# BigQuery

Cost-effective, serverless, multicloud data warehouse to power your data-driven innovation.

New customers get $300 in free credits to spend on BigQuery. All customers get 10 GB storage and up to 1 TB queries free per month, not charged against their credits.

- Run analytics at scale with 27% lower three-year TCO than cloud data warehouse alternatives
- Democratize insights with built-in business intelligence and machine learning
- Power business decisions from data across clouds with a flexible, multicloud analytics solution
- BigQuery is at the core of Google's unified data cloud. Watch the demo to see how it works

BENEFITS

## Gain insights with real-time and predictive analytics

Query streaming data in real time and get up-to-date information on all your business processes. Predict business outcomes easily with built-in machine learning–without the need to move data.

## Access data and share insights with ease

Securely access and share analytical insights in your organization with a few clicks. Easily create stunning reports and dashboards using popular business intelligence tools, out of the box.

## Protect your data and operate with trust

Rely on BigQuery’s robust security, governance, and reliability controls that offer high availability and a 99.99% uptime SLA. Protect your data with encryption by default and customer-managed encryption keys.

KEY FEATURES

# Key features

**ML and predictive modeling with BigQuery ML**

BigQuery ML enables data scientists and data analysts to build and operationalize ML models on planet-scale structured or semi-structured data, directly inside BigQuery, using simple SQL—in a fraction of the time. Export BigQuery ML models for online prediction into Vertex AI or your own serving layer. Learn more about the models we currently support.

**Multicloud data analysis with BigQuery Omni**

BigQuery Omni is a flexible, fully managed, multicloud analytics solution that allows you to cost-effectively and securely analyze data across clouds such as AWS and Azure. Use standard SQL and BigQuery's familiar interface to quickly answer questions and share results from a single pane of glass across your datasets. Try BigQuery Omni at no cost for a limited period or purchase flat rate slots for capacity reservations. Learn more.

**Interactive data analysis with BigQuery BI Engine**

BigQuery BI Engine is an in-memory analysis service built into BigQuery that enables users to analyze large and complex datasets interactively with sub-second query response time and high concurrency. BI Engine natively integrates with Google's Data Studio using BI Engine single node and natively accelerates any other business intelligence tools using BI Engine SQL interface.

**Geospatial analysis with BigQuery GIS**

BigQuery GIS uniquely combines the serverless architecture of BigQuery with native support for geospatial analysis, so you can augment your analytics workflows with location intelligence. Simplify your analyses, see spatial data in fresh ways, and unlock entirely new lines of business with support for arbitrary points, lines, polygons, and multi-polygons in common geospatial data formats.

ALL FEATURES

# All features

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| Serverless | With serverless data warehousing, Google does all resource provisioning behind the scenes, so you can focus on data and analysis rather than worrying about upgrading, securing, or managing the infrastructure. |
| Multicloud capabilities | BigQuery Omni allows you to analyze data across clouds using standard SQL and without leaving |

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| | BigQuery's familiar interface. Its flexible, fully managed infrastructure allows your data analysts or data scientists to have a completely seamless data analysis experience. From a single pane-of-glass, you can also combine data or train models cross-clouds using cross-cloud transfer. |
| Built-in ML and AI integrations | Besides bringing ML to your data with BigQuery ML, integrations with Vertex AI and TensorFlow enable you to train and execute powerful models on structured data in minutes, with just SQL. |
| Foundation for BI | BigQuery forms the backbone for modern cloud BI solutions and enables seamless data integration, transformation, analysis, visualization, and reporting with tools from Google and our technology partners. To accelerate BI workloads you can turn on BI Engine, an in-memory analysis service, to achieve sub-second query response time and high concurrency for popular BI tools via standard ODBC/JDBC. |
| Spreadsheet interface | Connected Sheets allows users to analyze billions of rows of live BigQuery data in Google Sheets without requiring SQL knowledge. Users can apply familiar tools—like pivot tables, charts, and formulas—to easily derive insights from big data. Learn more about Connected Sheets in the getting started guide. |
| Real-time analytics | BigQuery's high-speed streaming insertion API provides a powerful foundation for real-time analytics, making your latest business data immediately available for analysis. You can also leverage Datastream, Pub/Sub and Dataflow to stream data into BigQuery. |

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| Real-time change data capture and replication | Synchronize data across heterogeneous databases, storage systems, and applications reliably and with minimal latency with Datastream. Datastream integrates with purpose-built and extensible Dataflow templates to pull change streams written to Cloud Storage, and create up-to-date replicated tables in BigQuery for real-time analytics. |
| Automatic high availability | BigQuery transparently and automatically provides highly durable, replicated storage in multiple locations and high availability with no extra charge and no additional setup. |
| Standard SQL | BigQuery supports a standard SQL dialect that is ANSI:2011 compliant, which reduces the need for code rewrites. BigQuery also provides ODBC and JDBC drivers at no cost to ensure your current applications can interact with its powerful engine. |
| Federated query and logical data warehousing | Through powerful federated queries, BigQuery can process external data sources in object storage (Cloud Storage) for Parquet and ORC open source file formats, transactional databases (Bigtable, Cloud SQL), or spreadsheets in Drive. All this can be done without moving the data. |
| Convergence of data warehouse and data lake | Run open source data science workloads (Spark, TensorFlow, Dataflow and Apache Beam, MapReduce, Pandas, and scikit-learn) directly on BigQuery using the Storage API. The Storage API provides a much simpler architecture and less data movement and doesn't need to have multiple copies of the same data. |

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| Materialized Views | Accelerate query performance and reduce costs within your environment with BigQuery materialized views. It is easy to set up, effortless to use, and best of all it's real time, allowing you to quickly get answers to your questions. |
| Storage and compute separation | With BigQuery's separated storage and compute, you have the option to choose the storage and processing solutions that make sense for your business and control access and costs for each. |
| Automatic backup and easy restore | BigQuery automatically replicates data and keeps a seven-day history of changes, allowing you to easily restore and compare data from different times. |
| Geospatial data types and functions | BigQuery GIS combines the serverless architecture of BigQuery with native support for geospatial analysis, so you can augment your analytics workflows with location intelligence. Simplify your analyses, see spatial data in fresh ways, and unlock entirely new lines of business with support for arbitrary points, lines, polygons, and multi-polygons in common geospatial data formats. |
| BigQuery data transfer service | The BigQuery Data Transfer Service automatically transfers data from external data sources, like Google Marketing Platform, Google Ads, YouTube, and partner SaaS applications to BigQuery on a scheduled and fully managed basis. Users can also easily transfer data from Teradata and Amazon S3 to BigQuery. |
| Big data ecosystem integration | With Dataproc and Dataflow, BigQuery provides integration with the Apache big data ecosystem, allowing existing Hadoop/Spark and Beam workloads |

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| | to read or write data directly from BigQuery using the Storage API. |
| Petabyte scale | Get great performance on your data, while knowing you can scale seamlessly to store and analyze petabytes to exabytes of data with ease. |
| Flexible pricing models | On-demand pricing lets you pay only for the storage and compute that you use. Flat-rate pricing with Reservations enables high-volume users or enterprises to choose price predictability and workload management seamlessly. For more information, see BigQuery pricing or cost controls. |
| Data governance and security | BigQuery's integration with security and privacy services from Google Cloud provides strong security and fine-grained governance controls, down to the column-level and row-level. Rest assured knowing your data is encrypted at rest and in transit by default. |
| Geo-expansion | BigQuery gives you the option of geographic data control (in US, Asia, and European locations), without the headaches of setting up and managing clusters and other computing resources in-region. |
| Flexible data ingestion | Automatically move data from hundreds of popular business SaaS applications into BigQuery for free with Data Transfer Service (DTS) or leverage data integration tools like Cloud Data Fusion, Datastream, Informatica, Talend, and more. Load and transform data at any scale from hybrid and multicloud applications. |
| Programmatic interaction | BigQuery provides a REST API for easy programmatic access and application integration. Client libraries are available in Java, Python, Node.js, C#, Go, Ruby, and |

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| | PHP. Business users can use Google Apps Script to access BigQuery from Sheets. |
| Rich monitoring and logging | BigQuery provides rich monitoring, logging, and alerting through Cloud Audit Logs and it can serve as a repository for logs from any application or service using Cloud Logging. |
| Public datasets | Google Cloud Public Datasets offer a powerful data repository of more than 200 high-demand public datasets from different industries. Google provides free storage for all public datasets, and customers can query up to 1 TB of data per month at no cost. |
| Always-free access | The BigQuery sandbox gives you always-free access to the full power of BigQuery subject to certain limits. You can get started without a credit card, or without creating or enabling a billing account for your project. |