Structure of Detailed data export

Release Notes

This document provides reference information for the schema of Cloud Billing detailed usage cost data that's exported to each table in BigQuery.

The *detailed usage cost data* provides all of the information included in the standard usage cost data (/billing/docs/how-to/export-data-bigquery-tables/standard-usage), along with additional fields that provide granular, resource-level cost data, like a virtual machine or SSD that generates usage. The detailed export includes granular cost information about the following services:

- AlloyDB for PostgreSQL
- App Engine
- BigQuery
- Bigtable
- Cloud Data Fusion
- Cloud Deploy
- Cloud Run functions
- Cloud Logging
- Cloud Run
- Cloud SQL
- Cloud Storage
- Compute Engine
- Dataflow
- Dataproc Metastore
- Firestore and Datastore
- Google Kubernetes Engine (GKE)
  To view a breakdown of GKE cluster costs in a detailed data export, you must *also* enable cost allocation for GKE (/kubernetes-engine/docs/how-to/cost-allocations)
  .
- Managed Microsoft AD
- Memorystore for Redis
- Secret Manager
- Spanner

Identify granular cost data by service

To analyze granular cost information in a detailed export, use the following table to identify the column that contains information about specific resources.

Service description	Column	How to identify resources

AlloyDB for PostgreSQL	`service.description` and `resource.name` or `resource.global_name`	The `service.description` column contains the name of the service. The `resource.name` column contains the name provided by the user. The `resource.global_name` column contains a unique identifier for the resource. ★ **Note:** The first full day of data for this service is June 23, 2024.
App Engine	`service.description` and `resource.name`, or `resource.global_name`	The `service.description` column contains the name of the service. The `resource.name` column contains the name provided by the user. The `resource.global_name` column contains a unique identifier for the resource. ★ **Note:** App Engine Flex costs are not included in the granular App Engine instance costs in Cloud Billing export to BigQuery. The first full day of data for this service is March 15, 2023.
BigQuery	`service.description` and `resource.name`, or `resource.global_name`	The `service.description` column contains the name of the service. The `resource.name` column contains the name provided by the user. The `resource.global_name` column contains a unique identifier for the resource. ★ **Note:** The first full day of data for this service is August 8, 2023. Analysis metrics have job identifiers and Storage metrics have dataset identifiers. The exported data doesn't include resource identifiers for the **`StreamingInsertBytes`** metric. To estimate your table-level costs, see Forecast storage billing (/bigquery/docs/information-schema-table-storage#forecast_storage_billing) .
Bigtable	`service.description` and `resource.global_name`	The `service.description` column contains the name of the service. The `resource.global_name` column contains a unique identifier for the resource. ★ **Note:** The first full day of data for this service is March 12, 2024.
Cloud Data Fusion	`service.description` and `resource.name` or `resource.global_name`	The `service.description` column contains the name of the service. The `resource.name` column contains the name provided by the user. The `resource.global_name` column contains a unique identifier for the resource.

		★ **Note:** **`Hybrid_data_fusion`** costs aren't included in the granular Data Fusion instance costs in Cloud Billing export to BigQuery. The first full day of data for this service is May 2, 2024.
Cloud Deploy	**`service.description`** and **`resource.name`** or **`resource.global_name`**	The **`service.description`** column contains the name of the service. The **`resource.name`** column contains the name provided by the user. The **`resource.global_name`** column contains a unique identifier for the resource.
		★ **Note:** The first full day of data for this service is May 1, 2024.
Cloud Run functions	**`service.description`** and **`resource.name`** or **`resource.global_name`**	The **`service.description`** column contains the name of the service. The **`resource.name`** column contains the name provided by the user. The **`resource.global_name`** column contains a unique identifier for the resource.
		★ **Note:** The first full day of data for this service is December 1, 2022. As of July 25th, 2023, SKUs for Cloud Run functions (2nd Gen) are included in the granular Cloud Run functions costs in Cloud Billing export to BigQuery.
Cloud Logging	**`service.description`** and **`resource.global_name`**	The **`service.description`** column contains the name of the service. The **`resource.global_name`** column contains a unique identifier for the resource.
		★ **Note:** The first full day of data for this service is May 31, 2024.
Cloud Run	**`service.description`** and **`resource.name`** or **`resource.global_name`**	The **`service.description`** column contains the name of the service. The **`resource.name`** column contains the name provided by the user. The **`resource.global_name`** column contains a unique identifier for the resource.
		★ **Note:** The first full day of data for this service is December 1, 2022.
Cloud SQL	**`service.description`** and **`resource.global_name`**	The **`service.description`** column contains the name of the service, and the **`resource.global_name`** column contains a unique identifier for the resource.
		★ **Note:** Some network data transfer, Cloud SQL backups in specific locations, and Storage Snapshot costs aren't included in the granular Cloud SQL instance costs in Cloud Billing export to BigQuery. These

		exceptions make up a small percentage of your Cloud SQL costs. The first full day of data for this service is December 1, 2022.
Cloud Storage	`service.description` and `resource.global_name`	The `service.description` column contains the name of the service. The `resource.global_name` column contains a unique identifier for the resource. ★ **Note:** Cloud CDN metrics aren't included in the exported data. These exceptions are a small fraction of your Cloud Storage costs. The first full day of data for this service is February 13, 2024.
Compute Engine	`service.description` and `resource.name` or `resource.global_name`	The `service.description` column contains the name of the service. The `resource.name` column contains the name provided by the user. The `resource.global_name` column contains a unique identifier for the resource. ★ **Note:** The first full day of data for this service is August 11, 2021.
Dataflow	`service.description` and `resource.name`, or `resource.global_name`	The `service.description` column contains the name of the service. The `resource.name` column contains the name provided by the user. The `resource.global_name` column contains a unique identifier for the resource. ★ **Note:** The first full day of data for this service is October 2nd, 2023. `Snapshot_disk_time` metrics won't provide `resource.name` because users can't name snapshots.
Dataproc Metastore	`service.description` and `resource.name` or `resource.global_name`	The `service.description` column contains the name of the service. The `resource.name` column contains the name provided by the user. The `resource.global_name` column contains a unique identifier for the resource. ★ **Note:** The first full day of data for this service is May 6, 2024.
Firestore and Datastore	`service.description` and `resource.name`, or `resource.global_name`	The `service.description` column will be App Engine. The `resource.name` column contains the name provided by the user. The `resource.global_name` column contains a unique identifier for the resource. ★ **Note:** The first full day of data for this service is June 30, 2023.

Google Kubernetes Engine (GKE)	`labels.key`	Use the following label keys to filter the resources: • **`goog-fleet-project`**: Filter your cluster resources by fleet host project (/anthos/fleet-management/docs/fleet-concepts#fleet-host-project), if the cluster is registered to a fleet. • **`goog-k8s-cluster-location`**: Filter your GKE resources by location. • **`goog-k8s-cluster-name`**: Filter your GKE resources by cluster. • **`goog-k8s-node-pool-name`**: Filter your cluster resources by node pool. • **`k8s-namespace`**: Filter your GKE resources by namespace. • **`k8s-namespace-labels`**: Filter your GKE resources by fleet namespace label (/anthos/fleet-management/docs/setup-teams#manage_fleet_namespace_labels) (GKE Enterprise (/anthos/docs/concepts/overview) customers only). • **`k8s-label`**: View all your GKE resources. To view granular GKE cluster costs in your detailed cost data export, you must *also* enable cost allocation for GKE (/kubernetes-engine/docs/how-to/cost-allocations). See example queries for filtering GKE data in BigQuery exports (/billing/docs/how-to/export-data-bigquery-tables/detailed-usage#gke-breakdown-section). ★ **Note:** The first day you could enable GKE cost allocation was June 30, 2022. After you enable GKE cost allocation, your detailed billing export starts including additional line items for your GKE resources from that date. The billing export doesn't backfill GKE cost allocation data.
Managed Microsoft AD	**`service.description`** and **`resource.name`** or **`resource.global_name`**	The **`service.description`** column contains the name of the service. The **`resource.name`** column contains the name provided by the user. The **`resource.global_name`** column contains a unique identifier for the resource. ★ **Note:** The first full day of data for this service is December 8, 2023.

Memorystore for Redis	`service.description` and `resource.global_name`	The `service.description` column contains the name of the service. The `resource.global_name` column contains a unique identifier for the resource. ★ **Note:** The first full day of data for this service is January 16, 2024.
Secret Manager	`service.description`, `resource.name`, and `resource.global_name`	The `service.description` column contains the name of the service. The `resource.name` column contains the name provided by the user. The `resource.global_name` column contains a unique identifier for the resource. ★ **Note:** The first full day of data for this service is July 19, 2024.
Spanner	`service.description` and `resource.global_name`	The `service.description` column contains the name of the service, and the `resource.global_name` column contains a unique identifier for the resource. ★ **Note:** The first full day of data for this service is March 15, 2023.

See examples of querying granular data for your resources (/billing/docs/how-to/export-data-bigquery-tables/detailed-usage#detailed_usage_cost_query_examples)

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Detailed usage cost data schema

In your BigQuery dataset, your detailed Google Cloud usage cost data is loaded into a data table named `gcp_billing_export_resource_v1_<BILLING_ACCOUNT_ID>`.

When you use the *detailed usage cost data* in BigQuery, note the following:

- When selecting or creating a BigQuery dataset (/billing/docs/how-to/export-data-bigquery-setup#create-bq-dataset) for your *detailed usage cost data*, you can select any dataset location that is supported for use with Cloud Billing data (/billing/docs/how-to/export-data-bigquery-setup#supported-dataset-locations).
- When you enable the *detailed usage cost data* export for the *first time* in Cloud Billing, if you select a dataset configured to use a *multi-region* location (/bigquery/docs/locations#multi-regions) (EU or US), Cloud Billing data will be available retroactively from the start of the previous month. Data is exported in chronological

order. For the initial backfill of exported data, it might take up to five days for your retroactive Cloud Billing data to finish exporting before you start seeing your most recent usage data.

- If you enable the *detailed usage cost data* export and select a dataset that's configured to use a supported *region* location (/billing/docs/how-to/export-data-bigquery-setup#supported-dataset-locations), your Cloud Billing data will be available starting from the date when you enabled the export.
- If you enabled, disabled, and subsequently re-enabled the *detailed usage cost data* export, the Cloud Billing data might not be available for the period when data export was explicitly disabled.
- Learn more about the frequency of the data loads into your BigQuery tables (/billing/docs/how-to/export-data-bigquery-tables#data-loads).
- See other limitations (/billing/docs/how-to/export-data-bigquery-setup#limitations) that might impact exporting your billing data to BigQuery, such as datasets with customer-managed encryption keys (CMEK) enabled.
- Consider the additional data volume that your BigQuery tables might need and the additional cost when enabling *detailed usage cost data* instead of the *standard usage cost data* export. The increased granularity of resource-level information can increase the number of rows, which are aggregated in the *standard usage cost* format. We recommend that you review Control costs in BigQuery (/bigquery/docs/best-practices-costs) for further best practices in managing your BigQuery costs.

Field	Type	Description
`billing_account_id`	String	The Cloud Billing account ID that the usage is associated with. **For resellers**: For usage costs generated by a Cloud Billing **subaccount** (/billing/docs/concepts#subaccounts), this is the ID of the subaccount, not the ID of the parent reseller Cloud Billing account.
`invoice.month`	String	The year and month (YYYYMM) of the invoice that includes the cost line items. For example: "201901" is equivalent to January, 2019. You can use this field to get the total charges on the invoice. See Cloud Billing Export to BigQuery Query Examples (/billing/docs/how-to/bq-examples). ★ **Note:** The first full month of data with this field is June 2018.

Field	Type	Description
		Caution: The invoice month may differ from the usage month. For example, some product usage at the very end of a month may be charged to the next month's invoice. Also, the invoice month for Cloud Billing adjustments and associated taxes reflects the month the adjustment was *issued*; the adjustment could be *applied* to a different month than the issue month. Refer to errors and adjustments (#adjustments) for more information.
`invoice.publisher_type`	String	Indicates the publisher associated with the transaction. This field supports the splitting of invoices between transactions made directly with Google (first party), and transactions made with a partner (third party), which also signals what regulations might apply to the transaction. The possible values are: • `GOOGLE`: First-party, unregulated transaction by Google Cloud. • `PARTNER`: A third-party, regulated or unregulated transaction by a partner.
`cost_type`	String	The type of cost this line item represents: regular, tax, adjustment, or rounding error. **Notes**: • The first full month of data with this field is January 2019. • Starting on September 1, 2020, you see a separate line item for taxes (#taxes), for each of your projects.
`service.id`	String	The ID of the service that the usage is associated with.
`service.description`	String	The Google Cloud service that reported the Cloud Billing data.
`sku.id`	String	The ID of the resource used by the service. For the full list of SKUs, see Google Cloud SKUs (https://cloud.google.com/skus). **Note:** You can use the **`sku.id`** column to map each of your line items to the list prices published on the Google Cloud pricing pages (/pricing/list), in the Pricing Table report (/billing/docs/how-to/pricing-table), and through the Cloud Billing Catalog API (/billing/v1/how-tos/catalog-api).

Field	Type	Description
`sku.description`	String	A description of the resource type used by the service. For example, a resource type for Cloud Storage is *Standard Storage US*.
`usage_start_time`	Timestamp	The start time of the hourly usage window within which the given cost was calculated. The usage and costs for all services is displayed with hourly granularity, which means long running service usage is spread across multiple hourly windows. For more information, see the BigQuery documentation on timestamp data types (/bigquery/docs/reference/standard-sql/data-types#timestamp-type). See also, Differences between exported data and invoices (#differences_between_exported_data_and_invoices).
`usage_end_time`	Timestamp	The end time of the hourly usage window within which the given cost was calculated. The usage and costs for all services is displayed with hourly granularity, which means long running service usage is spread across multiple hourly windows. For more information, see the BigQuery documentation on timestamp data types (/bigquery/docs/reference/standard-sql/data-types#timestamp-type). See also, Differences between exported data and invoices (#differences_between_exported_data_and_invoices).
`project`	Struct	`project` contains fields that describe the Cloud Billing project, such as ID, number, name, ancestry_numbers, and labels. **Caution:** For newly created projects, project information might not be present on usage that occurs within 24 hours of project creation.
`project.id`	String	The ID of the Google Cloud project that generated the Cloud Billing data.
`project.number`	String	An internally generated, anonymized, unique identifier for the Google Cloud project that generated the Cloud Billing data. In your support cases and other customer communication, Google will refer to your projects by this project number. **Note:** The first full day of data for this field is October 29, 2020. For examples of how to manage your Cloud Billing data exports to BigQuery after the schema update, see Handling schema changes to BigQuery export data tables (/billing/docs/how-to/export-data-bigquery-examples).
`project.name`	String	The name of the Google Cloud project that generated the Cloud Billing data.

Field	Type	Description
`project.ancestry_numbers`	String	The ancestors in the resource hierarchy for the project identified by the specified `project.id` (for example, my-project-123). For example: */ParentOrgNumber/ParentFolderNumber/*. Learn more about the Resource Hierarchy (/resource-manager/docs/cloud-platform-resource-hierarchy). ★ **Note:** During Cloud Billing data export, project ancestry is recorded based on the time of usage. Organization and folder numbers are immutable, but a project's ancestry isn't. Over time, you might move projects and folders around in your resource hierarchy. The first full month of data with this field is January 2019.
`project.ancestors`	Struct	This field describes the structure and value of the resource hierarchy of a cost line item, including projects, folders, and organizations. Ancestors are ordered from node to root (project, folder, then organization). ★ **Note:** The first full month of data for this field is April 2022.
`project.ancestors.resource_name`	String	The relative resource name (/apis/design/resource_names) for each ancestor in the format 'resourceType/resourceNumber'. Using `project.ancestors.resource_name` will offer a more complete view of `project.ancestry_numbers`.
`project.ancestors.display_name`	String	The name that you created for your resource in your console.
`project.labels.key`	String	If labels are present, the *key* portion of the key-value pair that comprises the label on the Google Cloud project where the usage occurred. For more information about using labels, see Using Labels (/resource-manager/docs/using-labels).
`project.labels.value`	String	If labels are present, the *value* portion of the key-value pair that comprises the label on the Google Cloud project where the usage occurred. For more information about using labels, see Using Labels (/resource-manager/docs/using-labels).
`labels.key`	String	If labels are present, the *key* portion of the key-value pair that comprises the label on the Google Cloud resource where the usage occurred. For more information about using labels, see Using Labels (/resource-manager/docs/using-labels).

Field	Type	Description
`labels.value`	String	If labels are present, the *value* portion of the key-value pair that comprises the label on the Google Cloud resource where the usage occurred. For more information about using labels, see Using Labels (/resource-manager/docs/using-labels).
`system_labels.key`	String	If system labels are present, the *key* portion of the key-value pair that comprises the system-generated label on the resource where the usage occurred. See also, Available system labels (#available_system_labels). ★ **Note:** The first full day of data with this field is September 18, 2018.
`system_labels.value`	String	If system labels are present, the *value* portion of the key-value pair that comprises the system-generated label on the resource where the usage occurred. See also, Available system labels (#available_system_labels). ★ **Note:** The first full day of data with this field is September 18, 2018.
`location.location`	String	Location of usage at the level of a multi-region, country, region, or zone; or `global` for resources don't have a specific location (/about/locations#global-products). For more information, see Geography and regions (/docs/geography-and-regions) and Google Cloud locations (/about/locations). ★ **Note:** The first full day of data with this field is September 18, 2018.
`location.country`	String	When `location.location` is a country, region, or zone, this field is the country of usage, e.g. **US**. For more information, see Geography and regions (/docs/geography-and-regions) and Google Cloud locations (/about/locations). ★ **Note:** The first full day of data with this field is September 18, 2018.
`location.region`	String	When `location.location` is a region or zone, this field is the region of usage, e.g. `us-central1`. For more information, see Geography and regions (/docs/geography-and-regions) and Google Cloud locations (/about/locations). ★ **Note:** The first full day of data with this field is September 18, 2018.

Field	Type	Description
`location.zone`	String	When `location.location` is a zone, this field is the zone of usage, e.g. `us-central1-a`. For more information, see Geography and regions (/docs/geography-and-regions) and Google Cloud locations (/about/locations). ★ **Note:** The first full day of data with this field is September, 18 2018.
`cost`	Float	The cost of the usage before any credits, to a precision of up to six decimal places. To get the total cost including credits, any `credits.amount` should be added to cost. See this example query (/billing/docs/how-to/bq-examples#example_1_sum_of_all_costs_per_invoice_month) for more information.
`currency`	String	The currency that the cost is billed in. For more information, see Local Currency for Billing and Payments (/billing/docs/resources/currency).
`currency_conversion_rate`	Float	The exchange rate from US dollars to the local currency. That is, `cost` ÷ `currency_conversion_rate` is the cost in US dollars. ★ **Note**: When Google charges in local currency, we convert prices into applicable local currency pursuant to the conversion rates published by leading financial institutions.
`usage.amount`	Float	The quantity of `usage.unit` used.
`usage.unit`	String	The base unit in which resource usage is measured. For example, the base unit for standard storage is *byte-seconds*.
`usage.amount_in_pricing_units`	Float	The quantity of `usage.pricing_unit` used. ★ **Note:** The first full day of data with this field is January 22, 2018.
`usage.pricing_unit`	String	The unit in which resource usage is measured, according to the Cloud Billing Catalog API (/billing/v1/how-tos/catalog-api). ★ **Note:** The first full day of data with this field is January 22, 2018.
`credits`	Struct	`credits` contains fields that describe the structure and value of the credits associated with Google Cloud and Google Maps Platform SKUs.

Field	Type	Description
`credits.id`	String	If present, indicates that a credit is associated with the product SKU. **`credits.id`** values are either an alphanumeric unique identifier (for example, *12-b34-c56-d78*), or a description of the credit type (such as *Committed Usage Discount: CPU* (/docs/cuds)). If the **`credits.id`** field is empty, then the product SKU isn't associated with a credit. ★ **Note:** The first full day of data with this field is September 10, 2020.
`credits.full_name`	String	The name of the credit associated with the product SKU. This is a human-readable description of an alphanumeric **`credits.id`**. Examples include *Free trial credit* (/free/docs/gcp-free-tier#free-trial) or *Spend-based committed use discount* (/docs/cuds). **`credits.full_name`** values are only present for SKUs with an alphanumeric **`credits.id`**. If the value of the **`credits.id`** is a description of the credit type (such as *Committed Usage Discount: CPU* (/docs/cuds)), then the **`credits.full_name`** field is empty. ★ **Note:** The first full day of data with this field is September 10, 2020.
`credits.type`	String	This field describes the purpose or origin of the **`credits.id`**. Credit types include: • `COMMITTED_USAGE_DISCOUNT` (/compute/docs/instances/signing-up-committed-use-discounts): Resource-based committed use contracts purchased for Compute Engine in return for deeply discounted prices for VM usage. • `COMMITTED_USAGE_DISCOUNT_DOLLAR_BASE` (/docs/cuds-spend-based): Spend-based committed use contracts purchased for services in exchange for your commitment to spend a minimum amount. • **`DISCOUNT`**: The discount credit type is used for credits earned after a contractual spending threshold is reached. Note that in the Cloud Billing reports available in the Google Cloud console, the discount credit type is listed as *Spending based discounts (contractual)*. • `FREE_TIER` (/free/docs/gcp-free-tier#free-tier): Some services offer free resource usage up to specified limits (/free/docs/gcp-free-tier#free-tier-usage-limits). For these services, credits are applied to implement the free tier usage.

Field	Type	Description
		• **PROMOTION**: The promotion credit type includes Google Cloud Free Trial (/free/docs/gcp-free-tier#free-trial) and marketing campaign credits, or other grants to use Google Cloud. When available, promotional credits are considered a form of payment and are automatically applied to reduce your total bill. • **RESELLER_MARGIN**: If you're a reseller, the *reseller margin* credit type indicates the Reseller Program Discounts earned on every eligible line item. • **SUBSCRIPTION_BENEFIT**: Credits earned by purchasing long-term subscriptions to services in exchange for discounts. • SUSTAINED_USAGE_DISCOUNT (/compute/docs/sustained-use-discounts): The sustained use discounts credit type is an automatic discount that you earn for running specific Compute Engine resources for a significant portion of the billing month. ★ **Note:** The first full day of data with this field is September 10, 2020.
credits.name	String	A description of the credit applied to the Cloud Billing account.
credits.amount	Float	The amount of the credit applied to the usage.
adjustment_info	Struct	**adjustment_info** contains fields that describe the structure and value of an adjustment to cost line items associated with a Cloud Billing account. **adjustment_info** values are only present if the cost line item was generated for a Cloud Billing modification. A modification can happen for correction or non-correction reasons. The **adjustment_info** type contains details about the adjustment, whether it was issued for correcting an error or other reasons. ★ **Note:** The first full day of data for this field is October 29, 2020. For examples of how to manage your Cloud Billing data exports to BigQuery after the schema update, see Handling schema changes to BigQuery export data tables (/billing/docs/how-to/export-data-bigquery-examples).

Field	Type	Description
`adjustment_info.id`	String	If present, indicates that an adjustment is associated with a cost line item. `adjustment_info.id` is the unique ID for all the adjustments associated with an issue.
`adjustment_info.description`	String	A description of the adjustment and its cause.
`adjustment_info.type`	String	The type of adjustment. Types include: • `USAGE_CORRECTION`: A correction due to incorrect reported usage. • `PRICE_CORRECTION`: A correction due to incorrect pricing rules. • `METADATA_CORRECTION`: A correction to fix metadata without changing the cost. • `GOODWILL`: A credit issued to the customer for goodwill. • `SALES_BASED_GOODWILL`: A credit issued to the customer for goodwill, as part of a contract. • `SLA_VIOLATION`: A credit issued to the customer due to a service-level objective (SLO) violation. • `BALANCE_TRANSFER`: An adjustment to transfer funds from one payment account to another. • `ACCOUNT_CLOSURE`: An adjustment to bring a closed account to a zero balance. • `GENERAL_ADJUSTMENT`: A general billing account modification.
`adjustment_info.mode`	String	How the adjustment was issued. Modes include: • `PARTIAL_CORRECTION`: The correction partially negates the original usage and cost. • `COMPLETE_NEGATION_WITH_REMONETIZATION`: The correction fully negates the original usage and cost, and issues corrected line items with updated usage and cost. • `COMPLETE_NEGATION`: The correction fully negates the original usage and cost, and no further usage is remonetized. • `MANUAL_ADJUSTMENT`: The adjustment is allocated to cost and usage manually.

Field	Type	Description
`export_time`	Timestamp	A processing time associated with an append of Cloud Billing data. This will always increase with each new export. ★ **Note**: Use the **`export_time`** column to understand when the exported billing data was last updated. See also, Differences between exported data and invoices (#differences_between_exported_data_and_invoices) below.
`tags`	Struct	Fields that describe the tag, such as key, value, and namespace. ★ **Note:** The first full month of data with these tags is October 2022.
`tags.key`	String	The short name or display name of the key associated with this particular tag.
`tags.value`	String	The resources attached to a **`tags.key`**. At any given time, exactly one value can be attached to a resource for a given key.
`tags.inherited`	Boolean	Indicates whether a tag binding is inherited (Tags Inherited = True) or direct/non-inherited (Tags Inherited = False). You can create a tag binding (/resource-manager/docs/tags/tags-overview#inheritance) to a parent resource in the resource hierarchy (/resource-manager/docs/cloud-platform-resource-hierarchy).
`tags.namespace`	String	Represents the resource hierarchy that define tag key and values. Namespace can be combined with tag key and tag value short names to create a globally unique, fully qualified name for the tag key or tag value.
`cost_at_list`	Float	The list prices associated with all line items charged to your Cloud Billing account. ★ **Note:** The first full day of data with this field is June 29, 2023.
`transaction_type`	String	The transaction type of the seller. The transaction type might be one of the following: • `GOOGLE = 1`: Services sold by Google Cloud. • `THIRD_PARTY_RESELLER = 2`: Third party services resold by Google Cloud. • `THIRD_PARTY_AGENCY = 3`: Third party services sold by a partner, with Google Cloud acting as the agent.

Field	Type	Description
		★ **Note:** The first full day of data with this field is August 22, 2023.
`seller_name`	String	The legal name of the seller.
		★ **Note:** The first full day of data with this field is August 22, 2023.
Additional fields available to detailed usage cost data export		
`resource`	Struct	The fields that describe the structure and value of information relevant to service resources (like a virtual machine or a SSD) that generate usage.
`resource.global_name`	String	A globally unique service identifier for the resource that generated relevant usage.
`resource.name`	String	A service-specific identifier for the resource that generated relevant usage. This can be input generated by the user.
		★ **Note:** The first full day of data with this field is August 11, 2021.
`price`	Struct	Fields that describe the structure and value related to the prices charged for usage.
		★ **Note:** The first full day of data with price fields is April 13, 2023.
`price.effective_price`	Numeric	The price charged for usage of the Google Cloud or Google Maps Platform SKUs and SKU pricing tiers (/billing/docs/how-to/export-data-bigquery-tables/pricing-data#tiered-pricing) . If your Cloud Billing account has custom, contract pricing, this is your billing-account-specific price; otherwise, this is the list price (/billing/docs/how-to/export-data-bigquery-tables/pricing-data#list_price) of the SKU or SKU tier.
		★ **Note:** The first full day of data with this field is April 13, 2023.
`price.tier_start_amount`	Numeric	The lower bound number of units for a SKU's pricing tier. For example, a SKU with three pricing tiers such as 0-100 units, 101-1000 units, and 1001+ units, will display three pricing rows for the SKU, with 0, 101, and 1001 in the `price.tier_start_amount` field representing the starting unit quantity for the SKU's pricing tiers.

Field	Type	Description
		★ **Note:** The first full day of data with this field is April 13, 2023. Learn more about pricing tiers (/billing/docs/how-to/export-data-bigquery-tables/pricing-data#tiered-pricing) .
`price.unit`	String	The unit of usage in which the pricing is specified and resource usage is measured (such as gibibyte, tebibyte, month, year, gibibyte hour, gibibyte month, or count). The value in the `price.unit` field matches the value in the `usage.pricing_unit` field. ★ **Note:** The first full day of data with this field is April 13, 2023.
`price.pricing_unit_quantity`	Numeric	The SKU's pricing tier unit quantity. For example, if the tier price is $1 per 1000000 Bytes, then this column will show 1000000. ★ **Note:** The first full day of data with this field is April 13, 2023.
`subscription`	Struct	Fields that describe your spend-based or resource-based commitments. You can use these fields to analyze your fees for specific commitments. ★ **Note:** The first full day of data with this field is January 25, 2024.
`subscription.instance_id`	String	The subscription ID linked to a commitment. ★ **Note:** The first full day of data with this field is January 25, 2024.

Understand standard and detailed usage cost data

The following sections describe the *standard* and *detailed usage cost data* exported to BigQuery.

About labels

The cost data for a specific label only shows usage from the date that the label was applied to a resource. For example, if you add the label `environment:dev` to a Compute Engine VM on January 15, 2024, any analysis for `environment:dev` includes only the usage for that VM since January 15.

You might also see label data at different times for different services, depending on when each service provides it.

Available system labels

System labels are key-value pairs for important metadata about the resource that generated the usage. The following system labels are automatically included on applicable usage.

Note: The first full day of data with these system labels is September 18, 2018.

`system_labels.key`	Example `system_labels.value`	Description
`compute.googleapis.com/machine_spec`	n1-standard-1, custom-2-2048	Configuration of the virtual machine. See Machine Types (/compute/docs/machine-types) for more information.
`compute.googleapis.com/cores`	for n1-standard-4 this is **4**; for custom-2-2048 this is **2**	The number of vCPUs available to the virtual machine.
`compute.googleapis.com/memory`	for n1-standard-4 this is **15360** (i.e. 15 GB * 1024 MB/GB); for custom-2-2048 this is **2048**	The amount of memory (in MB) available to the virtual machine.
`compute.googleapis.com/is_unused_reservation`	true; false	Indicates usage that was reserved through Zonal Reservations (/compute/docs/instances/reservations-overview) but not used.
`storage.googleapis.com/object_state`	live; noncurrent (/storage/docs/object-versioning); soft_deleted (/storage/docs/soft-delete); multipart (/storage/docs/multipart-uploads)	The state of the storage object being charged.

Differences between exported data and invoices

Google Cloud products report usage and cost data to Cloud Billing processes at varying intervals. As a result, you might see a delay between your use of Google Cloud services, and the usage and costs being available to view in Cloud Billing. Typically, your costs are available within a day, but can sometimes take more than 24 hours.

At the end of a calendar month, late-reported usage might not be included on that month's invoice and instead might roll over to the next month's invoice.

When you query your costs using timestamp fields, your returned data might pick up late-reported usage that wasn't originally included on the invoice that was generated for the same usage month. As a result, the Cloud Billing data returned might not map directly to that invoice.

Timestamp fields include:

- `usage_start_time`
- `usage_end_time`
- `export_time`

To return Cloud Billing data that maps directly to an invoice, query on `invoice.month` (#invoice-month) instead of timestamp fields.

Taxes

As of September 1, 2020, your usage cost data shows your tax liability for each of your projects, instead of as a single line item. If you have queries or visualizations that depend on tax data, you might need to update the queries to account for these changes.

For example, for costs recorded before September 1, your usage cost data looks similar to the following example, which shows a total tax liability of $10.

billing_account_id	project.id	cost_type	cost
123456-ABCDEF-123456	example-project	Regular	$60
123456-ABCDEF-123456	test-project	Regular	$40
123456-ABCDEF-123456	[empty]	Tax	$10

For costs recorded after September 1, the $10 is broken down to $6 for `example-project`, and $4 for `test-project`:

billing_account_id	project.id	cost_type	cost
123456-ABCDEF-123456	example-project	Regular	$60
123456-ABCDEF-123456	test-project	Regular	$40
123456-ABCDEF-123456	example-project	Tax	$6
123456-ABCDEF-123456	test-project	Tax	$4

Note: If the tax isn't related to a project, the `project` columns are empty. For example, Support costs are owned by the Cloud Billing account, and not by a specific project. For taxes on these costs, the `project` columns are empty.

Errors and adjustments

In the rare event that your Cloud Billing data contains an error or requires an adjustment, it's appended with corrective data. These adjustments fall under one of two categories: billing modifications or corrections.

Billing modifications

Billing modifications appear as separate line items. If you received a billing modification, a new line item in your Cloud Billing export to BigQuery shows the change. The adjustments shown correspond to the invoice, credit memo, and debit memo documents available in the **Documents** area of the **Billing** section in the Google Cloud console.

For more information on billing modifications and how they're applied, see Understand memos and adjustments (/billing/docs/how-to/resolve-issues#understand-memos).

Corrections

Corrections appear as new data that negates incorrect data on the source SKUs. In some cases, new data replaces the incorrect charge. All columns in the billing data export will match the original data, except for the following columns:

- `cost`
- `credit`

- `usage.amount`
- `export_time`

For example, imagine that you're charged $10 for your usage of `SKU A` on January 1. On your January invoice (issued in early February), you'll see a charge of $10 for `SKU A`. However, on February 2, Google Cloud issued a correction against `SKU A`, reducing the usage cost to $5. You'll receive two additional line items on your February invoice (issued in early March):

- -$10 for usage on January 1 (negating the original charge)
- $5 for usage on January 1 (stating the intended charge)

These new items have an `adjustment_info` column in the billing data export. The original January invoice, showing the overcharge, won't be adjusted. You can verify your charges in your billing data export by viewing your costs by `usage_start_time` and grouping by `Day`. In these views, any corrections or charges for late-monetized usage are accumulated, and you don't need to worry about any temporarily incorrect data.

If you want more detailed information on your corrections, view all charges in an *invoice month*, and look for charges where the *usage date* occurred *before* the invoice month. These charges are the results of corrections or late-monetized usage.

The following code sample shows how to create a basic query that returns the *total cost* of corrections or late-monetized usage:

```
SELECT
  SUM(cost)
    + SUM(IFNULL((SELECT SUM(c.amount)
      FROM   UNNEST(credits) c), 0))
    AS total
FROM `project.dataset.gcp_billing_export_v1_XXXXXX-XXXXXX-XXXXXX`
WHERE
  invoice.month = '202311' AND
  DATE(TIMESTAMP_TRUNC(usage_start_time, Day, 'US/Pacific')) < '2023-11-01';
```

For a query example that returns a cost breakdown by *service*, for invoice charges, where the *usage date* occurred *before* the *invoice month*, see Query cost details to view corrections or late-monetized usage by service for a specified invoice month (/billing/docs/how-to/bq-examples#query-cost-corrections-by-service-by-invoice) in "Example queries for Cloud Billing data export."

About promotional credits in custom pricing contracts

If you have a custom pricing contract, you might receive promotional credits to use on Google Cloud as part of the contract. For example, you might receive $1,000 to use on Compute Engine resources. Promotional credits are typically considered a form of payment. When available, promotional credits are automatically applied to reduce your total bill.

The terms of your contract specify whether the promotional credits apply to your costs calculated at the *list price* of a SKU, or the *net price* (after discounts).

If your promotional credits apply to costs that are calculated at the *list price*, in the **Cost table** report, there's a service called `Invoice`, with a SKU called `Contract billing adjustment`. This SKU adjusts your credits so that they apply to the costs at list price. To see the usage that the adjustment is for, query the `system.labels` columns. The key in `system.labels.key` is `cloud-invoice.googleapis.com/sku_id`, and the value in `system.labels.value` contains the SKU ID that the credit and the adjustment applied to.

About tags

Tags (/resource-manager/docs/tags/tags-overview) are resources in the form of key-value pairs that can be attached to resources directly or through inheritance. You can use tags to perform chargebacks, audits, and other cost allocation analysis. You can also use tags and conditional enforcement of policies for fine-grained control across your resource hierarchy.

Tags have a robust permissions model and can support inheritance, centralized management, nomenclature standardization, and policy engine integration, while labels are a separate tool (/resource-manager/docs/tags/tags-overview#tags_and_labels) that allow you to annotate resources.

Tags data appears in BigQuery exports for Resources, Projects, Folders, and Organizations.

Available tags

The *Standard costs* and *Detailed costs* exports for Resources, Projects, Folders, and Organizations include these fields for tags data: Tags Key, Tags Value, Tags Inherited, and Tags Namespace.

Resource-level tags in the Cloud Billing data export are available for the following resources:

- AlloyDB for PostgreSQL clusters, instances, and backups
- Artifact Registry repositories

- Bigtable instances
- Cloud Run services and jobs
- Cloud Storage buckets
- Compute Engine instances
- Memorystore for Redis instances
- Secret Manager secrets
- Spanner instances

Tags limitations

- Tags might take up to an hour to propagate to BigQuery exports. If a tag has been added or removed within an hour, or if a resource has existed for less than an hour, it might not appear in the export.

Detailed usage cost query examples

This section provides examples of how to query the Cloud Billing detailed usage cost data exported to BigQuery.

- Return the resource-level costs on an invoice (/billing/docs/how-to/bq-examples#resource-level-costs-on-invoice)
    - Sum costs for each resource, per invoice (/billing/docs/how-to/bq-examples#sum-resource-level-costs-per-invoice)
    - Return details by cost type for each resource, per invoice month (/billing/docs/how-to/bq-examples#cost-type-resource-level-per-invoice)
- Get breakdown of Google Kubernetes Engine (GKE) cluster costs (/billing/docs/how-to/bq-examples#gke-breakdown-section)
    - Filter GKE cost breakdown (/billing/docs/how-to/bq-examples#gke-breakdown-filter-section)

Because the *detailed* usage cost schema includes all of the fields from the *standard* usage cost schema, the query examples provided for the *standard* data (/billing/docs/how-to/export-data-bigquery-tables/standard-usage) exported to BigQuery also work with the *detailed* data that's exported. The *standard* query examples aren't written to retrieve

any of the resource-level information that's provided with the *detailed* usage cost export option. When creating queries for the *detailed* data, you can use a *standard* query example as a template, update the **Table name**, and add any of the fields that are available in the detailed usage cost schema (/billing/docs/how-to/export-data-bigquery-tables/detailed-usage#detailed-usage-cost-data-schema).

Common values used in the example detailed cost queries

The query examples in this section use the following value for **Table name**: `project.dataset.gcp_billing_export_resource_v1_XXXXXX_XXXXXX_XXXXXX`

Return the resource-level costs on an invoice

The following queries demonstrate two ways of viewing resource-level cost and credit values on an invoice using exported billing data.

- The `total` field directly sums the floating point cost and credit values, which can result in floating point rounding errors.
- The `total_exact` field converts costs and credit values to micros before summing, then converts back to dollars after summing, avoiding the floating point rounding error.

Sum costs for each resource, per invoice

This query shows the invoice total for each `resource.name` per month, as a sum of regular costs, taxes, adjustments, and rounding errors. Any costs not associated with a resource-level item are aggregated under the **name** `null` for the month.

Standard SQL

```
SELECT
  invoice.month,
  resource.name,
  SUM(cost)
    + SUM(IFNULL((SELECT SUM(c.amount)
                  FROM UNNEST(credits) c), 0))
    AS total,
  (SUM(CAST(cost * 1000000 AS int64))
    + SUM(IFNULL((SELECT SUM(CAST(c.amount * 1000000 as int64))
```

```
                  FROM UNNEST(credits) c), 0))) / 1000000
    AS total_exact
FROM `project.dataset.gcp_billing_export_resource_v1_XXXXXX_XXXXXX_XXXXXX`
GROUP BY 1, 2
ORDER BY 1 ASC, 2 ASC
;
```

For example, the result of the preceding query might be:

Row	month	name	total	total_exact
1	201901	*null*	$1005.004832999999984	$1005.00
2	201901	backend1	$781.8499760000028	$781.85
3	201902	*null*	$953.0034923645475983	$953.03
4	201902	backend1	$992.3101739999999717	$992.31
5	201902	bitnami-launchpad-wordpress-1-wordpress	$1.2817819999999998	$1.28

Return details by cost type for each resource, per invoice month

This query shows the totals for each `cost_type` for each `resource.name` per month. Cost types include regular costs, taxes, adjustments, and rounding errors. Any costs not associated with a resource-level item are aggregated under the **name** `null` for the month.

Standard SQL

```
SELECT
  invoice.month,
  cost_type,
  resource.name,
  SUM(cost)
    + SUM(IFNULL((SELECT SUM(c.amount)
                  FROM   UNNEST(credits) c), 0))
    AS total,
  (SUM(CAST(cost * 1000000 AS int64))
    + SUM(IFNULL((SELECT SUM(CAST(c.amount * 1000000 as int64))
                  FROM UNNEST(credits) c), 0))) / 1000000
    AS total_exact
FROM `project.dataset.gcp_billing_export_resource_v1_XXXXXX_XXXXXX_XXXXXX`
GROUP BY 1, 2, 3
```

```
ORDER BY 1 ASC, 2 ASC, 3 ASC
;
```

For example, the result of the preceding query might be:

Row	month	cost_type	name	total	total_exact
1	201901	regular	*null*	$1000.501209987994782	$1000.50
2	201901	rounding_error	*null*	−$0.500489920049387	−$0.50
3	201901	tax	*null*	$10.000329958477891	$10.00
4	201901	adjustment	*null*	−$5.002572999387045	−$5.00
5	201901	regular	backend1	$410.998795012082947	$411.00
2	201901	rounding_error	backend1	−$0.2404900489920378	−$0.24
3	201901	tax	backend1	$4.105840329977189	$4.11

Get a breakdown of Google Kubernetes Engine (GKE) cluster costs

This section provides examples of filtering GKE cluster costs in your BigQuery export reports. To learn more about GKE cluster costs, visit View breakdown of cluster costs (/kubernetes-engine/docs/how-to/cost-allocations).

Filter GKE costs

The following example queries show you how to filter and group your GKE costs for supported resource types by cluster name, namespace, and label.

GKE cluster costs before credits

```
SELECT
  SUM(cost) AS cost_before_credits,
  labels.value AS cluster_name
FROM  `project-ID.dataset.gcp_billing_export_resource_v1_XXXXXX-XXXXXX-XXXXXX
LEFT JOIN UNNEST(labels) as labels
  ON labels.key = "goog-k8s-cluster-name"
```

```
GROUP BY labels.value
;
```

GKE costs after credits by namespace

```
SELECT
  labels.value as namespace,
  SUM(cost) + SUM(IFNULL((SELECT SUM(c.amount) FROM UNNEST(credits) c), 0)) AS
FROM `project-ID.dataset.gcp_billing_export_resource_v1_XXXXXX-XXXXXX-XXXXXX`
LEFT JOIN UNNEST(labels) as labels
  ON labels.key = "k8s-namespace"
GROUP BY namespace
;
```

GKE costs by SKU

```
SELECT
  project.id AS project_id,
  labels.value AS cluster_name,
  sku.id AS sku_id,
  sku.description AS sku_description,
  SUM(cost) AS cost
FROM `project-ID.dataset.gcp_billing_export_resource_v1_XXXXXX-XXXXXX-XXXXXX`
JOIN UNNEST(labels) AS labels
  ON labels.key = "goog-k8s-cluster-name"
GROUP BY
  cluster_name, project_id, sku_description, sku_id
;
```

Query examples with tags

The following examples illustrate ways to query your data with tags.

Calculate costs by invoice month with tags

The following query demonstrates how you can use return costs by invoice month for the `cost_center` tag.

```
SELECT
  invoice.month AS invoice_month,
  tag.value AS cost_center,
  ROUND((SUM(CAST(cost AS NUMERIC))
    + SUM(IFNULL((SELECT SUM (CAST(c.amount AS NUMERIC))
                  FROM UNNEST(credits) AS c), 0))), 2)
    AS net_cost
FROM `project-ID.dataset.gcp_billing_export_resource_v1_XXXXXX-XXXXXX-XXXXXX`
WHERE tag.key = "cost_center" AND tag.namespace = "821092389413"
GROUP BY invoice.month, tag.value
ORDER BY invoice.month, tag.value;
```

For example, the result of the preceding query might be:

Row	invoice_month	cost_center	net_cost
1	202208	android_mobile_apps	9.93
2	202208	ios_mobile_apps	9.93
3	202209	android_mobile_apps	25.42
4	202209	ios_mobile_apps	25.4
5	202209	personalization	16.08

View costs of untagged resources

This query shows the invoice total for untagged resources, grouped by invoice month.

```
SELECT
 invoice.month AS invoice_month,
 ROUND((SUM(CAST(cost AS NUMERIC))
   + SUM(IFNULL((SELECT SUM(CAST(c.amount AS NUMERIC))
                 FROM UNNEST(credits) AS c), 0))), 2)
   AS net_cost
FROM
 `project-ID.dataset.gcp_billing_export_v1_XXXXXX-XXXXXX-XXXXXX`
WHERE "color" NOT IN (SELECT key FROM UNNEST(tags))
```

```
GROUP BY invoice_month
ORDER BY invoice_month;
```

For example, the result of the preceding query might be:

Row	invoice_month	net_cost
1	202202	0
2	202203	16.81
3	202204	54.09
4	202205	55.82
5	202206	54.09
6	202207	55.83
7	202208	31.49

Related topics

Topics related to exported Cloud Billing data

- Set up Cloud Billing data export to BigQuery (/billing/docs/how-to/export-data-bigquery-setup)
- Example queries for Cloud Billing data export to BigQuery (/billing/docs/how-to/bq-examples)
- Visualize spend over time with Looker Studio (/billing/docs/how-to/visualize-data)

Cost and pricing reports available in the Google Cloud console

- View your Cloud Billing reports and cost trends (/billing/docs/how-to/reports)
- View and download the cost details of your invoice or statement (/billing/docs/how-to/cost-table)
- View and download prices for Google's cloud services (/billing/docs/how-to/pricing-table)
- Understand your savings with cost breakdown reports (/billing/docs/how-to/cost-breakdown)

- Analyze the effectiveness of your committed use discounts (/billing/docs/how-to/cud-analysis)
- View your cost and payment history (/billing/docs/how-to/view-history)

Previous
← Structure of Standard data export (/billing/docs/how-to/export-data-bigquery-tables/standard-usage)

Next
Structure of Pricing data export → (/billing/docs/how-to/export-data-bigquery-tables/pricing-data)

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