2-c						
-						Sho	ow deb	bug pane



Detect

Proprietary

IAM vulnerabilities & Policy Violations

Security Command Center will detect

- Vulnerabilities associated with Identity & Access Management
- Vulnerabilities related to configuration of Org Policy Constraints
- Compliance Violations

(Google Cloud Platform 🔠 chak-cloud testing org joonix.net 🔹 🔍 Q. Search: Products, resources, docs (/)	23 O I (
I	Security Command Center	SETTIN
	OVERVIEW VULNERABILITIES ASSETS FINDINGS SOURCES EXPLORE	
1		
	Overview for organization "chak-cloud-testing- org.joonix.net"	
	or gypoin instruction of the second	
	Active Vulnerabilities Over Time By Severity	
	Active vulnerabilities over time by severity Last 7 di	ays 👻
		600
		500
		400
	10% 40% 40% 40% 40% 40%	300
		100
	4/17/22, 11:17 PM 4/02/22, 11:17 PM 4/02/22, 11:17 PM 4/10/22, 11:17 PM 4/10/22, 11:17 PM 4/10/22, 11:17 PM 4/10/22, 11:17 PM	4/14/22, 11:17 PM
	4/7/22, 1137 PM 4/8/22, 1137 PM 4/9/22, 1137 PM 4/7/22, 1137 PM 4/10/22, 1137 PM	4/14/22, 11:17 PM
	Active Vulnerabilities 545 active vulnerabilities	
	FINDINGS BY CATEGORY FINDINGS BY RESOURCE TYPE FINDINGS BY PROJECT	
	Findings by category	
	Filter Enter property name or value	0
	Severity 🔶 Finding Category Total Findings	
	Open RDP port 6	
	Qpen Skiport 6	

Verw by CATEGORY SOURCE TYPe FINDLINGS CHANGE D SEVERTY MORE OPTIONS → Image: Control options → <th>Security Command Center</th> <th>+; UPGR</th> <th>RADE -</th> <th></th> <th></th> <th></th> <th>SETTIN</th>	Security Command Center	+; UPGR	RADE -				SETTIN
by Source Command Center's findings display to review possible security risks for your Google Cloud resources.	OVERVIEW VULNERABILITIES	ASSETS	FINDINGS SOURCES E	XPLORE			
File Attract Lategory Mod findings selected Charles Category Count File Enclose Category Count File File Context File Context File Context File File Context File Context File Context File Context File Context File Context <l< td=""><td>org.joonix.net"</td><td></td><td></td><td>t ud resources.</td><td></td><td></td><td>All time</td></l<>	org.joonix.net"			t ud resources.			All time
Cetegy ↑ Count Filter Entry property name or value ADMIN_SERVICE_ACCOUNT 5 ADMIN_CORREL NOT_MONTORED 2 ADMIN_CONTROL 10 00 60 00 60 00 00 00 00 00	View by CATEGORY SOURCE TYPE FIN	IDINGS CH	ANGED SEVERITY MORE OPTIONS -				± EXF
All catagory resourceName eventTme oreateTme parent ADMN, SERVICE, ACCOUNT 5 APLKY, APR, JUNESTRUCTED 2 AUK, Y, APR, JUNESTRUCTED 2 APLKY, APR, JUNESTRUCTED 2 AUK, Y, APR, JUNESTRUCTED 2 AURICE, VAR, VARS, JUNESTRUCTED 2 APLKY, APR, JUNESTRUCTED 2 AURICE, NOT, MONTORED 2 AURICE, CONTROL (AURICE) 2 AURICE, CONTROL (AURICE) 4 APL ASY, LANSESTRUCTED	€ Find category	No f	indings selected CHANGE ACTIVE STATE	SET SECURITY MARKS			
ADMINUSERVICE_ACCOUNT category recorrectation recorrectation <thr> recoretation recorrectation</thr>	Category Count	ŦΡ	ilter Enter property name or value				0
ADMIN.SERVICE_ACCOUNT S Image: Non_ORG_JAM_MEMBER /// cloudresourcemanager googlespis com/organizations/102407681266 April 7, 202 March 17, 202 organizations/1024076812661/sources/138275474399314 APLKEY_APPS_UNRESTRICTED Image: DPEN_FIREVALL // compute googlespis com/orgitaliond/indemo project 21/global/file. April 8, 2022 April 8, 2022 organizations/1024076812661/sources/138275474399314 APLKEY_ADPS_UNRESTRICTED Image: DPEN_FIREVALL // compute googlespis com/orgitaliond/indemo project 21/cones/us. April 8, 2022 April 8, 2022 organizations/1024076812661/sources/138275474399314 APLKEY_ADPS_UNRESTRICTED Image: DPEN_FIREVALL // compute googlespis com/orgitaliond/indemo project 21/cones/us. April 8, 2022 April 8, 2022 organizations/1024076812661/sources/138275474399314 APLKEY_ADT_ROTATED Image: DPEN_FIREVALL // compute googlespis com/projects/Indom demo project 21/cones/us. February 11. February 11. February 11. organizations/1024076812661/sources/138275474399314 AUDT_LOGGING_DISABLED Image: DPEN_FIREVALL // compute googlespis com/projects/Indom demo project 21/regions/. July 14, 202. May 10, 2021 organizations/1024076812661/sources/138275474399314 AUDT_LOGGING_DISABLED Image: DPEN_FIREVALL // compute googlespis co	▼ All		category	resourceName	eventTime 🕹	createTime	parent
APLKEY_APPS_UNRESTRICTED 0 0PEN_FIREVALL //compute.googleapis.com/projects/indoid-demo.project-21/goba/l/fin. April 8, 2022. April 8, 2022.<	ADMIN_SERVICE_ACCOUNT 5		NON_ORG_IAM_MEMBER	//cloudresourcemanager.googleapis.com/organizations/1024076812661	April 17, 202	March 17, 20	organizations/1024076812661/sources/138275474399314
APLKEY_APPS_UNRESTRICTE I PUBLIC_JP_ADDRESS // compute googleapis.com/projects/london-demo-project-21/zones/us. April 8, 2022 April 8	API_KEY_APIS_UNRESTRICTED 2		OPEN_FIREWALL	//compute.googleapis.com/projects/london-demo-project-21/global/fir	April 8, 2022	April 8, 2022	organizations/1024076812661/sources/138275474399314
APL,KEY_EXISTS 2 APL,KEY_LXIGT_SOTATED 2 APL,KEY_LXIGT_SOTATED 2 APL,KEY_LXIGT_SOTATED 2 AUDIT_COMPIG_NOTATIONED 12 AUDIT_COMPIG_NOTATIONED 12 AUDIT_LOGGING_DISABLED 12 AUDIT_LOGGING_DISABLED 12 AUDIT_LOGGING_DISABLED 12 COMPUTE_PROJECT_WIDE_SSH_L 12 ORG_POLICY_LOCATION_RESTRICTION //compute_googleapis.com/projects/london-demo-project-12/zengions/lo December 2 Oreamber 2	API_KEY_APPS_UNRESTRICTED 1		PUBLIC_IP_ADDRESS		April 8, 2022	April 8, 2022	organizations/1024076812661/sources/138275474399314
APLKEY_NOT_ROTATED 2 AUDIT_CONFIG.NOT_MONITORED 12 AUDIT_CONFIG.NOT_MONITORED 12 AUDIT_LOGGING_INSABLED 12 AUDIT_LOGGING_INSABLED 12 BUCKET_JAM_NOT_MONITORED 12 BUCKET_JAM_NOT_MONITORED 12 BUCKET_JAM_NOT_MONITORED 12 BUCKET_JAM_NOT_MONITORED 12 BUCKET_JAM_NOT_MONITORED 12 BUCKET_JAM_NOT_MONITORED 12 ORG_POLICY_LOCATION_RESTRICTION //compute googleapis.com/projects//ondon-demo-project-12/regions/n July 14, 202. May 10, 2021. organizations/1024076812661/sources/138275474399314 COMPUTE_PROJECT_WIDE_SSH_K.F 0 ORG_POLICY_LOCATION_RESTRICTION //compute googleapis.com/projects//ondon-demo-project-12/regions/n July 14, 202. May 10, 2021. organizations/1024076812661/sources/138275474399314 DEFAULT_NETWORK 0 ORG_POLICY_LOCATION_RESTRICTION //compute googleapis.com/projects/london-demo-project-12/regions/n July 14, 202. May 10, 2021. organizations/1024076812661/sources/138275474399314 LOG_NOT_EXPORTED 12 ORG_POLICY_LOCATION_RESTRICTION //compute googleapis.com/projects/london-demo-project-12/regions/n July 14, 202. May 10, 2021. organizati	API_KEY_EXISTS 2	- 3-3-	SSL_NOT_ENFORCED		1000000000000	March 24, 20_	organizations/1024076812661/sources/138275474399314
AUDIT_CONFIG_NOT_MONITORED 12 AUDIT_LOGGING_DISABLED 12 AUDIT_LOGGING_DISABLED 12 BUCKET_JAM_NOT_MONITORED 12 BUCKET_JAM_NOT_MONITORED 12 ORG_POLICY_LOCATION_RESTRICTION // compute_googleapis_com/projects/london-demo-project-12/regions/a. July 14, 202. May 10, 2021. organizations/1024076812661/sources/138275474399314 COMPUTE_PROJECT_WIDE_SNLK ORG_POLICY_LOCATION_RESTRICTION // compute_googleapis_com/projects/london-demo-project-12/regions/a. July 14, 202. May 10, 2021. organizations/1024076812661/sources/138275474399314 COMPUTE_PROJECT_WIDE_SNLK ORG_POLICY_LOCATION_RESTRICTION // compute_googleapis_com/projects/london-demo-project-12/regions/a. July 14, 202. May 10, 2021. organizations/1024076812661/sources/138275474399314 DEFAULT_NETWORK 6 ORG_POLICY_LOCATION_RESTRICTION // compute_googleapis_com/projects/london-demo-project-12/regions/a. July 14, 202. May 10, 2021. organizations/1024076812661/sources/138275474399314 DEFAULT_NETWORK 6 ORG_POLICY_LOCATION_RESTRICTION // compute_googleapis_com/projects/london-demo-project-12/regions/a. July 14, 202. May 10, 2021. organizations/1024076812661/sources/138275474399314 LOG_NOT_EXPORCED 14 ORG_POLICY_LOCAT			PUBLIC_IP_ADDRESS		February 11, _	February 11,	organizations/1024076812661/sources/138275474399314
AUDIT_LOGGING_DISABLED 12 BUCKET_JAM_NOT_MONITORED 12 BUCKET_JAM_NOT_MONITORED 12 BUCKET_JAM_NOT_MONITORED 12 COMPUTE_PROJECT_WIDE_SSH_K_7 0 CUSTOM_ROLE_NOT_MONITORED 12 DEFAULT_NETWORK 6 ORG_POLICY_LOCATION_RESTRICTION //compute_googleapis.com/projects/london-demo-project-12/regions/n. July 14, 202 May 10, 2021 organizations/1024076812661/sources/138275474399314 DEFAULT_NETWORK 6 0RG_POLICY_LOCATION_RESTRICTION //compute googleapis.com/projects/london-demo-project-12/regions/n. July 14, 202 May 10, 2021 organizations/1024076812661/sources/138275474399314 IDEFAULT_NETWORK 6 0RG_POLICY_LOCATION_RESTRICTION //compute googleapis.com/projects/london-demo-project-12/regions/n. July 14, 202 May 10, 2021 organizations/1024076812661/sources/138275474399314 IDEFAULT_NETWORK 6 0RG_POLICY_LOCATION_RESTRICTION //compute googleapis.com/projects/london-demo-project-12/regions/n. July 14, 202 May 10, 2021 organizations/1024076812661/sources/138275474399314 IDEFAULT_NETWORK 6 0 RG_POLICY_LOCATION_RESTRICTION //compute googleapis.com/projects/london-demo-project-12/regions/a. July 14, 202 May 10, 2021						1.201.000000000	organizations/1024076812661/sources/138275474399314
BUCKET JAM, NONTORED 12 BUCKET JAM, NONTORED 12 COMPUTE_PROJECT_WIDE_SSH, K. 7 0 ORG_POLICY_LOCATION_RESTRICTION // compute_googleapis.com/projects/london-demo-project-12/regions/n. July 14, 202 May 10, 2021 organizations/1024076812661/sources/138275474399314 CUSTOM_ROLE_NOT_MONITORED 12 0 ORG_POLICY_LOCATION_RESTRICTION // compute_googleapis.com/projects/london-demo-project-12/regions/n. July 14, 202 May 10, 2021 organizations/1024076812661/sources/138275474399314 DEFAULT_NETWORK 6 0 ORG_POLICY_LOCATION_RESTRICTION // compute_googleapis.com/projects/london-demo-project-12/regions/n. July 14, 202 May 10, 2021 organizations/1024076812661/sources/138275474399314 FIREWALL_NOT_MONITORED 12 0 ORG_POLICY_LOCATION_RESTRICTION // compute_googleapis.com/projects/london-demo-project-12/regions/n. July 14, 202 May 10, 2021 organizations/1024076812661/sources/138275474399314 LOG_NOT_EXPORTED 12 0 ORG_POLICY_LOCATION_RESTRICTION // compute_googleapis.com/projects/london-demo-project-12/regions/n. July 14, 202 May 10, 2021 organizations/1024076812661/sources/138275474399314 ORG_POLICY_LOCATION_RESTRICTION // compute_googleapis.com/projects/london-demo-project-12/regions/n							
COMPONE_PROJECT_WIDE_SSH_K_7 CUSTOM_ROLE_NOT_MONITORED 12 DEFAULT_NETWORK 6 ORG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/n July 14, 202 May 14, 2021 organizations/1024076812661/sources/138275474399314 DEFAULT_NETWORK 6 0RG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/n July 14, 202 May 10, 2021 organizations/1024076812661/sources/138275474399314 FIREWALL_NOT_MONITORED 12 0RG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/n July 14, 202 May 10, 2021 organizations/1024076812661/sources/138275474399314 LOG_NOT_EXPORTED 12 0RG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/a July 14, 202 May 10, 2021 organizations/1024076812661/sources/138275474399314 LOG_NOT_EXPORTED 12 0RG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/a July 14, 202 May 10, 2021 organizations/1024076812661/sources/138275474399314 NFA_NOT_ENFRCED 12 0RG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/a July 14, 202							organizations/1024076812661/sources/138275474399314
CUSTOM_ROLE_NOT_MONITORED 12 DEFAULT_NETWORK 6 Image: Construct Con		120			and the second s		organizations/1024076812661/sources/138275474399314
DEFAULT_NETWORK 6 Image: Construct of the function of the functic of the function of the function of the function of the function					See Look Constraints	100 - 10 0 00 - 14 10 - 200 - 14 14	organizations/1024076812661/sources/138275474399314
FIREWARL ORG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/e July 14, 202 May 14, 2021 organizations/1024076812661/sources/138275474399314 LOG_NOT_EXPORTED 12 ORG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/a July 14, 202 May 10, 2021 organizations/1024076812661/sources/138275474399314 MFA_NOT_ENFORCED 1 ORG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/a July 14, 202 May 10, 2021 organizations/1024076812661/sources/138275474399314 NETWORK_NOT_MONITORED 12 ORG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/a July 14, 202 May 10, 2021 organizations/1024076812661/sources/138275474399314 NON_ORG_JAM_MEMBER 3 ORG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/a July 14, 202 May 10, 2021 organizations/1024076812661/sources/138275474399314 OPEN_FIREWALL 1 ORG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/a July 14, 202 May 10, 2021 organizations/1024076812661/sources/138275474399314 OPEN_FIREWALL 1 ORG_POLICY_L							organizations/1024076812661/sources/138275474399314
ICON_LOOS_DISALLED ICON ORG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/a. July 14, 202 May 10, 2021 organizations/1024076812661/sources/138275474399314 ILOG_NOT_EXPORTED 1 Image: ORG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/a July 14, 202 May 10, 2021 organizations/1024076812661/sources/138275474399314 MEA_NOT_ENFORCED 1 Image: ORG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/a July 14, 202 May 10, 2021 organizations/1024076812661/sources/138275474399314 NETWORK_NOT_MONITORED 12 Image: ORG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/a July 14, 202 May 10, 2021 organizations/1024076812661/sources/138275474399314 NON_ORG_JAM_MEMBER 3 Image: ORG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/a July 14, 202 May 10, 2021 organizations/1024076812661/sources/138275474399314 OPEN_FIREWALL 1 Image: ORG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/a July 14, 202 May 10, 2021 organizations/1024076812661/sources/138275474399314							
MG_NOT_ENFORCED 1 0RG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/a July 14, 202 May 10, 2021 organizations/1024076812661/sources/13827547439931 NETWORK_NOT_MONITORED 12 0RG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/a July 14, 202 May 10, 2021 organizations/1024076812661/sources/13827547439931 NON_ORG_JAM_MEMBER 3 0RG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/a July 14, 202 May 10, 2021 organizations/1024076812661/sources/13827547439931 OPEN_FIREWALL 1 0RG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/a July 14, 202 May 10, 2021 organizations/1024076812661/sources/13827547439931	CARD AND A REPORT OF A						
NETWORK_NOT_MONITORED 12 C ORG_POLICY_LOCATION_RESTRICTION //compute googleapis.com/projects/london-demo-project-12/regions/a. July 14.202 May 14.2021 organizations/1024076812661/sources/13827547439931 NON_ORG_JAM_MEMBER 3 C ORG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/a. July 14.202 May 10.2021 organizations/1024076812661/sources/13827547439931 OPEN_FIREWALL 1 ORG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/a. July 14.202 May 10.2021 organizations/1024076812661/sources/13827547439931						0107502076000	- organizations/1024076812661/sources/138275474399314
NON_ORG_JAM_MEMBER 3 C ORG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/a July 14, 202 May 10, 2021 organizations/1024076812661/sources/13827547439931 OPEN_FIREWALL 1 0 ORG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/a July 14, 202 May 10, 2021 organizations/1024076812661/sources/13827547439931					2.545.00.10.000000111	1091 (K. 141 (Kengels) 10.17	
OPEN_FIREWALL 1 ORG_POLICY_LOCATION_RESTRICTION //compute.googleapis.com/projects/london-demo-project-12/regions/e_ July 14, 202 May 14, 2021 organizations/1024076812661/sources/13827547439931							- organizations/1024076812661/sources/13827547439931
							organizations/1024076812661/sources/13827547439931
					osuration countration	and the second second	organizations/1024076812661/sources/13827547439931/

Authorization Access Reviews to Sensitive data

- Build queries to report on highly privileged access to data in GCP.
- Uncover direct and indirect access through Service Account Impersonations.
- View history of policies for auditing.

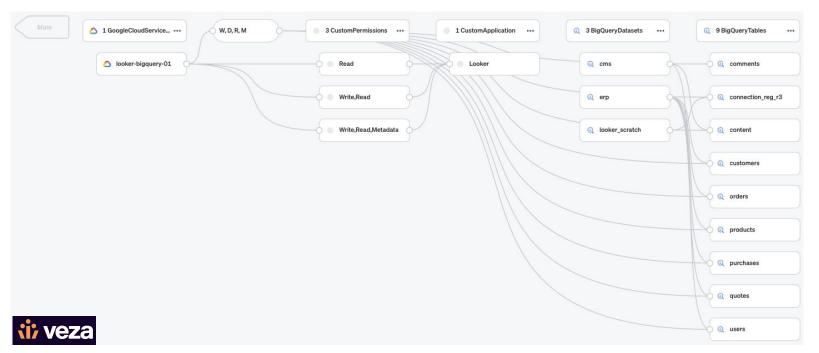
Pol	icy Analyzer				
POI	icy Analyzei				
Polic	cy Analyzer lets you answer the question of "who i	has access to what" by helping you find out which princi	pals have access to which resources. It also supports G	roup membership. Learn more	
Cre	eate query from template				
	query questions are listed below. Select a templat	te to help you get started.			
-					
	K.	=	=	٥	
	ustom query un queries on principal, resource, or access	Who can impersonate a service account?	Who can change firewall rules in my project?	What access does my employee (or terminated employee) have?	
R	un querres on principal, resource, or access	Example query question	Example query question	Example query question	
0	CREATE CUSTOM QUERY	CREATE QUERY	CREATE QUERY	CREATE QUERY	
1	0	=		=	
	what roles does a specific user have on	Who can delete GCS buckets?	Which VMs can an external user log into?	Which principals have owner or editor roles?	
	given resource? xample query question	Example query question	Example query question	Example query question	
0	CREATE QUERY	CREATE QUERY	CREATE QUERY	CREATE QUERY	
4	2	۵.			
	/ho can access a BigQuery dataset?	Who can change IAM permissions for			
E	xample query question	service accounts or projects? Example query question			
0	CREATE QUERY	CREATE QUERY			

oogle Cloud Platform 🗈 iam-condition-demo.joonix.net 👻	Q Search policy anal			× × >	? 5	1
← Report on query results	Who has access to BigG					
Query parameters COPY QUERY URL	Catasets in organization					
Query scope						
Resource O projects/iam-conditions-demo-next/datase	ets/All_Insights_Alpha_Export_1/tables/recom	mendations_export_v2				
Principal -						
Roles -						
Permissions -						
Advanced options -			Roles	Where Role		
Results BigQuery	datasets in org		granted	was granted		
Filter Enter property name or value		N	V	N	0	III
Resource		Principal 个	Role grant	Inheritance		
O projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Exp	port_1/tables/recommendations_export_v2	jason@iam-condition- demo.joonix.net	Owner	iam-condition-demo.joonix.n	VIEW BINDING	•
O projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Exp	port_1/tables/recommendations_export_v2	💄 jeffreyai@google.com	Owner	iam-condition-demo.joonix.n	VIEW BINDING	-
 projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext 		 jeffreyai@google.com jeffreyai@iam-condition- demo.joonix.net 	Owner Owner	 iam-condition-demo.joonix.n iam-condition-demo.joonix.n 	VIEW BINDING	
	port_1/tables/recommendations_export_v2	jeffreyai@iam-condition-				-
O projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ex	port_1/tables/recommendations_export_v2	jeffreyai@iam-condition- demo.joonix.net	Owner	am-condition-demo.joonix.n	VIEW BINDING	-
 projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext 	port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2	 jeffreyai@iam-condition- demo.joonix.net jiacong@google.com 	Owner Owner	iam-condition-demo.joonix.n	VIEW BINDING	•
 projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext 	port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2	 jeffreyal@iam-condition- demo.joonix.net jiacong@google.com jianlica@google.com 	Owner Owner Owner	 iam-condition-demo.joonix.n iam-condition-demo.joonix.n iam-condition-demo.joonix.n 	VIEW BINDING VIEW BINDING VIEW BINDING	· ·
 projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext 	port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2	jeffreyai@iam-condition- demo.joonix.net jiacong@google.com jianlica@google.com joegilbert@google.com	Owner Owner Owner Owner	iam-condition-demo.joonix.n iam-condition-demo.joonix.n iam-condition-demo.joonix.n iam-conditions-demo-next	VIEW BINDING VIEW BINDING VIEW BINDING VIEW BINDING	· ·
 projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext 	port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2	Jeffreyai@iam-condition- demo.joonix.net Jiacong@google.com jianlica@google.com joegilbert@google.com jonathanxu@google.com	Owner Owner Owner Owner Editor	iam-condition-demo.joonix.n iam-condition-demo.joonix.n iam-condition-demo.joonix.n iam-condition-demo.joonix.n iam-conditions-demo-next iam-conditions-demo-next	VIEW BINDING VIEW BINDING VIEW BINDING VIEW BINDING VIEW BINDING	
 projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext 	port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2	jeffreyai@iam-condition- demo.joonix.net jiacong@google.com jialnlica@google.com joegilbert@google.com jonathanxu@google.com jsytsma@google.com	Owner Owner Owner Owner Editor Viewer	iam-condition-demo.joonix.n iam-condition-demo.joonix.n iam-condition-demo.joonix.n iam-conditions-demo-next iam-conditions-demo-next iam-conditions-demo-next iam-conditions-demo-next iam-conditions-demo-next	VIEW BINDING VIEW BINDING VIEW BINDING VIEW BINDING VIEW BINDING	
 projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext 	port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2	jeffreyai@iam-condition- demo.joonix.net jiacong@google.com jianlica@google.com joegilbert@google.com jonathanxu@google.com jsytsma@google.com jzz@google.com	Owner Owner Owner Owner Editor Viewer Owner	iam-condition-demo.joonix.n iam-condition-demo.joonix.n iam-condition-demo.joonix.n iam-conditions-demo.next iam-conditions-demo-next iam-conditi	VIEW BINDING VIEW BINDING VIEW BINDING VIEW BINDING VIEW BINDING VIEW BINDING	
 projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext 	port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2	jeffreyai@iam-condition- demo.joonix.net jiacong@google.com jianlica@google.com joegilbert@google.com jonathanxu@google.com jsytsma@google.com jzz@google.com ksaripalli@google.com	Owner Owner Owner Owner Editor Viewer Owner Owner	iam-condition-demo.joonix.n iam-condition-demo.joonix.n iam-condition-demo.joonix.n iam-conditions-demo-next iam-condition-demo.joonix.n iam-co	VIEW BINDING VIEW BINDING VIEW BINDING VIEW BINDING VIEW BINDING VIEW BINDING VIEW BINDING	
 projects/iam-conditions-demo-next/datasets/All_Insights_Alpha_Ext 	port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2 port_1/tables/recommendations_export_v2	jeffreyal@iam-condition- demo.joonix.net jiacong@google.com jianlica@google.com joegilbert@google.com jonathanxu@google.com jsytsma@google.com jzz@google.com ksaripalli@google.com laurapina@google.com	Owner Owner Owner Owner Editor Viewer Owner Owner Owner	iam-condition-demo.joonix.n iam-condition-demo.joonix.n iam-condition-demo.joonix.n iam-conditions-demo-next iam-conditions-demo-next iam-conditions-demo-next iam-conditions-demo-next iam-conditions-demo-next iam-conditions-demo-next iam-condition-demo.joonix.n iam-condition-demo.joonix.n iam-condition-demo.joonix.n	VIEW BINDING VIEW BINDING VIEW BINDING VIEW BINDING VIEW BINDING VIEW BINDING VIEW BINDING	



Who can access the data across multi-cloud?

- Review which external applications leverage GCP data.
- Review which external identities access GCP data.

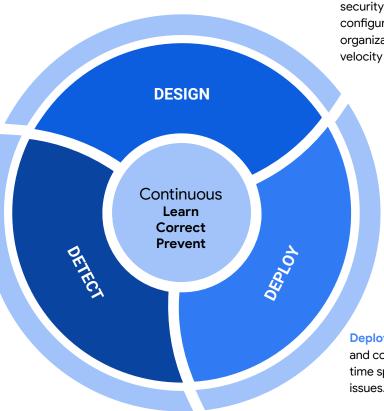


Policy Report	Demo 1 - Screen Recording 2022-04-25 at 7.11.00 PM (1).mov	↑ 4 = □ × ∅ = 3
Integration with Veza		
Identity Overview		
O → 1 cell hidden		
External applications leverage G	CP data	
[] → 2 cells hidden		
External identities access GCP d	ata via external applications	
[] 4 2 cells hidden		
	→ III I→ □ <td></td>	
	0000 - 1 0110	

Proprietary

Policy Lifecycle

Detect changes to my security posture so that I can understand the impact to risk and my specified business and security outcomes. Report on my security posture for governance and auditing.



Design Security Posture to translate business or security outcomes into underlying policies and configurations so that I can be confident in my organization's posture while meeting my business velocity goals.

Deploy confidently with appropriate business and compliance requirements to reduce risk and time spent remediating downstream security issues.





Google Cloud Summit Thank you for joining