



NebulaGraph

NebulaGraph Cloud

20260109

NebulaGraph

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1. Introduction

1.1 What is NebulaGraph Cloud

NebulaGraph Cloud (Cloud for short) provides a managed service for NebulaGraph Database with database-as-a-service (DBaaS) workflows. You can use a fully managed organization or a [BYOC organization](#), where databases run on a data plane in your AWS account.

The features, pricing model, and quick deployment described below refer to the fully managed service. For BYOC prerequisites, architecture, and license-based costs, see [BYOC overview](#).

1.1.1 Features

- NebulaGraph Cloud provides a pay-as-you-go and pay-on-demand subscription. You can create NebulaGraph Database instances at any time and choose from various resource combinations tailored to your business needs.
- You can quickly become a graph expert, even without previous experience in graph database operations. Easily manage graphs, import datasets, explore data insights, and run GQL statements—all from the intuitive visual interface of NebulaGraph Cloud.
- You can create private endpoints to securely connect to the cloud database using SDKs in different programming languages.
- NebulaGraph Cloud provides extensive monitoring metrics to help you infer the internal state of the database service and its infrastructure in real time.

1.1.2 Product advantages

- Always-on and zero-admin: NebulaGraph Cloud offers a fully managed NebulaGraph Database service, allowing you to focus on application development without worrying about operations and maintenance.
- Flexible and efficient: You can quickly build a NebulaGraph Database instance without purchasing physical servers, storage devices, computing, or network components. It only takes 5 to 10 minutes to prepare a complete environment for use.
- Easy to use: NebulaGraph Cloud supports online management of NebulaGraph Database clusters, smooth data import, and interactive data exploration. It also offers a demo dataset to help users get started quickly.
- Official support: You can quickly create tickets for technical support, consulting problems you have encountered during use.

1.1.3 Scenarios

NebulaGraph Cloud is suitable for the following scenarios:

- You want to quickly subscribe to NebulaGraph Database and deploy a fully-managed graph database on AWS without coding.
- You want to leverage NebulaGraph Cloud as the infrastructure to rapidly and economically enjoy the Nebula AI Application Platform service.

1.1.4 Version compatibility

The latest documented NebulaGraph Cloud release, [20261020](#), supports NebulaGraph Database **5.3.2**.

Cloud releases with the same database version are grouped below. Each range includes both endpoints. For individual releases, see the [release notes](#).

Cloud releases	Database version
20261020	5.3.2
20260828 – 20260923	5.3.0
20260402 – 20260521	5.2.2
20251219 – 20260206	5.2.0
20250618 – 20251111	5.1.0
20250313 – 20250522	5.0.2
20250128 – 20250228	5.0.0

1.2 Pricing

BYOC pricing

The rates and trial offers below apply to fully managed organizations. BYOC uses an organization-provisioned license and separate customer AWS costs. See [BYOC license and costs](#).

This topic introduces the pricing model for NebulaGraph Cloud.

1.2.1 Overview

NebulaGraph Cloud offers pay-as-you-go pricing for all of its services. You pay only for the resources you use, with no upfront costs or long-term contracts. However, to enjoy our paid plans, you need to either subscribe to [NebulaGraph Cloud](#) on the AWS Marketplace or add a credit card as the payment method.

After creating a database instance on NebulaGraph Cloud, you are charged based on three factors: database node specification, disk storage specification and data transfer usage.

Node specification

The charges for node specification differ depending on the plan you choose.

FOR STANDARD PLAN

For standard plan users, the node specifications are determined by the number of vCPUs and the amount of RAM. The following table lists the available node specifications and their corresponding hourly prices:

Node specification	Price/hour
2 vCPUs, 4 GB RAM	\$0.049
2 vCPUs, 8 GB RAM	\$0.91
4 vCPUs, 16 GB RAM	\$1.83
8 vCPUs, 32 GB RAM	\$3.66
8 vCPUs, 64 GB RAM	\$3.76

FOR PROFESSIONAL AND ENTERPRISE PLANS

For Professional and Enterprise plan users, node specifications are divided into storage node specifications and query node specifications. The following tables list the latest hourly and monthly prices. Specifications with up to 8 vCPUs are available with both plans; the 16-vCPU and 32-vCPU specifications are available with the Enterprise plan.

- Storage node specification

Storage node specification	Price/hour	Price/month
2 vCPUs, 16 GB RAM	\$0.79	\$578.18
4 vCPUs, 32 GB RAM	\$1.58	\$1,156.37
8 vCPUs, 64 GB RAM	\$3.17	\$2,312.73
16 vCPUs, 128 GB RAM	\$5.91	\$4,312.73
32 vCPUs, 256 GB RAM	\$11.39	\$8,312.73

- Query node specification

Query node specification	Price/hour	Price/month
2 vCPUs, 8 GB RAM	\$0.49	\$359.57
4 vCPUs, 16 GB RAM	\$0.99	\$719.14
4 vCPUs, 32 GB RAM	\$1.04	\$756.37
8 vCPUs, 32 GB RAM	\$1.97	\$1,438.27
8 vCPUs, 64 GB RAM	\$2.07	\$1,512.73
16 vCPUs, 64 GB RAM	\$3.94	\$2,876.54
16 vCPUs, 128 GB RAM	\$4.14	\$3,025.46
32 vCPUs, 128 GB RAM	\$7.88	\$5,753.09
32 vCPUs, 256 GB RAM	\$8.29	\$6,050.93

Disk storage specification

The following table lists disk storage specifications and their corresponding hourly prices for Standard, Professional, and Enterprise plan users:

Storage size per node	Price/GB/hour	Price/GB/month
From 30 GB to 160 GB	\$0.0001	\$0.08
From 161 GB to 320 GB	\$0.0002	\$0.16
From 321 GB to 640 GB	\$0.0003	\$0.20
From 641 GB to 1,280 GB	\$0.0004	\$0.30
From 1,281 GB to 2,560 GB	\$0.0005	\$0.40

The charges for the disk storage follow AWS pricing. For more information about AWS EBS pricing, see the [AWS documentation](#).

Data transfer usage

For Standard, Professional, and Enterprise plan users, the charges for data transfer follow AWS pricing and consist of the following:

- Fixed cost: the hourly charge of an AWS Network Load Balancer (NLB), which is \$0.0225.
- Capacity unit cost: the number of Network Load Balancer Capacity Units (NLCU) used by the NLB per hour, which is \$0.006 per NLCU-hour.

For more information about AWS NLB pricing, see the [AWS documentation](#).

1.2.2 Try NebulaGraph Cloud for free

Required role: Organization Owner

NebulaGraph Cloud offers a 14-day free trial for your default organization, allowing you to explore the service at no cost. The free trial includes the following benefits:

- 14-day trial: You can use a database instance with 2 vCPUs, 4 GB of RAM, and 10 GB of storage for free. Your free trial expires 14 days after instance creation or when the instance is deleted, whichever comes first.
- Upgrade anytime: You can subscribe to NebulaGraph Cloud at any time during the free trial to upgrade to a paid plan. Once you upgrade, the free trial ends.
- No payment information required: Your payment account is required only when you decide to upgrade to a paid plan.

1.2.3 Upgrade to a paid plan

Required role: Organization Owner

To unlock more features and continue using NebulaGraph Cloud, sign in with a user account that holds the Organization Owner role and click **Trial - x day left** in the top-right corner of NebulaGraph Cloud. Follow the instructions to upgrade to a paid plan, starting at \$0.05 per hour, which includes 2 vCPUs, 4 GB of RAM, and 10 GB of storage.

The paid plans offer a wide range of enterprise-grade features. The following table compares the paid plans, detailing the specific features available in each plan:

Feature	Standard plan	Professional plan	Enterprise plan
Scenario	For development, learning, experimentation, and prototyping.	For startups and scale-ups that need scalability and single-zone HA.	For production workloads that need enterprise HA and larger specifications.
Starting price displayed on the Create Database page	\$0/hour during the 14-day free trial. Paid usage starts at approximately \$0.05/hour.	\$2.869/hour.	\$2.869/hour.
Pricing factors	<ul style="list-style-type: none"> • Node specification • Disk storage specification • Data transfer usage 	<ul style="list-style-type: none"> • Storage node specification • Query node specification • Disk storage specification • Data transfer usage 	Same as the Professional plan.
Resize node specification	Supported	Supported	Supported
Scale node counts	N/A	Supported	Supported
Increase storage size	Supported	Supported	Supported
Capacity	A single node with up to 8 vCPUs, 64 GB RAM, and 640 GB of storage.	Up to 10 query nodes and 10 storage nodes, with up to 8 vCPUs, 64 GB RAM, and 320 GB of storage for each storage node.	All Professional plan capacity options, plus query and storage node specifications with up to 32 vCPUs and 256 GB RAM, and up to 2,560 GB of storage per storage node.
Default capacity	One node with 2 vCPUs, 4 GB RAM, and 10 GB of storage during the free trial.	Based on the capacity selected when the database is created.	3 query nodes with 2 vCPUs and 8 GiB RAM each; 3 storage nodes with 2 vCPUs and 16 GiB RAM each; 40 GB of storage per storage node.
Private endpoint and IP allow list	Supported	Supported	Supported
High availability (HA)	N/A	Single-zone HA.	Cross-AZ deployment with a replica factor of 3 by default.
Zone-aware routing policy	N/A	N/A	Supported
Technical support	Access to the support team.	Premium support.	Premium support.
Scheduled backups	N/A	Daily backups with retention of up to 90 days.	Daily backups with retention of up to 90 days.
Enhanced network protection	N/A	N/A	Coming soon

1.2.4 More information

[Billing management](#)

2. Getting started

2.1 NebulaGraph Cloud quickstart guide

Quickstart scope

The quickstart below applies to fully managed organizations. For BYOC, start with the [BYOC overview](#) and [deploy a data plane](#) before creating a database.

NebulaGraph Cloud is a cloud-native graph database service offered by NebulaGraph Database. It provides a web-based user interface (UI) for you to create and manage databases without the trouble of managing the underlying infrastructure.

To quickly master NebulaGraph Cloud, see the following topics:

- [Step 1 Create a database instance](#)
- [Step 2 Get started with Cloud](#)
- (Optional) [Step 3 Connect to your database](#)

2.2 Create a database instance

Deployment mode

This creation and payment workflow applies to fully managed organizations. For BYOC, [deploy a data plane](#), then [create a BYOC database](#).

Before getting started, you need to create a NebulaGraph Cloud account, create a database, and then connect to it. This topic covers how to create a database instance.

2.2.1 Prerequisites

An [AWS account](#) is prepared.

2.2.2 Step 1. Sign up and log in to NebulaGraph Cloud

1. Open this [URL](#) in your browser.
2. Click **Sign Up Now** to create a NebulaGraph Cloud account using your email, Github or Google account.
If using your email to sign up, you will receive an email containing a **Verify** button after registration. Click the button to verify your email address and set your password.
3. Log in to NebulaGraph Cloud using your email and password.

Once logged in, an organization and a project are automatically created for you. As the organization owner, you have full access to all resources in your organization. For more information, see [Access control explained](#).

2.2.3 Step 2. Create a database instance

For detailed steps, see [Create an instance](#).

2.2.4 (Optional) Step 3. Connect to your database using SDKs

If you want to use SDKs to connect to your database, complete **this step** to configure network access. Otherwise, skip **this step**.

For detailed steps, see [Connect to your database](#).

2.2.5 What's next

- [Get started with Cloud](#)
- [Manage database instances](#)

2.3 Get started with NebulaGraph Cloud

This guide covers how to quickly get started with NebulaGraph Cloud.

2.3.1 Prerequisites

A database instance is created. For more information, see [Create a database instance](#).

2.3.2 Step 1. Create graphs

Before you import data, you must create a graph to store the data to be imported. In NebulaGraph Cloud, graphs are created based on graph types, which define the data structure of the graphs. To ensure that your data is imported correctly, the graph type must match the data structure of the source data.

We have provided a [demo dataset](#) for you to quickly try out NebulaGraph Cloud. The demo dataset contains a graph type and a graph, which are created based on the demo data. If you want to use it, skip this step and jump to [step 2](#). If you want to create your own graph type and graph, follow the steps below.

1. Click the name of the database that you created to view the database details.
2. On the left-side navigation pane of the database details page, click **Graph** under **Data**.
3. In the upper-left corner of the **Graph** page, follow the instructions introduced in [Create a graph type](#) and [Create a graph](#) to create a graph type and a graph.

2.3.3 Step 2. Import data

1. On the left-side navigation pane of the database details page, click **Graph** under **Data**.
2. You can import demo data or your custom data into the database. Follow either of the following methods based on your requirements.

- Use the demo dataset

On the **Graph** page, click **Use Demo Dataset** to load the demo dataset in NebulaGraph Cloud. For more information, see [Demo dataset](#).

- Import custom data

- a. Go to the database details page, and click **Import** on the left-side navigation pane.
- b. On the **Import** page, click **Import Data** and follow the instructions introduced in [Create import task](#) to import your data.

2.3.4 Step 3. Run queries and explore data

On the left-side navigation pane of the database details page:

- Click **Explore** to explore data on canvas. For detailed instructions, see [Explore graph](#).
- Click **Query** to perform GQL queries in the console.

For how to write GQL queries, see [GQL guide](#).

For how to navigate around the console, see [Data query](#).

2.3.5 Step 4. Monitor database information and metrics

On the left-side navigation pane of the database details page:

- To view the basic information and core metrics of the database, click **Overview** under **Basic**.
- On the **Basic** pane, you can view the basic information about the database, such as the cloud provider, status, and capacity.
- On the **Core Metrics** pane, you can select the time range, start time, and end time to view the core database metrics.
- To view all the database metrics, click **Metrics** under **Monitoring**. Then, select the time range, start time, end time, and fresh rate to view the metrics, including:
 - The metrics of NebulaGraph Database services on the **Service** pane:
 - **Query Per Second (QPS)**: The number of queries executed per second.
 - **Total Sessions**: The total number of sessions within a specified period.
 - **Query Error Rate**: The percentage of failed queries.
 - **Query Latency (P95)**: The 95th percentile latency of all queries sent by the Graph service to the Storage service in the last 5 seconds.
 - **DML Latency (P95)**: The 95th percentile latency of DML queries sent by the Graph service to the Storage service in the last 5 seconds.
 - **DQL Latency (P95)**: The 95th percentile latency of DQL queries sent by the Graph service to the Storage service in the last 5 seconds.
 - The metrics of storage nodes and query nodes on the **Infrastructure** pane:
 - **CPU Utilization**: The percentage of CPU used by the database.
 - **Memory Utilization**: The percentage of memory used by the database.
 - **Storage Used**: The amount of storage used by the database.
 - **Write IOPS**: The write input or output operations per second (IOPS) for each Amazon Elastic Block Store (EBS).
 - **Read IOPS**: The read input or output operations per second (IOPS) for each Amazon Elastic Block Store (EBS).

2.3.6 Related topics

- [Graph management](#)
- [Data import](#)
- [Data exploration](#)
- [Data query](#)

2.4 Connect to your database



BYOC connections

For a database in a BYOC organization, use [Connect to a BYOC database](#) for its prerequisites, network setup, and database credentials.

To use SDKs to connect to your database, you must complete the actions in this topic to configure network access.

2.4.1 Prerequisites

A database instance is created. For more information, see [Create an instance](#).

2.4.2 Step 1. Configure network access

Required role: `Project Admin`

Access the database through public network

1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. In the left-side navigation pane, click **Network access** under **Security**.
3. On the **IP Allow List** tab, click the toggle switch to enable accessing the database through public network.
4. Click + **Add IP Addresses** to add custom IP addresses to the allow list.
 - **Add Current IP Address:** Click this button to automatically add your current IP address to the allow list.
 - **Allow Access From Anywhere:** Click this button to allow access from any IP address. This option is not recommended for security reasons.
5. Obtain the database user credentials. When a database is created, three built-in users are created by default: `db_root` (ADMIN), `db_writer` (SCHEMA DESIGNER, GRAPH_READ_WRITE), and `db_reader` (GRAPH_READ_ONLY). The password of `db_root` is displayed only once upon database creation. Make sure to save it securely. To reset the password later, see [Reset password](#). You can also create additional database users. For more information, see [Create a database user](#).

Access the database through private network

1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. In the left-side navigation pane, click **Network access** under **Security**.
3. Click the **Private Endpoint** tab.
4. In the **Create Private Link Service** pane, click **Create** to enable the private link service.



Note

The service name is automatically generated as part of the command in the **Create Private Link Endpoint** pane after you create the endpoint. You can copy this service name for later use. For example: `--service-name com.amazonaws.vpce.us-west-2.vpce-svc-0e1234567890abcdef`.

5. In the **Create Private Link Endpoint** pane, specify your VPC ID and subnet ID.
 - a. Click **Learn more** to navigate to the AWS console page.
 - b. Click **Endpoints** in the left-side navigation pane and then click **Create endpoint**.
 - c. In the **Endpoint settings** pane, select **Endpoint services that use NLBs and GWLBs** as the endpoint Type.
 - d. In the **Service settings** pane, enter the pasted service name and click **Verify service**.
 - e. When the service name is verified, complete network settings, subnet, security groups, and click **Create endpoint**.
 - f. When the endpoint is successfully created, copy the VPC ID and subnet ID.
6. Navigate back to the NebulaGraph Cloud and paste the VPC ID and subnet ID into the corresponding field in the **Create Private Link Endpoint** pane.
7. Run the automatically generated command in your AWS CLI to create the private link endpoint.
8. Obtain the database user credentials. When a database is created, three built-in users are created by default: `db_root` (ADMIN), `db_writer` (SCHEMA_DESIGNER, GRAPH_READ_WRITE), and `db_reader` (GRAPH_READ_ONLY). The password of `db_root` is displayed only once upon database creation. Make sure to save it securely. To reset the password later, see [Reset password](#). You can also create additional database users. For more information, see [Create a database user](#).

2.4.3 Step 2. Connect to your database using SDKs

Required role: `Project Admin` or `Project Member`

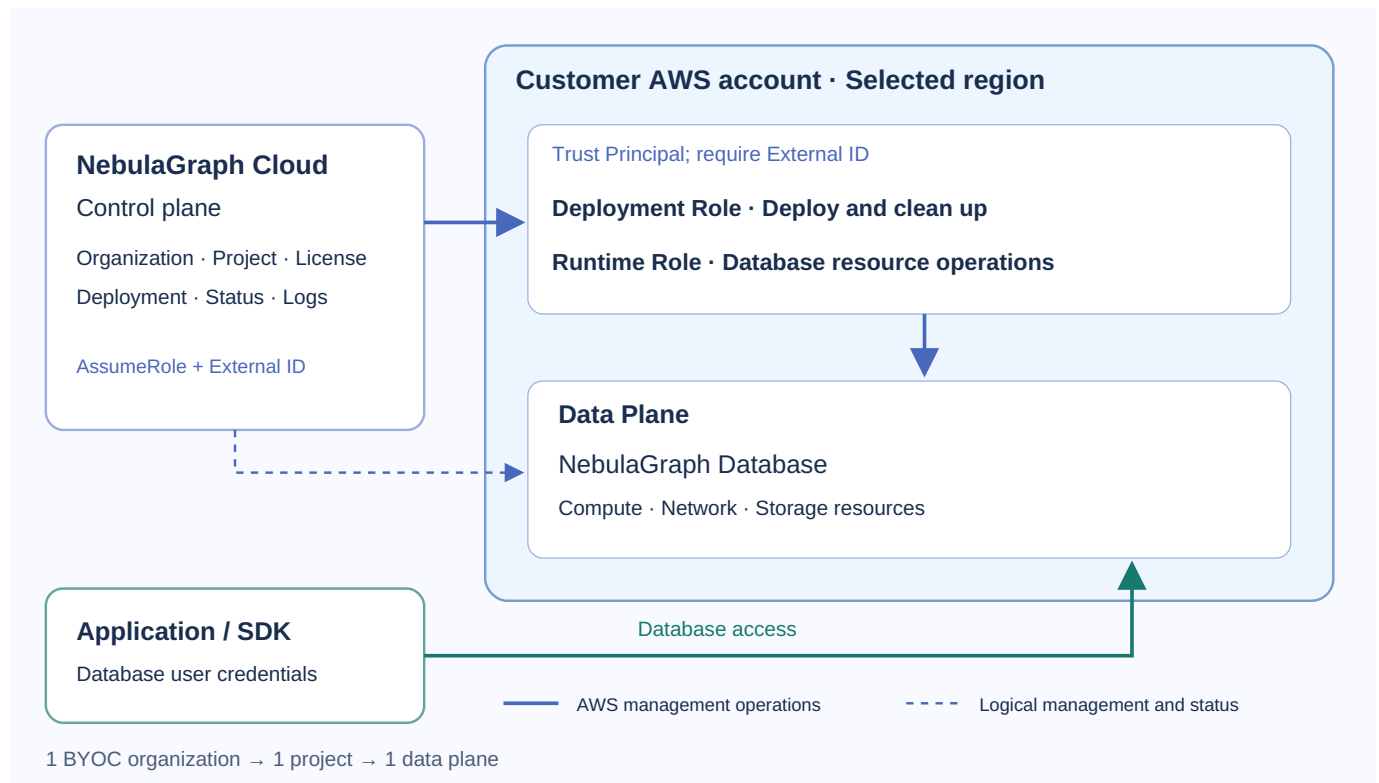
1. In the left-side navigation pane, click **Overview** under **Basic**.
2. In the upper-right corner of the **Overview** page, click **Connect**.
3. In the **Connect to your database** dialog, specify the following items and click **Confirm**:
 - **Choose a connection type**: Select **Public (Connect via public network)** or **Private (Connect via private endpoint)**.
 - **Install the client**: From the **Choose a client** drop-down list, select a client (such as **NebulaGraph Java**, **NebulaGraph Go**, or **NebulaGraph Python**). Click the client documentation link to view the installation guide.
 - **Connect**: Copy the **Host** and **Port** information. Click **Database Users** to obtain the **Username** and **Password**. For more information, see [Manage database users](#).
4. Set up the SDKs with the connection information obtained in the previous step.

3. Bring Your Own Cloud

3.1 BYOC overview

Bring Your Own Cloud (BYOC) runs NebulaGraph databases on a data plane in your AWS account. You use NebulaGraph Cloud to deploy and manage the data plane and databases, and authorize AWS access through two IAM roles.

3.1.1 Architecture



The **control plane** is the NebulaGraph Cloud management service: organizations, projects, deployment actions, and status. The **data plane** is the environment in your AWS account that hosts databases and their supporting compute, network, and storage resources. The diagram shows how NebulaGraph Cloud manages AWS resources and how applications access databases.

The Deployment Role authorizes infrastructure deployment and cleanup. The Runtime Role authorizes database-related AWS resource operations. Both trust the NebulaGraph Principal provided by the platform (shown as **Principal** in the UI) and require the data plane's **External ID**. Your applications use a database endpoint and database user credentials to access the database; they do not use these management roles as database credentials.

3.1.2 Resource model and limits

One BYOC organization supports **one project and one data plane**. The data plane hosts the project's databases, subject to available license quota. If a project or data plane already exists, use it instead of creating another.

Use a **standard commercial AWS account**, excluding AWS China and AWS GovCloud accounts. Select a supported region from **Deploy Data Plane** and use the IAM template to grant AWS access.

Item	Fully managed	BYOC
Database infrastructure	Managed cloud environment	Your AWS account
Start	Create a database	Obtain a BYOC organization, then deploy a data plane
AWS authorization	No BYOC IAM setup	Customer creates Deployment and Runtime roles
Commercial model	Fully managed pricing and billing	License agreement plus customer AWS costs

3.1.3 Prepare for BYOC

- Obtain a BYOC organization from your NebulaGraph Cloud contact. Its license is provided and configured with the organization; you do not upload or activate a license.
- Have an **Organization Owner** create the sole project, or use the existing project.
- Have an **Organization Owner** or **Project Admin** perform data plane and database operations.
- Prepare a customer AWS account and an AWS administrator who can review and create the required IAM authorization.
- Install Terraform and AWS CLI and prepare local AWS authentication as described in [Deploy a data plane](#).

3.1.4 Deployment workflow

1. [Deploy a data plane](#): create its Pending record, run the IAM template locally, submit the two role ARNs, and wait for **Running**.
2. [Create a BYOC database](#): choose a tier and capacity that fit the license.
3. [Connect to the database](#): configure network access and database credentials.
4. Use the shared guides for [graph management](#), [data import](#), [queries](#), and [exploration](#).

For ongoing administration, see [Manage the data plane and databases](#), [License and costs](#), and [Security and permissions](#). If a step fails, see [Troubleshooting](#).

3.2 Deploy a data plane on AWS

This topic introduces how to deploy a data plane in your AWS account through NebulaGraph Cloud. You use the provided [Terraform](#) template to create the IAM roles that authorize AWS access, then submit their ARNs in NebulaGraph Cloud to start infrastructure deployment.



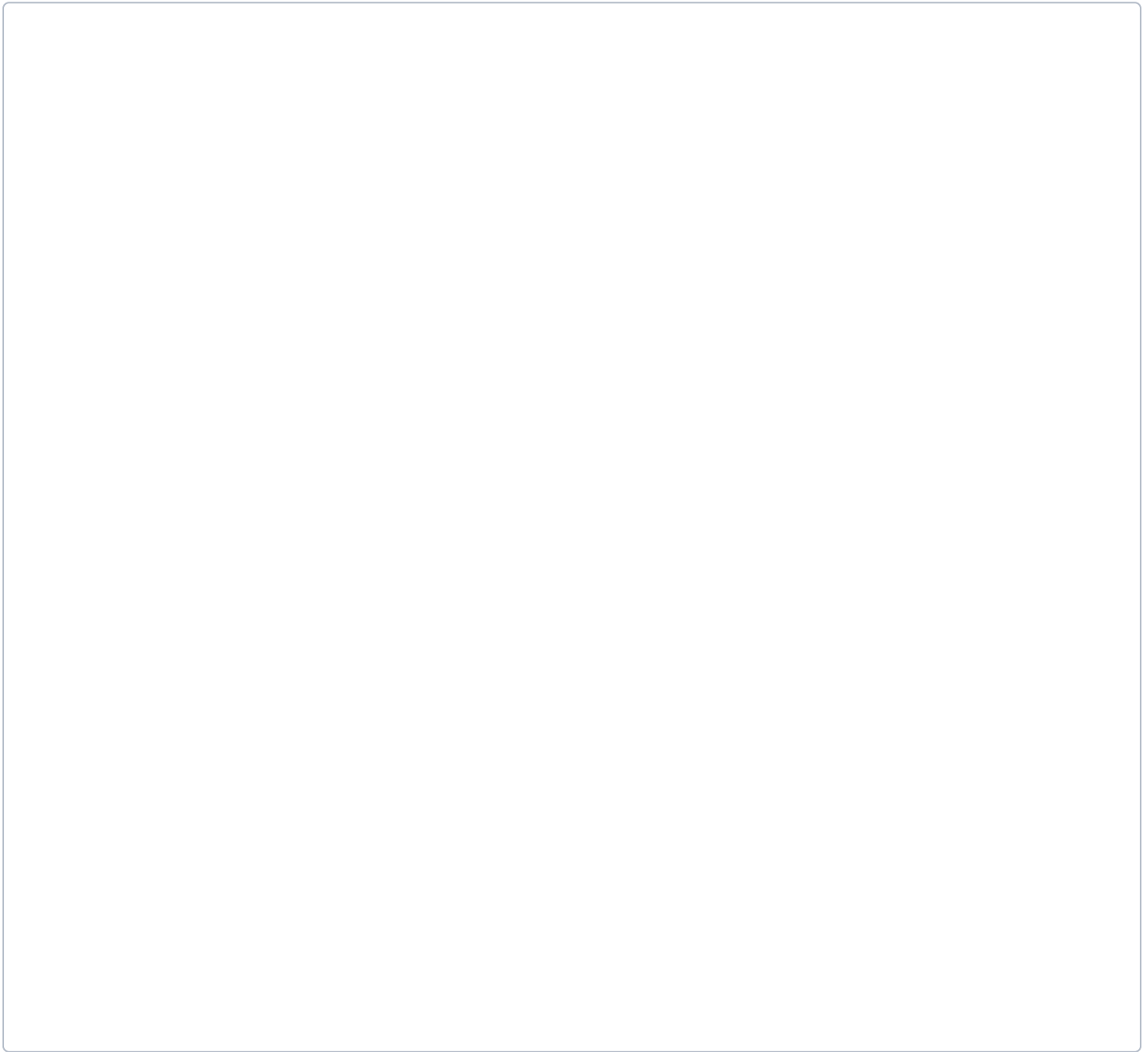
Opened from View Guide?

If you are already on **Credential Settings**, start at [Step 2. Copy the deployment parameters](#). Keep that platform tab open and return to it after obtaining the two role ARNs.

3.2.1 Prerequisites

- A BYOC organization with its license configured, and its sole project.
- **Organization Owner** or **Project Admin** for platform deployment operations. Only the Organization Owner creates a project.
- A standard commercial AWS account, excluding AWS China and AWS GovCloud accounts. The AWS identity running Terraform must be allowed to create, read, and tag IAM roles and policies, and attach policies. [AWS Organizations service control policies \(SCPs\)](#) and permissions boundaries must also permit these operations.
- A macOS or Linux terminal using Bash or zsh, [Terraform 1.14.0 or later](#), and [AWS CLI v2](#).
- Network access to the template download URL and Terraform Registry/provider download services. The published template pins the AWS provider to **6.55.0**.

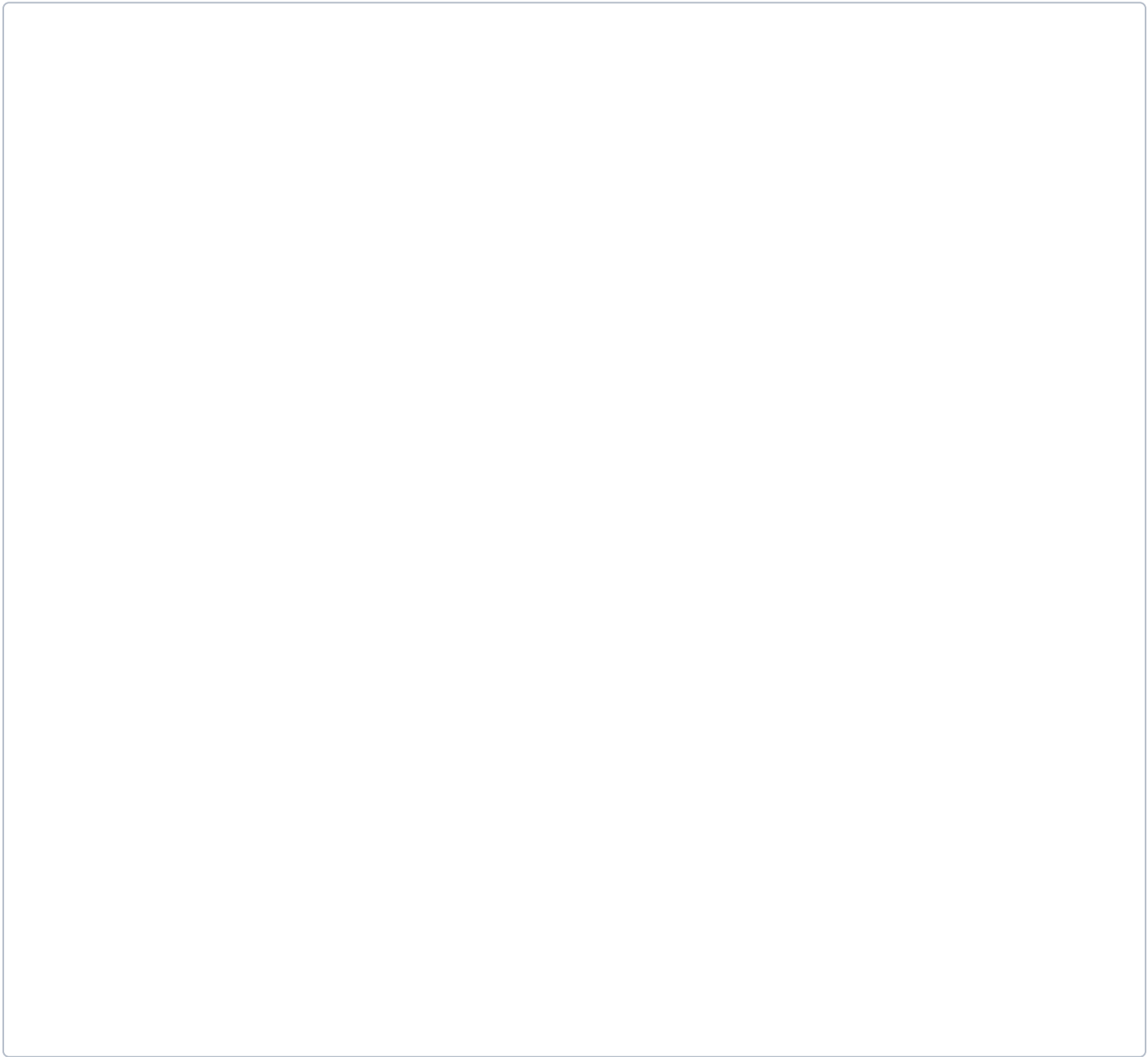
3.2.2 Step 1. Create the data plane record



1. Sign in to NebulaGraph Cloud and select your **BYOC organization** from the top organization menu.
2. On **Projects**, open the existing project. If there is no project, the Organization Owner clicks **Create Project**, enters a project name, and clicks **Create and Next**.
3. In the project's left navigation, click **Data Plane**, then **Deploy Data Plane**.
4. Enter **Data Plane Name**, keep **AWS** as the **Cloud Provider**, and select an available **Region**. Record the AWS region code, such as `us-east-2`.
5. Click **Next**. The platform creates a **Pending** record and opens **Credential Settings**. This has not started infrastructure deployment.

Closing the dialog after **Next** leaves the Pending record. To continue, open **Data Plane** and click **Deploy** on its card; do not try to create a second data plane.

3.2.3 Step 2. Copy the deployment parameters

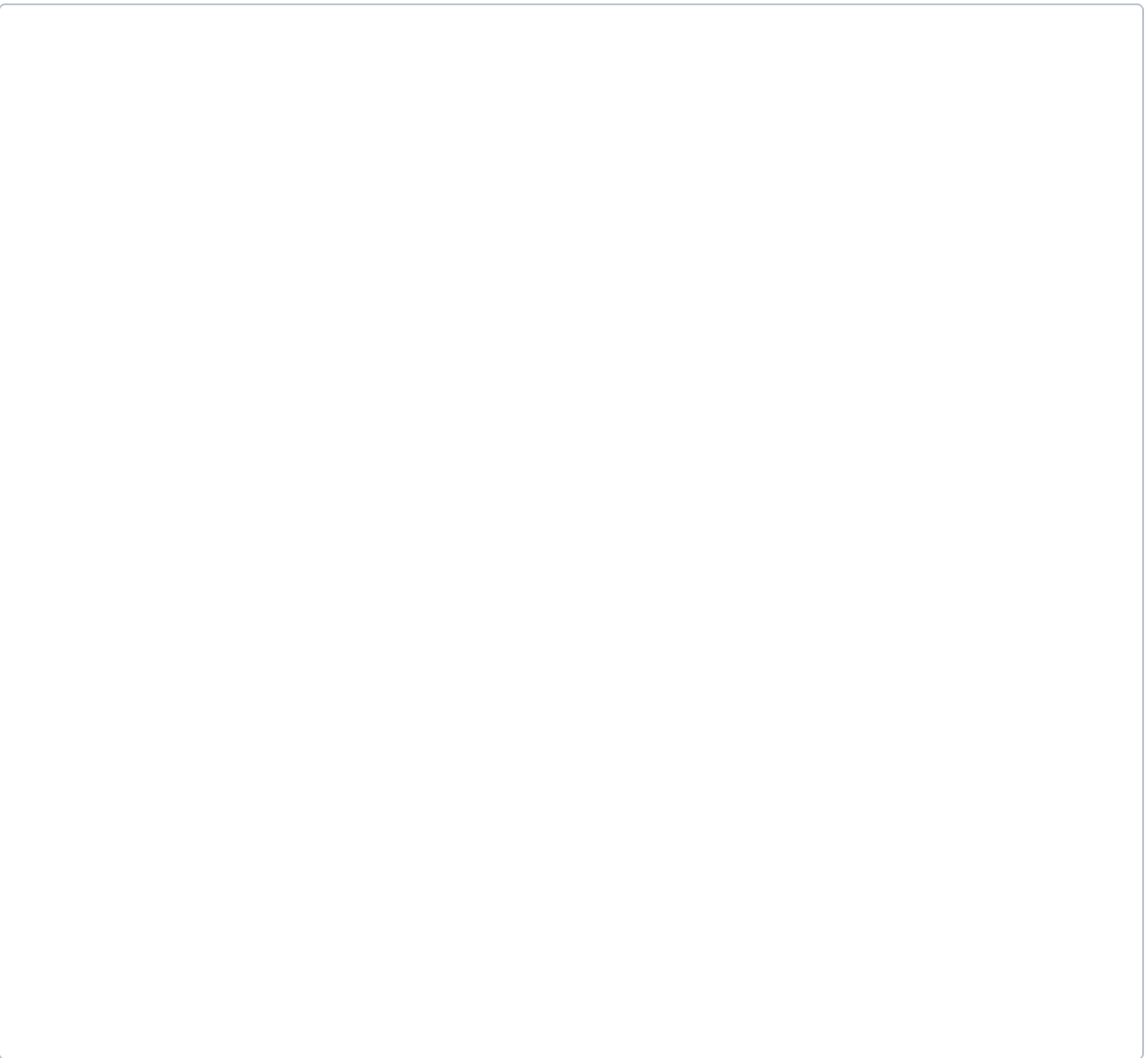


On **Deploy Data Plane** → **Credential Settings**, copy **External ID** and **Principal**. Use the region selected in Step 1.

Platform value	Terraform input	How to fill it
Region	<code>region</code>	Selected AWS region code
External ID (data plane ID)	<code>prefix_name</code> and <code>external_id</code>	Use the same platform-provided ID for both
Principal	<code>nebula_principal_arn</code>	Copy the complete platform-provided IAM ARN

Do not generate your own ID or replace it with the display name. Both role trust policies require this External ID and the provided Principal.

3.2.4 Step 3. Create the IAM roles with Terraform



In your local terminal, download the IAM template, authenticate to AWS, and create the two roles. Keep **Credential Settings** open in NebulaGraph Cloud so you can return the role ARNs in Step 4.

The interactive guide shows command and configuration examples, followed by a screenshot from a previous successful Terraform apply. Replace the placeholders with your own values when following the procedure below.

3.1. Download and extract the IAM template

Download the official [AWS BYOC IAM template](#). In your local terminal, create a dedicated directory for this data plane and extract the archive. Use an empty directory for a first deployment; change the example path if it is already used for another data plane:

```
mkdir -p ~/nebula-byoc/aws-byoc-iam
cd ~/nebula-byoc/aws-byoc-iam
curl --fail --location \
  'https://nebula-cloud-prod-public-us-east-2.s3.us-east-2.amazonaws.com/byoc/aws-byoc-iam.tar.gz' \
```

```
--output aws-byoc-iam.tar.gz
tar -xzf aws-byoc-iam.tar.gz
```

Run all subsequent Terraform commands from this directory. The `.tf` files are extracted directly into it. Create `terraform.tfvars` in section 3.3 with the values from your data plane. If resuming setup, use the original directory and state.

3.2. Authenticate and verify the AWS account

The examples use `byoc-customer` as the local AWS CLI profile name. Use the profile configured for your AWS account, or create one with this name. This name is independent of your NebulaGraph Cloud organization name.

If your company uses AWS IAM Identity Center for single sign-on (SSO), configure an AWS CLI profile once, then sign in:

```
aws configure sso --profile byoc-customer
aws sso login --profile byoc-customer
```

For an existing SSO profile, run only the login command. If your organization uses access keys, configure them locally with `aws configure --profile byoc-customer`.

Select the profile and verify your identity:

```
export AWS_PROFILE=byoc-customer
aws sts get-caller-identity
```

Check that the output's **Account** is the customer AWS account where you intend to deploy BYOC. If it is incorrect, stop and [resolve the profile issue](#) before proceeding. AWS credentials stay local; do not put them in `terraform.tfvars` or provide them to NebulaGraph Cloud.

3.3. Create terraform.tfvars

Create `terraform.tfvars` in the working directory with the following complete content. Replace all placeholders with Step 2 values:

```
region          = "<DATAPLANE_REGION>"
prefix_name     = "<DATAPLANE_ID>"
external_id     = "<DATAPLANE_ID>"
nebula_principal_arn = "<NEBULA_AWS_PRINCIPAL_ARN>"
```

Keep the template's `.tf` files unchanged. `prefix_name` and `external_id` must contain the same External ID.

3.4. Review and apply the IAM plan

Initialize Terraform, then save an execution plan:

```
terraform init
terraform plan -out=tfplan
```

On the first run, Terraform plans to create **24 IAM resources**: 2 roles, 11 policies, and 11 policy attachments. The plan summary is:

```
Plan: 24 to add, 0 to change, 0 to destroy.
```

On subsequent runs, Terraform compares the configuration with the existing resources and plans the changes needed to match it.

Before applying, review the permissions and changes. Verify the target AWS account, role names `<DATAPLANE_ID>-deployment-role` and `<DATAPLANE_ID>-runtime-role`, the trust policy's **Principal**, and its `sts:ExternalId` condition. To inspect the saved plan again, run `terraform show tfplan`.

 Warning

Applying a saved plan changes IAM authorization immediately and does not ask you to type `yes`. Apply only after reviewing it. If you change inputs after saving the plan, generate a new plan first.

```
terraform apply tfplan
```

Wait for **Apply complete!** and the two role ARN outputs. If the command fails partway through, retain the directory and state, fix the cause, and generate a new plan in the same directory.

3.2.5 Step 4. Return the role ARNs to the platform

Obtain **Deployment Role ARN** without quotation marks:

```
terraform output -raw deployment_role_arn
```

Then obtain **Runtime Role ARN** separately:

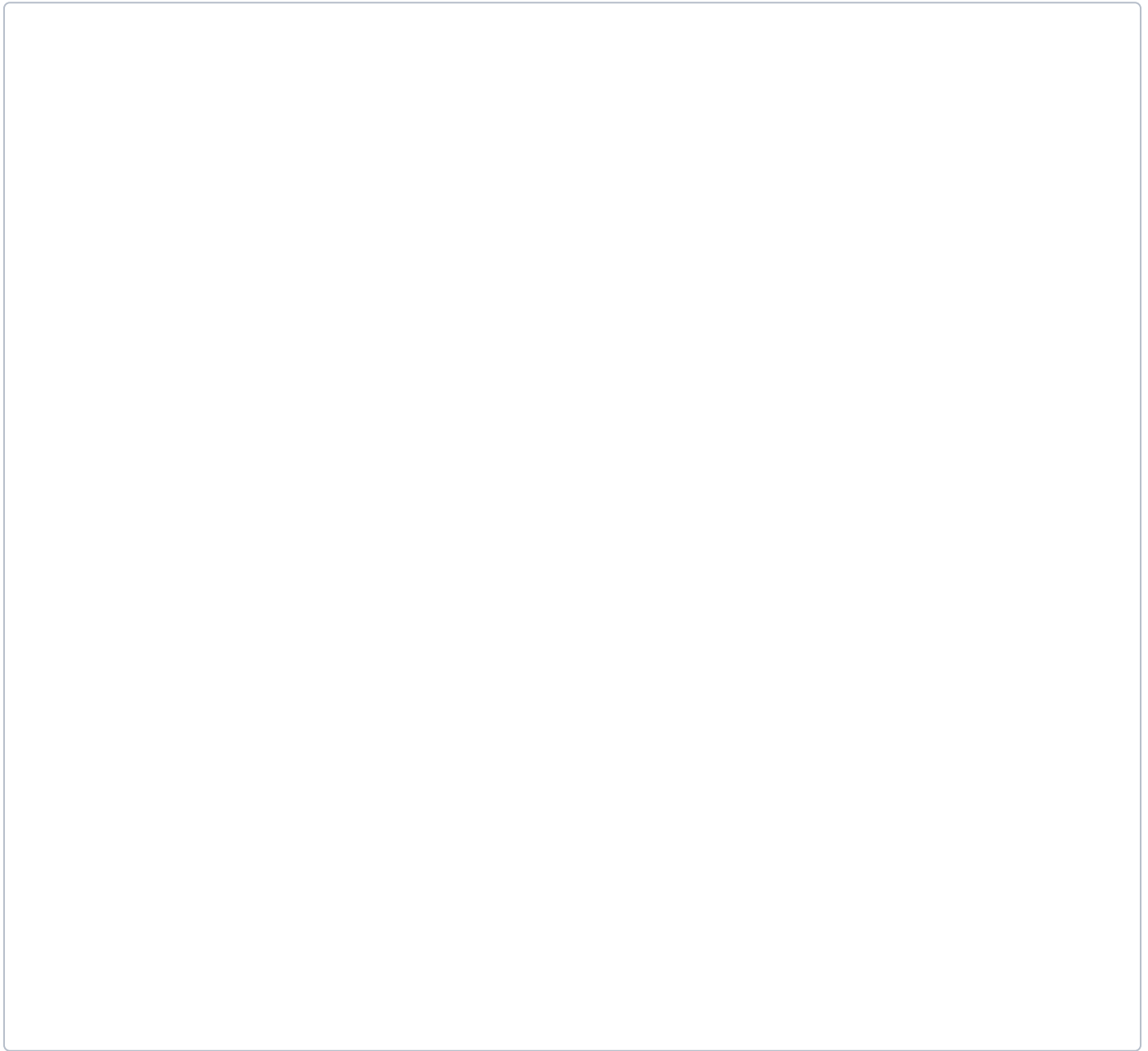
```
terraform output -raw runtime_role_arn
```

In the original **Credential Settings** tab, fill the corresponding fields:

Terraform output	Platform field
<code>deployment_role_arn</code>	Deployment Role ARN
<code>runtime_role_arn</code>	Runtime Role ARN

Each value is a complete `arn:aws:iam::<CUSTOMER_ACCOUNT_ID>:role/<ROLE_NAME>` string. Verify that both role ARNs contain the AWS account ID confirmed in section 3.2. Enter `deployment_role_arn` in **Deployment Role ARN** and `runtime_role_arn` in **Runtime Role ARN**.

3.2.6 Step 5. Start deployment and verify Running



1. Click **Review** to open **Deployment Summary**.
2. Check the data plane name, AWS provider, region, and both role ARNs.
3. Click **Deploy**. The platform uses the authorization to deploy infrastructure in your AWS account; AWS resources can incur charges.
4. Open the data plane's details and follow **Deployment Timeline** and **SYSTEM LOGS** to monitor progress.
5. When the data plane status is **Running**, [create a database](#). If it becomes **Failed**, use [Troubleshooting](#).

Note

Data plane deployment typically takes **15-20 minutes**. The status shows **Deploying** while infrastructure is being created in your AWS account. Wait until the status changes to **Running** before creating a database.

3.2.7 Retain the authorization files

Keep the working directory, `terraform.tfvars`, `terraform.tfstate`, and `.terraform.lock.hcl` securely for future output inspection and authorization updates. Do not commit state, credentials, or saved plans to a public repository. To view the ARNs later, run `terraform output` in the original directory.

The roles are needed for operation and cleanup. [Delete the data plane and verify infrastructure cleanup](#) before revoking or removing IAM authorization. Running `terraform destroy` in this IAM directory removes authorization; it does not delete the platform-created data plane infrastructure.

3.3 Create a BYOC database

This topic introduces how to create a BYOC database on your organization's sole data plane. Its AWS account and region come from that data plane; you do not choose a separate deployment target or bind a fully managed payment method.

3.3.1 Prerequisites

- **Organization Owner** or **Project Admin**.
- The project's data plane is **Running**. Complete [data plane deployment](#) first.
- The organization's license status is **Normal** or **Expiring**, usage information is available, and both Query and Storage have enough [remaining quota](#) for the requested configuration.

3.3.2 Create the database

1. Select the BYOC organization and open its project.
2. In the left navigation, click **Databases** → **Create Database**.
3. On **Create BYOC Database**, enter **Database Name** under **Basic**. Check **Deployment target**, including the data plane name, region, and **Running** status.
4. Under **Database Tier**, select an offered tier:

Tier	Intended use	Capacity configuration
Standard	Development, learning, and prototyping	Node specification and storage size
Professional	Growing production workloads	Query and Storage node specifications and counts
Enterprise	Production workloads requiring greater resilience and scale	Query and Storage node specifications and counts

Select from the tiers and specifications displayed for your organization. License pricing and service terms follow your BYOC agreement.

← BYOC Databases / Create BYOC Database

Basic

Database Name

[redacted]

Deployment target

[redacted]

aws us-east-2

Running

Database Tier

Standard

For development, learning, and prototyping.

Professional

For growing production workloads that need scalable, highly available infrastructure within a single region

Enterprise

For mission-critical production workloads that require enterprise-grade resilience, scale, and security

5. Under **Capacity**, select the node specification and storage size. For Professional and Enterprise, configure **Query Node** and **Storage Node** separately, including **Numbers**, then **Storage Size Per Node**.

Capacity

Query Node

Node

2 vCPUs 8GB RAM

×

Numbers

3

Storage Node

Node

2 vCPUs 16GB RAM

×

Numbers

3

Storage Size Per Node

30GB

160GB

Storage

40

GB

Total Storage Size : 40GB * 3 = 120GB

6. Review **Summary**. Total storage size is storage size per node multiplied by the number of storage nodes. For example, 40 GB × 3 nodes = 120 GB. License CPU/NODE quota is a separate calculation.

Summary

Data Plane

[redacted]

Database Tier

Enterprise

Database Name

[redacted]

Cloud Region

 us-east-2

Capacity

Query Node

2 vCPU, 8 GiB RAM * 3

Storage Node

2 vCPU, 16 GiB RAM * 3

Total Storage Size

120GB

IOPS

3000

Create

7. Click **Create**. The platform opens the database's quick-start workflow. Follow its progress and wait until the database is **Running** before connecting.

3.3.3 Verify and start using the database

Return to **Databases** and confirm the database name and **Running** status. Open it and [configure network access and database credentials](#).

Continue with [graph management](#), [data import](#), [queries](#), and [exploration](#).

If **Create** is unavailable, check the displayed reason, data plane status, license status and remaining quota, and required fields. See [Troubleshooting](#).

3.4 Connect to a BYOC database

This topic introduces how to configure network access and connect to a BYOC database using an SDK. Configure a network path from your application to the database and use database-user credentials to authenticate.

3.4.1 Prerequisites

- The data plane and database are **Running**.
- An **Organization Owner** or **Project Admin** configures network access.
- Your application has a permitted public source IP or a VPC from which it can reach a private endpoint. For private access, have an AWS administrator prepare the VPC, subnets, security groups, and endpoint-creation permissions.
- A database user with the permissions required by the application. See [Manage database users](#).

3.4.2 Step 1. Configure network access

Select the BYOC organization, open its project, click the database, then go to **Security → Network access**. Choose a network method offered by the database.

Public access

1. Open **IP Allow List** and enable public access with the toggle.
2. Click **+ Add IP Addresses** and add the application's actual public source IP or CIDR. **Add Current IP Address** uses your browser's public IP, which may differ from the application server's IP.
3. Verify the required addresses appear in the allow list and wait for the public service to be ready before copying connection details.

Restrict the allow list to the required sources. **Allow Access From Anywhere** broadens database exposure and is unnecessary for most application connections.

Private access

1. Open **Private Endpoint**. Under **Create Private Link Service**, click **Create** and wait for the service to be ready.
2. Under **Create Private Link Endpoint**, fill your application VPC ID and subnet ID(s). **Learn more** opens the AWS VPC console to help you find these values.
3. Copy the generated AWS CLI command, check its region, service name, VPC and subnets, and run it using the intended AWS account. Use this command to create the client endpoint once; you do not need to create the same endpoint separately in the console first.
4. In the AWS VPC console, open **Endpoints** and verify that the endpoint is available. Check its security groups and DNS resolution from the application network. Use the client endpoint's DNS name for a private connection.

Network resources in your AWS account can incur AWS charges. See [License and costs](#).

3.4.3 Step 2. Obtain database credentials

1. Open the database's **Basic → Overview** page and click **Connect**.
2. In **Connect to your database**, click **Database Users** to open database user management.
3. Use an existing authorized database user, or have a database administrator create one for the application. Store its password securely. If a password is unavailable, use the documented [password reset procedure](#).

Use the database username and password, not your Cloud account login, AWS profile, or role ARN. Grant the application's database user only the graph privileges it needs.

3.4.4 Step 3. Obtain the endpoint and connect

1. Return to **Basic → Overview** and click **Connect** again after obtaining the database credentials.
2. In **Connect to your database**, choose **Public (Connect via public network)** or **Private (Connect via private endpoint)** to match Step 1.
3. Under **Choose a client**, select NebulaGraph Java, Go, or Python. Use the linked client documentation for installation and a connection example compatible with your database version.
4. For public access, copy **Host**. For private access, follow the **AWS Endpoint** link and copy the client endpoint's DNS name. Copy **Port** from the dialog.
5. Replace the SDK example's host, port, username, and password with these values. Run the example from the permitted application network.

Verify that authentication succeeds and that a query allowed for that user returns successfully. For a user authorized to list graphs, `SHOW GRAPHS` is a simple check; an empty graph list still indicates a successful query. If connection fails, distinguish timeout/DNS errors from authentication or privilege errors using [Troubleshooting](#).

3.5 Manage the data plane and databases

This topic introduces how to manage a BYOC data plane and its databases in NebulaGraph Cloud. Keep the AWS IAM roles in place while the platform operates or cleans up resources.

Required role: Organization Owner or Project Admin. Select the BYOC organization and open its sole project before following the procedures below.

3.5.1 Inspect data plane status

Open **Data Plane**. For a deployed or deploying record, open its name to inspect details, **Deployment Timeline**, and **SYSTEM LOGS**.

Status	Meaning and next action
Pending	Record created; authorization/deployment still required. Click Deploy to continue.
Deploying	Deployment is in progress. Follow the timeline and logs; management actions are unavailable.
Running	Data plane is ready for database creation.
Failed	Inspect the failure, fix its cause, then use Retry Deployment when available.
Deleting	Deletion is in progress. Wait and retain authorization until cleanup is verified.

If progress or log updates are interrupted, reconnect or retry loading them, then check the data plane status to determine the deployment outcome. See [Troubleshooting](#).

3.5.2 Rename the data plane

1. On **Data Plane**, open the card's ... menu and select **Rename**.
2. Enter **Data Plane Name** and click **Confirm**.
3. Verify the new name on the card.

Renaming changes the display name. Continue to use the original External ID in the IAM template; do not rename roles or replace the ID with the new display name.

3.5.3 Change database capacity

Use **Databases** → ... for the database, or its **Overview** → ... menu. Available actions depend on tier, database state, and license information. Start with a **Running** database and a valid license. Check [Query and Storage quota](#) before resizing or scaling.

Warning

Resizing and scaling can make the database temporarily unavailable. Arrange a suitable maintenance window and review the confirmation before submitting.

Resize node specifications

Standard uses one node specification. Professional and Enterprise allow separate Query and Storage specifications.

1. Open the database's ... menu and select **Resize**.
2. Review **Current** for Standard, or **Current Configuration** for Professional and Enterprise. Select the new node specification; for Professional and Enterprise, select the Query and Storage specifications you want to change. The new Standard or Storage node specification must support the existing storage size.
3. Review the selected configuration and the availability notice, then click **Resize**.
4. Wait until the database status is **Running**. Open its **Overview** and verify the updated node specifications.

Scale node counts

Scaling is available for Professional and Enterprise databases.

1. Open the database's ... menu and select **Scale** to open **Scale Database**.
2. Review the current **Graph Nodes** (query nodes) and **Storage Nodes** counts.
3. Select the new counts from the available options. Check that any increase fits the corresponding remaining license quota.
4. Review the selected counts and the availability notice, then click **Scale**.
5. Wait until the database status is **Running**. Open its **Overview** and verify the updated node counts.

Increase storage size

Warning

Storage size cannot be reduced after an increase. AWS EBS also limits subsequent volume changes; follow the constraints displayed in the dialog.

1. Open the database's ... menu and select **Increase Storage Size** when available.
2. Select a size greater than the existing size and within the displayed range. For Professional and Enterprise, this size applies to each storage node.
3. Review the new size and, for Professional and Enterprise, the total storage size across all storage nodes. Click **Increase Storage Size** to submit the change.
4. Open the database's **Overview** and verify the updated storage size after the change completes.

BYOC does not require the fully managed trial-to-paid upgrade or capacity-bundle purchase workflow. Check AWS bills and your license agreement for costs.

3.5.4 Suspend and resume a database

1. In **Databases**, open the database's ... menu, select **Suspend**, and confirm. Wait for **Suspended**. Applications cannot read or write while it is suspended.
2. To resume, click **Resume** on the database card and confirm. Wait for **Running** before reconnecting.

After suspension, check the AWS costs of retained resources and the license fees in your BYOC agreement. If license information prevents the action, restore that information or contact support; do not remove AWS resources directly as a workaround.

3.5.5 Delete the data plane

All project databases must be deleted first. If you also plan to delete the project, remove the data plane before deleting the project.

**Warning**

Deleting databases can permanently remove data. Preserve required data before deletion. Keep both IAM roles until infrastructure cleanup is complete.

1. In **Databases**, open ... → **Delete** for each database, review the confirmation, and confirm only after preserving required data. Wait until the project has no database records.
2. Open **Data Plane** → ... → **Delete Data Plane**.
3. Read the deletion description for the current state:
 - **Running**: deletion starts infrastructure cleanup in your AWS account.
 - **Other states**, including Failed: deletion removes only the control-plane record. If deployment failed, work with support to check and clean residual AWS resources before removing the record or authorization.
4. Enter the exact data plane name and click **Delete**. Actions are unavailable during Deploying or Deleting.
5. After the data plane is removed from the platform, have your AWS administrator verify that its AWS resources are cleaned up and check the associated AWS costs.
6. Only after cleanup is verified, have the AWS administrator remove the IAM authorization using the retained Terraform directory and a reviewed destroy plan. The IAM template removes only the roles and policies it created.

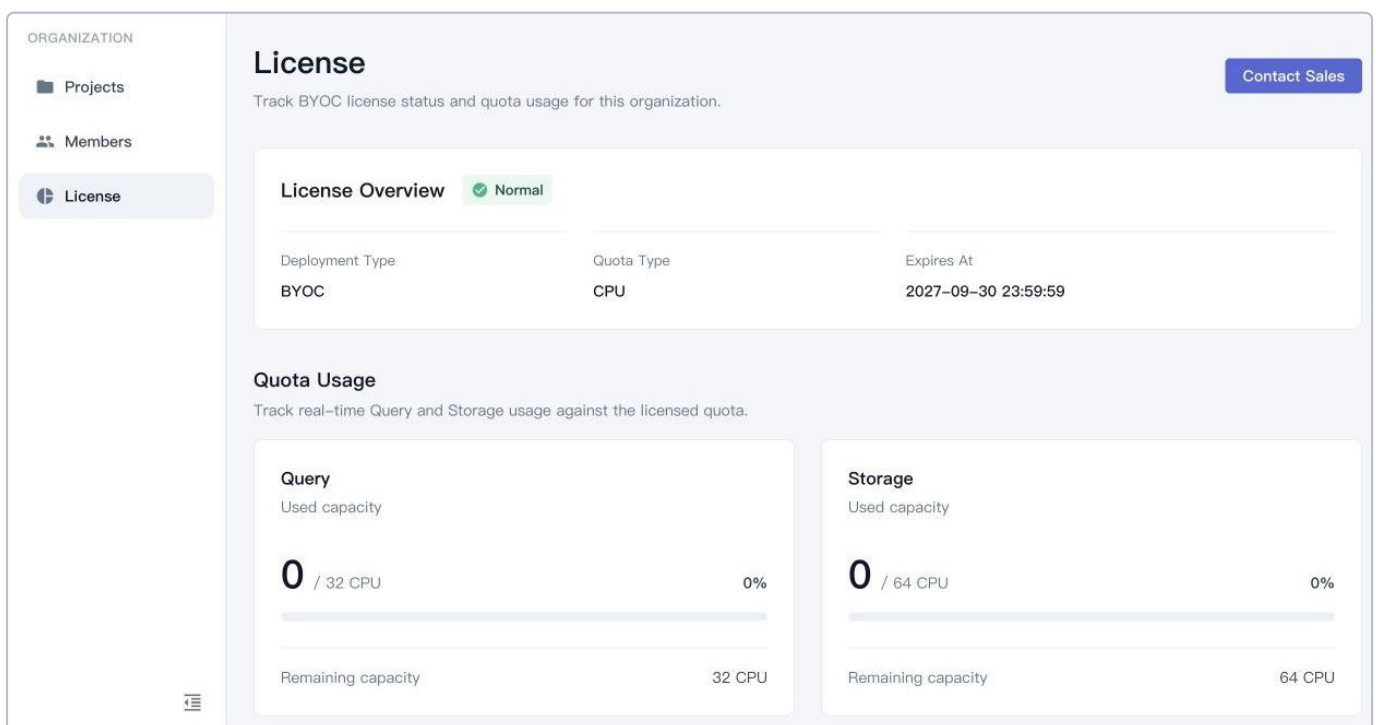
If a deletion is blocked by remaining databases, licensing, unavailable resource checks, or an error, see [Troubleshooting](#). Do not delete IAM roles first.

3.6 BYOC license and costs

BYOC uses a license supplied and configured when your BYOC organization is provisioned. You do not install, upload, or activate it. Use the organization's **License** page to inspect validity and capacity; use your commercial agreement for license pricing and your AWS bill for infrastructure costs.

3.6.1 View the license

1. Select the BYOC organization from the top organization menu to open its organization view.
2. Click **License** in the left navigation.
3. Under **License Overview**, check status, **Deployment Type**, **Quota Type**, and **Expires At**.
4. Under **Quota Usage**, check **Query** and **Storage**, including **Used capacity** and **Remaining capacity**. These are separate licensed resource pools.



Your BYOC agreement determines your license expiry date and quotas. View these values on your organization's **License** page.

3.6.2 Quota calculation

Quota describes configured database capacity, not instantaneous CPU utilization, query volume, or a price per CPU-hour.

Quota Type	Query usage	Storage usage
CPU	vCPUs per query node × query node count	vCPUs per storage node × storage node count
NODE	Query node count	Storage node count

For example, 3 query nodes with 2 vCPUs each use 6 Query CPU; 3 storage nodes with 4 vCPUs each use 12 Storage CPU. With NODE quota, the same configuration uses 3 Query and 3 Storage nodes. The two pools cannot borrow from each other.

For **Standard**, the license accounts for the selected node specification as one Query node and one Storage node. A 2-vCPU Standard specification therefore requests 2 Query CPU and 2 Storage CPU, or 1 node in each pool for NODE quota. These amounts are deducted from the separate Query and Storage license pools.

For creation, both requested amounts must fit their respective remaining quota. For resizing or scaling, the **increase over the database's current capacity** must fit the corresponding remaining quota. For example, increasing Query from 6 CPU to 12 CPU needs another 6 Query CPU; it does not require 12 additional CPU.

3.6.3 Status and capacity checks

- **Normal:** creation and capacity changes can proceed when the requested resources fit.
- **Expiring:** the same capacity checks apply. Use **Contact Sales** to arrange renewal before **Expires At**.
- **Expired,** missing license data, or a license-service error: creation and capacity operations are unavailable. Retry loading if necessary or contact sales/support.
- Insufficient Query or Storage quota: reduce the requested capacity or arrange a larger licensed quota.

When a usage warning appears, check that the requested configuration fits both remaining quota pools before creating a database. Arrange renewal before **Expires At**. For license-expiration terms affecting existing databases, refer to your BYOC agreement or contact your service representative.

3.6.4 Separate license fees from AWS costs

Cost	Where to check
NebulaGraph Cloud BYOC license	Your commercial agreement and Contact Sales
AWS compute, storage, network, and other resources in your account	AWS billing and cost-management tools

BYOC license fees follow your agreement, and AWS resource charges appear on your AWS bill. After suspending a database, check the AWS costs of retained storage and network resources. Refer to your BYOC agreement for license fees during suspension.

For renewal or quota changes, click **Contact Sales** on **License** and provide your organization and required capacity. Do not include AWS credentials or database passwords. For deployment cleanup, see [Manage the data plane and databases](#).

3.7 BYOC security and permissions

BYOC has three distinct authorization layers. Configure each for its own purpose.

Layer	Identity	Purpose
NebulaGraph Cloud	Cloud account with organization/project roles	Operate the organization, project, data plane, and databases
AWS IAM	Local AWS deployment identity; Deployment and Runtime roles	Create authorization locally; allow platform AWS resource operations
Database	Database user and graph privileges	Authenticate and execute database operations through SDKs

A Cloud role does not grant AWS administrator permissions. An AWS role ARN is not a database password.

3.7.1 Platform operation roles

Operation	Required Cloud role
Create the organization's project	Organization Owner
Deploy, retry, rename, or delete the data plane	Organization Owner or Project Admin
Create or manage BYOC databases and configure network access	Organization Owner or Project Admin

An Organization Admin role alone is insufficient for these project deployment operations; the user must also have Project Admin where required. See [Account user management](#) to manage membership. Database users have their own permissions; see [Database user management](#).

3.7.2 AWS authorization

Run the [official IAM template](#) with a local identity allowed to create the required IAM resources. The template creates two roles:

- **Deployment Role:** authorizes data plane infrastructure deployment and cleanup.
- **Runtime Role:** authorizes database-related AWS resource operations after deployment.

Both roles trust the supplied **Principal** and require `sts:ExternalId` to match the data plane ID. Copy these values from **Credential Settings**. Review the template's policies with your AWS administrator; [AWS Organizations service control policies \(SCPs\)](#) and permissions boundaries can still block actions allowed by a role policy. The template includes region and resource constraints for its permitted operations; do not substitute unrestricted administrator policies to bypass an error.

AWS access keys and session tokens stay in your local AWS authentication setup. Only the two role ARNs are entered in the platform. Keep Terraform state and local authorization files secure. Retain the roles until data plane cleanup is complete.

3.7.3 Operational responsibilities

Area	Customer action	Platform action
AWS account and authorization	Maintain the account, local AWS authentication, and reviewed IAM authorization	Assume the authorized roles for deployment and resource operations
Data plane lifecycle	Submit configuration, monitor progress, and verify AWS cleanup before revoking authorization	Orchestrate deployment and expose status, timeline, and logs
Database capacity	Select capacity within the license; arrange renewal or more quota	Validate configuration and available license capacity
Application access	Configure approved network sources/endpoints and database user privileges	Provide network configuration and connection interfaces
Infrastructure costs	Track resources and AWS bills in the customer account	Provide the managed operation workflow

Refer to your BYOC agreement for service availability, support access, and compliance commitments. Coordinate with support before changing platform-managed AWS resources outside the documented workflow.

3.8 Troubleshoot BYOC

This topic introduces how to troubleshoot common issues with BYOC authorization, deployment, database operations, and connections. Start with the failed step and its exact error. Keep the original Terraform directory and state while diagnosing IAM setup. Do not delete existing roles or state merely to retry.

3.8.1 Local tools and IAM setup

Symptom	Action
<code>terraform</code> or <code>aws</code> : command not found	Install the required tools, reopen the terminal, and check <code>terraform version</code> and <code>aws --version</code> .
<code>terraform init</code> cannot download the provider	Check access to Terraform Registry and provider download services, including corporate proxy settings.
AWS authentication has expired	For SSO, run <code>aws sso login --profile byoc-customer</code> , then <code>aws sts get-caller-identity --profile byoc-customer</code> . Replace <code>byoc-customer</code> in both commands with your local AWS CLI profile name.
IAM <code>AccessDenied</code>	Ask your AWS administrator to check the local execution identity, AWS Organizations service control policies (SCPs) , permissions boundaries, and permissions required by the template.
<code>EntityAlreadyExists</code>	Find the original directory/state for this data plane. Do not delete roles or state to bypass the conflict.
<code>terraform apply</code> fails partway through	Retain state, fix the error, then run <code>terraform plan -out=tfplan</code> in the same directory, review it, and apply the new plan.
<code>terraform output</code> has no outputs	Confirm you are in the original directory, state is present, and apply completed successfully.

AWS profile selects the wrong account

Check the profile name and `Account` in `aws sts get-caller-identity`. Environment credentials can override the chosen profile. If you intend to use the profile's credentials, remove these variables from the current terminal and check again:

```
unset AWS_ACCESS_KEY_ID AWS_SECRET_ACCESS_KEY AWS_SESSION_TOKEN
export AWS_PROFILE=byoc-customer
aws sts get-caller-identity
```

This clears only the current terminal variables; it does not delete the profile. Use your own profile name. Do not proceed until `Account` matches the intended customer account.

3.8.2 Role validation and data plane deployment

If the platform rejects the roles, verify both full ARNs, their account ID, the mapping to Deployment and Runtime fields, the trust-policy Principal, and the External ID. `prefix_name` and `external_id` must both equal the platform data plane ID. Newly created IAM roles can take time to propagate; retry validation after a short wait.

If the record remains **Pending**, return to **Data Plane → Deploy** and complete [Credential Settings and Deployment Summary](#). Running the IAM template alone does not start deployment.

For **Failed**:

1. Open the data plane details and inspect the first failed stage in **Deployment Timeline** and the corresponding **SYSTEM LOGS**.
2. Record the error and check its cause with your AWS administrator: for example, denied role operations, account restrictions, or resource provisioning errors.
3. Correct the cause, then click **Retry Deployment** if available. Monitor the new attempt until Running or a new error appears.
4. If retry is unavailable or fails again, contact support with the data plane ID, region, failure time, and sanitized error details. Do not create a second record to work around the one-data-plane limit.

If progress updates are interrupted, use **Reconnect progress**. For a log-loading failure, use the log retry control; use **Browse log history** and **Return to latest logs** as needed. Check the data plane status to determine the deployment outcome before taking further action.

3.8.3 Database creation or capacity action unavailable

Check these items in order:

1. The selected organization is BYOC and you are its Organization Owner or the project's Project Admin.
2. The data plane is Running; for capacity changes, the database is also Running.
3. On **License**, status is Normal or Expiring and quota data has loaded. Retry loading errors before changing capacity.
4. Requested Query and Storage capacity each fit the remaining quota. For resize/scale, compare the increase over existing capacity, not the target's entire capacity.
5. All required fields are complete and options are supported for the tier. The selected Standard or Storage node specification must support the existing storage size.

If the license is Expired, use **Contact Sales** for renewal. If the quota is insufficient, reduce the selection or arrange more quota. See [License and costs](#).

3.8.4 Connection failures

Symptom	Check
Timeout or DNS failure	Data plane/database state; public service or private endpoint readiness; application source IP; VPC/subnet, security group and DNS settings; correct endpoint host/port.
Authentication failure	Use a database username/password, not Cloud or AWS credentials. Check the user exists and use the password reset procedure if necessary.
Permission error after login	Check the database user's graph privileges for the attempted statement.

For private access, use the client VPC endpoint's DNS name from AWS. For public access, check the application's actual egress IP rather than relying only on **Add Current IP Address**. Follow [Connect to a BYOC database](#).

3.8.5 Deletion blocked or resources remain

Delete all project databases before the data plane, and the data plane before the project. If a resource check fails, close the dialog and retry once the check is available. If a license error disables a database lifecycle action, restore license information or contact support.

Deleting a Failed or other non-Running data plane removes only its platform record. Work with support to identify and clean residual AWS resources. Retain both IAM roles until cleanup is verified. After infrastructure cleanup, use the IAM-template directory to remove the authorization; `terraform destroy` in this directory removes only the IAM resources created by the template.

When contacting support, provide organization/project/data plane identifiers, region, operation time, and the relevant error text. Remove AWS access keys, tokens, database passwords, and other secrets from logs and screenshots. Do not send Terraform state files by default.

4. Administration

4.1 Organization management



BYOC organizations

Obtain a BYOC organization from your NebulaGraph Cloud contact; its license is configured with the organization. Do not use ordinary account registration as the BYOC provisioning procedure. A BYOC organization supports one project and one data plane. See [BYOC overview](#).

Organization is the top-level hierarchy in the Role-Based Access Control (RBAC) architecture of NebulaGraph Cloud. In NebulaGraph Cloud, an organization typically represents a company with multiple projects. This topic introduces how to manage organizations in NebulaGraph Cloud.

4.1.1 Prerequisites

- A NebulaGraph Cloud account is registered. For more information, see [Step 1. Sign up and log in to NebulaGraph Cloud](#).
- To perform the operations in this topic, you must be granted related roles. For more information, see [Access control](#).

4.1.2 Create and delete an organization

An organization is automatically created when you register a NebulaGraph Cloud account, and is automatically deleted when you cancel the account.

After an organization is created, the user who registered the account is automatically assigned the `Organization Owner` role in the organization. For more information about organization roles, see [Organization roles](#).

4.1.3 Rename an organization

Required role: `Organization Owner` or `Organization Admin`

1. In NebulaGraph Cloud, click the organization name in the top navigation pane, and click **View all**.
2. On the organization page, click the  at the right of the organization and select **Rename**.
3. In the dialog, enter the new organization name and click **Confirm**.

4.1.4 View and switch between organizations

Required role: `Organization Owner` or `Organization Admin` or `Organization Member`

1. In NebulaGraph Cloud, click the organization name in the top navigation pane, and click **View all**.
2. On the organization page, you can view the list of organizations you belong to.
3. Click the organization you want to use to switch to it.

4.1.5 Leave an organization

Required role: `Organization Admin` or `Organization Member`

**Note**

The account user with the `Organization Owner` role must [transfer the ownership](#) to another user before leaving an organization.

1. In NebulaGraph Cloud, click the organization name in the top navigation pane, and click **View all**.
2. On the organization page, click the  at the right of the organization and select **Leave**.
3. In the dialog, enter your organization name and click **Leave**. Once you leave the organization, you cannot access the organization and its resources.

4.2 Project management



BYOC project limits

A BYOC organization supports one project. Only its Organization Owner can create that project; use the existing project if present. Delete all databases and the data plane before deleting a BYOC project. See [Deploy a data plane](#).

Project is the second-level hierarchy in the Role-Based Access Control (RBAC) architecture of NebulaGraph Cloud. In NebulaGraph Cloud, a project is used to group different database instances. This topic introduces how to manage projects in NebulaGraph Cloud.

4.2.1 Prerequisites

- A NebulaGraph Cloud account is registered, which automatically creates an organization and a default project named `my_first_project`. For more information, see [Step 1. Sign up and log in to NebulaGraph Cloud](#).
- To perform the operations in this topic, you must be granted related roles. For more information, see [Access control](#).

4.2.2 Create a project

Required role: `Organization Owner`



Note

The project creator is automatically assigned the `Project Admin` role of the project.

1. In NebulaGraph Cloud, [switch to the organization](#) you want to use.
2. On the project page, click **Create Project** in the upper-right corner.
3. In the dialog, specify the project name and click **Create**.

4.2.3 Rename a project

Required role: `Organization Owner` or `Organization Admin`

1. In NebulaGraph Cloud, [switch to the organization](#) you want to use.
2. On the project page, click the  at the right of the project you want to rename and select **Rename**.
3. In the dialog, specify the new project name and click **Confirm**.

4.2.4 View and switch between projects

Required role: `Organization Owner`, `Organization Admin` or `Organization Member`

1. In NebulaGraph Cloud, [switch to the organization](#) you want to use.
2. On the project page, you can view the list of projects you have access to.
3. Click the project you want to use to switch to it.

4.2.5 Delete a project

Required role: `Organization Owner`

 Note

1. The system-default project `my_first_project` cannot be deleted.
2. Projects cannot be deleted if they contain database instances.

1. In NebulaGraph Cloud, [switch to the organization](#) you want to use.
2. On the project page, click the  at the right of the project you want to delete and select **Delete Project**.
3. In the dialog, enter the project name to confirm and click **Delete**.

4.2.6 Leave a project

Required role: Organization Admin or Organization Member

1. In NebulaGraph Cloud, [switch to the organization](#) you want to use.
2. On the project page, click the  at the right of the project you want to leave and select **Leave Project**.
3. In the dialog, enter the project name to confirm and click **Leave**. Once you leave the project, you cannot access the project and its resources.

4.3 Project alerts

4.3.1 Manage project alerts

Project alerts notify you when a project resource or performance metric meets a condition that you define. This topic explains how to create, view, edit, delete, disable, and enable project alerts in NebulaGraph Cloud.

Prerequisites

- A project exists. For more information, see [Project management](#).
- You have the required permissions to manage project alerts. For more information, see [Access control](#).

Required permissions

- **Project Admin** and **Organization Owner**: Users with these roles can create, view, edit, delete, disable, and enable project alerts.
- **Project Member**: Users with this role can only view project alert history.

View project alerts

Project alerts are organized into two tabs on the **Project Alerts** page:

- **History**: Shows triggered alerts, including the severity level, alert time, alert name, target database, metric and condition, and current value. Alert history is retained for 30 days.
- **Settings**: Shows the configured alert rules and lets you manage each rule. By default, it displays four system alert rules for CPU utilization, memory utilization, storage utilization, and query latency.

On the **History** tab, you can filter alerts by severity level and target database. Use **Reset** to clear the filters.

Note

Alert notifications are sent only for paid database instances.

Create an alert

1. In NebulaGraph Cloud, switch to the project you want to use.
2. In the left-side navigation pane, click **Project Alerts**.
3. In the upper-right corner, click **+ Alert**.
4. In the dialog, configure the following information:
 - **Enable Alert**: Turn the switch on or off.
 - **Name**: Specify an alert name.
 - **Metric**: Select a metric such as CPU utilization or memory utilization.
 - **Condition**: Select a threshold operator, enter the threshold value, and specify the duration.
 - **Severity Level**: Select **Warning** or **Critical**.
 - **Target Database**: Select the target database or all subscribed databases.
 - **Send to**: Displays the channels configured in [Manage notification channels](#). If no channel is configured, the alert only appears in **History** when it is triggered. Alert notifications are sent only for paid database instances.
 - **Notification**: Configure the alert interval and whether to send alert resolution notifications.
5. Click **Create**.

Edit an alert

1. On the **Project Alerts** page, click the **Settings** tab.
2. Find the alert you want to modify and click the edit icon in the **Actions** column.
3. Update the alert settings in the dialog.
4. Click **Edit**.

Delete an alert

1. On the **Project Alerts** page, click the **Settings** tab.
2. Find the alert you want to delete and click the more actions icon in the **Actions** column.
3. Select **Delete**.
4. Confirm the deletion in the dialog.

Disable or enable an alert

1. On the **Project Alerts** page, click the **Settings** tab.
2. Find the alert you want to update.
3. Use the status switch in the **Status** column to disable or enable the alert.

Configure alert receiver settings

Click **Alert Receiver Settings** in the upper-right corner of the **Project Alerts** page to configure notification channels for alerts. For more information, see [Manage notification channels](#).

4.3.2 Manage notification channels

Notification channels define where project alert notifications are sent. In NebulaGraph Cloud, you can configure channels in **Project Alerts > Alert Receiver Settings**. Only the **Email** channel type supports selectable receivers.

Prerequisites

- A project exists. For more information, see [Project management](#).
- You must be assigned the **Project Admin** or **Organization Owner** role. For more information, see [Access control](#).

Required permissions

- **Project Admin** and **Organization Owner**: Users with these roles can view, add, edit, and delete notification channels.

View notification channels

1. In NebulaGraph Cloud, switch to the project you want to use.
2. In the left-side navigation pane, click **Project Alerts**.
3. In the upper-right corner, click **Alert Receiver Settings**.
4. In the dialog, view the configured channels. If the channel type is **Email**, you can also view the assigned receivers.

The dialog can show the following channel types:

- **Email**
- **PagerDuty**
- **Slack**
- **Webhook**

Add a notification channel

1. In the **Alert Receiver Settings** dialog, click **+ Channel**.
2. Select a channel type.
3. Configure the required fields for that channel type.

The available fields vary by channel type:

- **Email**: Assign project members or roles such as **Organization Owner** and **Project Admin**. Only the **Email** channel type supports receivers.
 - **PagerDuty**: Enter the integration key and select a region. For setup details, see [PagerDuty Services and Integrations](#).
 - **Slack**: Enter the Slack Webhook URL. To create one, see [Sending messages using incoming webhooks](#).
 - **Webhook**: Enter the URL of your own webhook receiver endpoint.
4. Click **Save**.



Caution

The notification channel settings are applied to all alerts.

Edit a notification channel

1. In the **Alert Receiver Settings** dialog, find the channel you want to update.
2. Click the edit icon.

3. Update the channel settings. If the channel type is **Email**, you can also update its receivers.
4. Click **Save**.

Delete a notification channel

1. In the **Alert Receiver Settings** dialog, find the channel you want to remove.
2. Click the delete icon.
3. Confirm the deletion.

4.4 Account management

After you create a NebulaGraph Cloud account, you can manage your account in NebulaGraph Cloud.

4.4.1 Delete your account

You can delete your NebulaGraph Cloud account when you no longer need it. After you delete your account, all your data in NebulaGraph Cloud will be permanently deleted and cannot be recovered.

Prerequisites

- All databases under your account are deleted. For more information, see [Delete an instance](#).
- All bills are paid off. For more information, see [View your billing details](#).
- All subscriptions are canceled. For more information, see [Cancel your subscriptions](#).

Steps

1. In NebulaGraph Cloud, click  in the upper-right corner and select **Account**.
2. Click **Delete Account**.
3. In the dialog, type your email address in the text box to confirm, and click **Delete**.

4.5 Billing management

BYOC billing

This billing workflow applies to fully managed organizations. For BYOC license fees, renewal, capacity quotas, and customer AWS costs, see [BYOC license and costs](#).

This topic introduces how to manage billing in NebulaGraph Cloud, including viewing usage details and managing payment methods.

4.5.1 Prerequisites

- A NebulaGraph Cloud account is registered. For more information, see [Step 1. Sign up and log in to NebulaGraph Cloud](#).
- To perform the operations in this topic, you must have the `Organization Owner` role in the target organization. For more information, see [Access control](#).

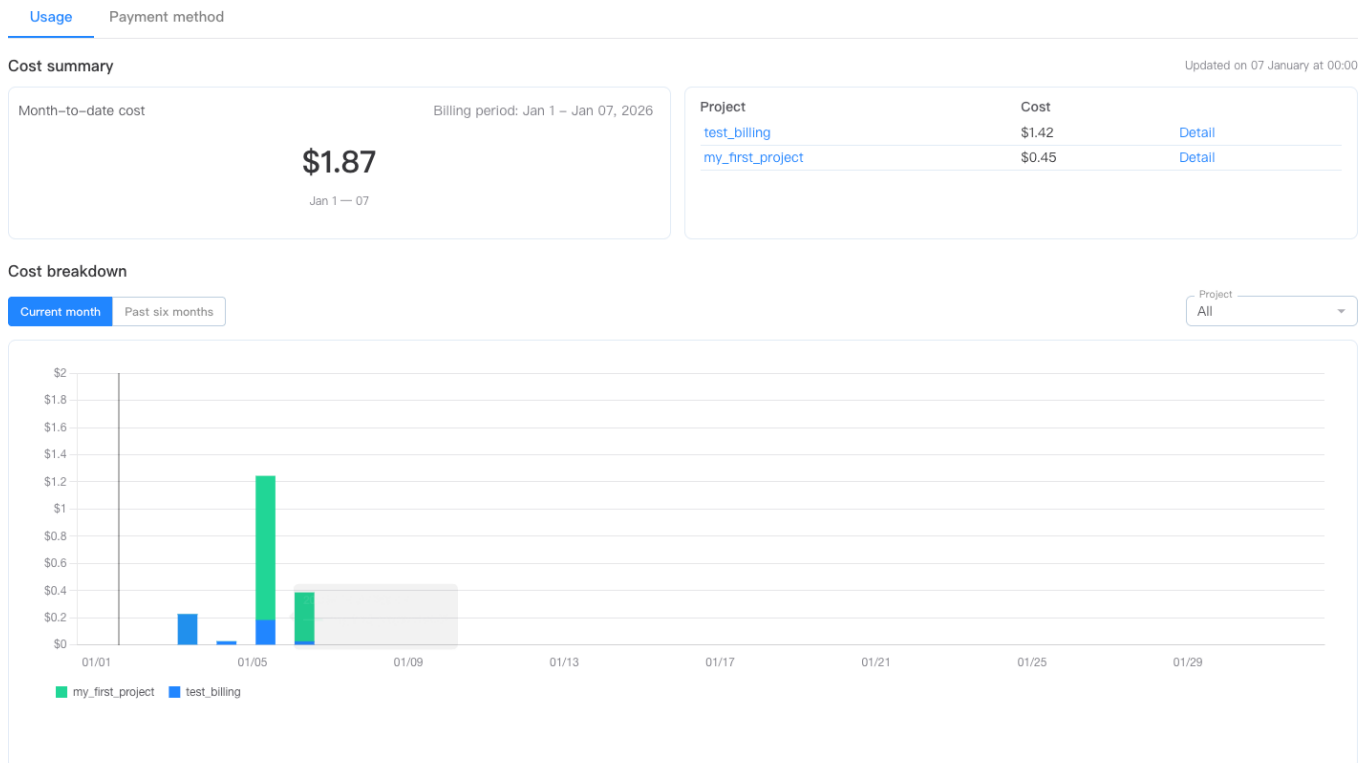
4.5.2 View usage details

Note

1. Free trial users cannot view usage details and are automatically directed to the Payment method tab when they access the Billing page.
2. The usage data for T day is updated at midnight (UTC) on T+1 day.

1. In NebulaGraph Cloud, [switch to the organization](#) you want to use.
2. In the left-side navigation pane, click **Billing**.
3. On the **Usage** tab, you can view the costs of your organization as follows:
 - **Cost summary:** Displays the month-to-date cost of your organization and the individual costs of different projects under the organization.
 - **Cost breakdown:** Displays the cost trends in the current month and in the past 6 months. The costs are broken down by project and can be filtered by project.
 - On the **Current month** tab, you can view the daily cost trend in the current month.
 - On the **Past six months** tab, you can view the monthly cost trend in the past 6 months.

Billing



4. Click the name of a project to view its usage details as follows:
 - **Cost summary:** Displays the month-to-date cost of the project and the individual costs of different database instances under the project.
 - **Cost breakdown:** Displays the cost trends in the current month and in the past 6 months. The costs are broken down by cost type and can be filtered by database instance and cost type.
 - On the **Current month** tab, you can view the daily cost trend in the current month.
 - On the **Past six months** tab, you can view the monthly cost trend in the past 6 months.

← Billing / Detail

Database Cost

Cost summary

Updated on 07 January at 00:00

Month-to-date cost

Billing period: Jan 1 – Jan 07, 2026

\$1.42

Jan 1 — 07

Database

NG_20260105

Cost

\$1.42

Cost breakdown

Current month

Past six months

Database

All

Cost type

All



Cost Type	Cost
Storage Node	\$0.69
Query Node	\$0.69
Network	\$0.00
Disk Storage	\$0.05

4.5.3 Manage your subscription

You can perform the following operations to manage your subscription in NebulaGraph Cloud:

Add a payment method

1. In NebulaGraph Cloud, [switch to the organization](#) you want to use.
2. In the left-side navigation pane, click **Billing**.
3. Click the **Payment method** tab and then click **Add Payment Method**.
4. In the **Add Payment Method** dialog box, select one of the following payment methods:
 - **Credit Card**: Enter your credit card information and click **Confirm**.
 - **AWS Marketplace**: Click **Subscribe**. You are prompted to log in to your AWS account and purchase [NebulaGraph Cloud](#) on the AWS Marketplace. After the payment is completed, you are automatically redirected to the **Billing** page.

After the payment method is added successfully, you can view the usage details on the **Usage** tab.

Change credit card information

1. In NebulaGraph Cloud, [switch to the organization](#) you want to use.

2. In the left-side navigation pane, click **Billing**.
3. Click the **Payment method** tab.
4. Click **Replace** to update your credit card information.

Cancel your subscription

The way to cancel your subscription differs based on the payment method you used when subscribing to NebulaGraph Cloud:

- If you subscribed to NebulaGraph Cloud via AWS Marketplace, you need to go to AWS Marketplace to unsubscribe from the NebulaGraph Cloud service.
- If you added a credit card as the payment method, you must contact our support team to cancel your subscription.

Note

After the subscription is canceled, all database instances under your current organization are retained for 6 hours before being deleted. You can re-subscribe to a paid plan to continue using the service during this 6-hour grace period.

4.6 Access control

4.6.1 Access control explained

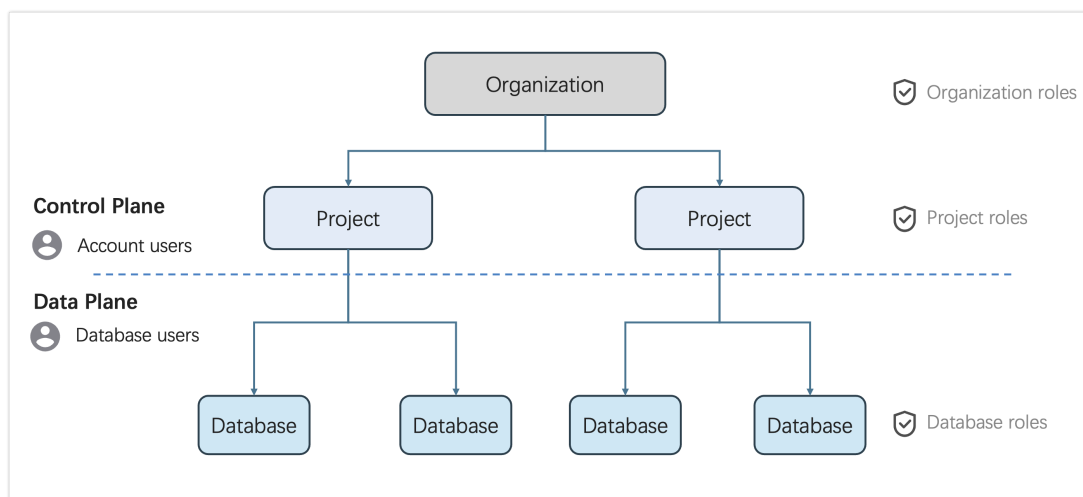
BYOC authorization

BYOC also requires AWS IAM authorization, separate from Cloud account roles and database users. For operation roles and responsibilities, see [BYOC security and permissions](#).

NebulaGraph Cloud employs Role-Based Access Control (RBAC) to manage resource access precisely. Based on RBAC, privileges are assigned to roles, and these roles are then assigned to users for efficient access control. This topic explains the RBAC architecture of NebulaGraph Cloud.

RBAC architecture

Here is a diagram to illustrate the RBAC architecture:



NebulaGraph Cloud organizes resources on two planes:

- **Control plane** encompasses the management of the following resources:
 - [Organization](#)
 - [Project](#)
 - [Database](#)

Account users are granted specific organization roles and project roles for operations on the control plane. For more information, see [Account user management](#).

- **Data plane** focuses on database access management for NebulaGraph Database.

Database users are granted specific database roles to access NebulaGraph Database via SDKs. For more information, see [Database user management](#).

User types

NebulaGraph Cloud provides two types of users:

- **Account user:** a user with a NebulaGraph Cloud account and performs operations in the web console of NebulaGraph Cloud.
- **Database user:** a user to access NebulaGraph Database. Typically, you only need to use database users when connecting to NebulaGraph Database via SDKs.

Roles and privileges

The role hierarchy in NebulaGraph Cloud is as follows:

On the control plane:

- **Organization roles:** determine the account user's access to specific organization resources and the operations they can perform, including `Organization Owner` or `Organization Admin` and `Organization Member`.
- **Project roles:** determine the account user's access to specific project resources and the operations they can perform, including `Project Admin` and `Project Member`.

On the data plane:

- **Database roles:** determine the database user's access to specific database objects and actions that can be performed on these objects, including `ADMIN`, `SCHEMA_DESIGNER`, `GRAPH_READ_WRITE` and `GRAPH_READ_ONLY`. Typically, you only need to manage database roles when connecting to NebulaGraph Database via SDKs.

ORGANIZATION ROLES

NebulaGraph Cloud provides three organization roles:

- **Organization Owner:** A role that has full privileges of all resources in the organization, including organization management, project management, database management, billing, and organization access. There is only one user with this role in an organization.
- **Organization Admin:** A role to access an organization and manage the organization members with limited management privileges.
- **Organization Member:** A standard member role to access an organization without management privileges.

Here is the detailed privileges matrix for these roles:

Category	Privilege in NebulaGraph Cloud	Organization Owner	Organization Admin	Organization Member
Organization Management	Create an organization	🔒	✗	✗
	Delete an organization	🔒	✗	✗
	Rename an organization	✓	✓	✗
	View organization list	✓	✓	✓
	Leave an organization	✗	✓	✓
Project Management	Create a project	✓	✗	✗
	Delete a project	✓	✗	✗
	Rename a project	✓	✓	✗
	View project list	✓	✓	✓
	Leave a project	✗	✓	✓
Organization Access	Invite organization members and grant roles	✓	✓	✗
	Modify organization roles	✓	✓	✗
	Remove organization members	✓	✓	✗
	Transfer organization ownership	✓	✗	✗
	View organization members	✓	✓	✓
Billing	Try NebulaGraph Cloud for free	✓	✗	✗
	Upgrade to a paid plan	✓	✗	✗
	View usage details	✓	✗	✗
	Manage your subscription	✓	✗	✗

- ✓: Full access
- ✗: No access
- 🔒: Controlled by the system

PROJECT ROLES

NebulaGraph Cloud provides two project roles:

- **Project Admin:** A role to manage the project resources and project members.
- **Project Member:** A standard member role to use the database instances in the project.

Here is the detailed privileges matrix for these roles:

Category	Privilege in NebulaGraph Cloud	Project Admin	Project Member
Project Access	Invite project members and grant roles	✓	✗
	Modify project roles	✓	✗
	Remove project members	✓	✗
	View project members	✓	✓
Database User Management	Create a database user	✓	✗
	Modify database roles	✓	✗
	Reset password	✓	✗
	Delete a database user	✓	✗
	View database users	✓	✓
Database Management	Create an instance	✓	✗
	Suspend & resume an instance	✓	✗
	Scale an instance	✓	✗
	Delete an instance	✓	✗
Operations on Console	Read permissions	✓	✓
	Write permissions	✓	✗

- ✓: Full access
- ✗: No access

For detailed operation permissions on NebulaGraph Cloud console, see **Required role** at the beginning of each section in the following topics:

- [Graph management](#)
- [Data import](#)
- [Data exploration](#)
- [Data query](#)

DATABASE ROLES

Here is the detailed privileges matrix for these roles:

Database Role	Privileges in NebulaGraph Database
ADMIN	All privileges
SCHEMA_DESIGNER	CREATE GRAPH TYPE , ALTER ANY GRAPH TYPE , DROP ANY GRAPH TYPE , CREATE PROCEDURE , ALTER ANY PROCEDURE , DROP ANY PROCEDURE
GRAPH_READ_WRITE	CREATE GRAPH , ALTER ANY GRAPH , DROP ANY GRAPH , INSERT ANY GRAPH , DELETE ANY GRAPH , UPDATE ANY GRAPH , MATCH ANY GRAPH , CREATE INDEX , DROP ANY INDEX , REPAIR ANY INDEX , EXECUTE ANY PROCEDURE
GRAPH_READ_ONLY	MATCH ANY GRAPH , EXECUTE ANY PROCEDURE

For more information about the database instance management, see [Database management](#).

4.6.2 Account user management

Account user is the user with a NebulaGraph Cloud account. You can click the  icon to view your account information. Based on the RBAC architecture in NebulaGraph Cloud, account users need to be assigned both organization roles and project roles to perform operations in NebulaGraph Cloud.

Manage organization access

Organization provides a top-level access control for account users. By granting organization roles to account users, you can control who can access your organization's resources and what they can do at the organization level. For more information, see [Organization roles](#).

INVITE ORGANIZATION MEMBERS AND GRANT ROLES

Required role: Organization Owner or Organization Admin

1. In NebulaGraph Cloud, [switch to the organization](#) you want to use.
2. On the left-side navigation pane of your organization, click **Members** > **+ Add**.
3. On the **1. Organization Role** tab, enter the email address of the account user to be invited, and then select an organization role for the user.
4. Click **Next**.
5. On the **2. Project Role** tab, select a project and a project role for the user.
6. Click **Confirm**.

You can invite an account user to your project directly, which also makes the user a member of your organization. For more information, see [Invite project members and grant roles](#).

MODIFY ORGANIZATION ROLES

Required role: Organization Owner or Organization Admin

1. In NebulaGraph Cloud, [switch to the organization](#) you want to use.
2. On the left-side navigation pane of your organization, click **Members**.
3. On the **Members** page, click the  at the right of the user and select **Edit**.
4. In the dialog, select a new organization role for the user.
5. Click **Confirm**.

REMOVE ORGANIZATION MEMBERS

Required role: Organization Owner or Organization Admin

1. In NebulaGraph Cloud, [switch to the organization](#) you want to use.
2. On the left-side navigation pane of your organization, click **Members**.
3. On the **Members** page, click the  at the right of the user and select **Remove**.
4. Click **Confirm**.

Note

- Once confirmed, the user is removed from both the organization and the belonged projects.
- The currently logged-in user and the user with the Organization Owner role cannot be removed.

TRANSFER ORGANIZATION OWNERSHIP

Required role: Organization Owner

1. In NebulaGraph Cloud, [switch to the organization](#) you want to use.
2. On the left-side navigation pane of your organization, click **Members**.
3. On the **Members** page, click the  at the right of the user with the Organization Owner role and select **Transfer Owner**.
4. In the dialog, select a new organization owner. The new owner is automatically granted the Organization Owner role.
5. Click **Confirm**. Once the transfer is complete, the previous owner is automatically granted the Organization Admin role.

VIEW ORGANIZATION MEMBERS

Required role: Organization Owner or Organization Admin or Organization Member

1. In NebulaGraph Cloud, [switch to the organization](#) you want to use.
2. On the left-side navigation pane of your organization, click **Members**.
3. View the organization members and their roles.

Manage project access

Project provides more granular access control within your project and organization. By granting project roles to account users, you can control who can access your project's resources and what they can do at the project level. For more information, see [Project roles](#).

INVITE PROJECT MEMBERS AND GRANT ROLES

Required role: Organization Owner or Project Admin

1. In NebulaGraph Cloud, [switch to the project](#) you want to use.
2. On the left-side navigation pane of your project, click **Project Access > + Add**.
3. In the dialog, enter the email address of the account user to be invited, and then select a project role for the user.
4. Click **Confirm**. If the user outside the organization of your project is invited, the user automatically joins the organization and is granted the role of Organization Member.

MODIFY PROJECT ROLES

Required role: Organization Owner or Project Admin

1. In NebulaGraph Cloud, [switch to the project](#) you want to use.
2. On the left-side navigation pane of your project, click **Project Access**.
3. On the **Project Access** page, click the  at the right of the user and select **Edit**.
4. In the dialog, select a new project role for the user.
5. Click **Confirm**.

REMOVE PROJECT MEMBERS

Required role: Organization Owner or Project Admin

1. In NebulaGraph Cloud, [switch to the project](#) you want to use.
2. On the left-side navigation pane of your project, click **Project Access**.
3. On the **Project Access** page, click the  at the right of the user and select **Remove**.
4. Click **Confirm**.

**Note**

The currently logged-in user cannot be removed.

VIEW PROJECT MEMBERS

Required role: Organization Owner or Project Admin or Project Member

1. In NebulaGraph Cloud, [switch to the project](#) you want to use.
2. On the left-side navigation pane of your project, click **Project Access**.
3. View the project members and their roles.

4.6.3 Manage database users

Database users are used for accessing database instances via clients such as SDKs. Based on the RBAC architecture in NebulaGraph Cloud, database users need to be assigned [database roles](#) to perform operations on the database instances. This topic introduces how to manage database users in NebulaGraph Cloud.

Prerequisites

- A project is created. For more information, see [Create a project](#).
- A database instance is created in the project. For more information, see [Create a database instance](#).
- To perform the operations in this topic, you must be granted related roles. For more information, see [Project roles](#).

Create a database user

Required role: Project Admin

1. In NebulaGraph Cloud, [switch to the organization](#) and project to which the target database instance belongs.
2. On the database page, click the target database instance.
3. In the left-side navigation pane of the database details page, click **Database Users**.
4. On the Database Users page, click **+ Add** in the upper-right corner.
5. In the dialog, specify the username and password, and select one or more database roles for the user. For more information, see [Database roles](#).
6. Click **Confirm**.

Modify database roles

Required role: Project Admin

1. In NebulaGraph Cloud, [switch to the organization](#) and project to which the target database instance belongs.
2. On the database page, click the target database instance.
3. In the left-side navigation pane of the database details page, click **Database Users**.
4. On the Database Users page, click the **...** at the right of the target database user and select **Edit Role**.
5. In the dialog, modify the database roles assigned to the user.
6. Click **Confirm**.



The built-in database user (for example, `db_root`) cannot be modified.

Reset password

Required role: Project Admin

1. In NebulaGraph Cloud, [switch to the organization](#) and project to which the target database instance belongs.
2. On the database page, click the target database instance.
3. In the left-side navigation pane of the database details page, click **Database Users**.
4. On the Database Users page, click the  at the right of the target database user and select **Reset Password**.
5. In the dialog, enter and confirm the new password.
6. Click **Confirm**.

Delete a database user

Required role: Project Admin

1. In NebulaGraph Cloud, [switch to the organization](#) and project to which the target database instance belongs.
2. On the database page, click the target database instance.
3. In the left-side navigation pane of the database details page, click **Database Users**.
4. On the Database Users page, click the  at the right of the target database user and select **Remove**.
5. In the dialog, click **Confirm**.

Note

The built-in database user (for example, `db_root`) cannot be deleted.

View database users

Required role: Project Admin OR Project Member

1. In NebulaGraph Cloud, [switch to the organization](#) and project to which the target database instance belongs.
2. On the database page, click the target database instance.
3. In the left-side navigation pane of the database details page, click **Database Users**.
4. On the Database Users page, you can view the list of database users, including their names and database roles.

5. Database operations

5.1 Database management



Deployment mode

This guide includes fully managed creation, upgrade, and pricing rules. For BYOC, use [Create a BYOC database](#) and [Manage the data plane and databases](#).

This topic introduces how to manage database instances in NebulaGraph Cloud, including creating, suspending, resuming, scaling, and deleting instances.

5.1.1 Prerequisites

- A project is created. For more information, see [Create a project](#).
- To perform the operations in this topic, you must be granted related roles. For more information, see [Access control](#).

5.1.2 Create an instance

Required role: Project Admin

1. In NebulaGraph Cloud, [switch to the project](#) you want to use.
2. In the left-side navigation pane, click **Databases**.
3. On the database page, click **Create Database** in the upper-right corner.
4. On the **Create database** page, specify the following information:
 - Database Tier: Select a plan based on your requirements:
 - **Standard**: For development, learning, experimentation, and prototyping.
 - **Professional**: For startups and scale-ups that need scalability and single-zone HA.
 - **Enterprise**: For production workloads that need enterprise HA and larger specifications. It includes all Professional plan features, cross-AZ deployment with a replica factor of 3 by default, zone-aware routing, query and storage node specifications with up to 32 vCPUs and 256 GB RAM, and up to 2,560 GB of storage per storage node.

For a detailed comparison of the plans, see [Upgrade to a paid plan](#).

- Basic
 - **Database Name**: Customize a name for the database.
 - **Cloud Provider**: **AWS** is selected by default.
 - **Region**: Choose the region based on your business requirements. `us-east-2` is selected by default. For more information about the available regions for your business, see [AWS Regions](#).
 - `us-east-2` : US East (Ohio)
 - `us-west-2` : US West (Oregon)
 - Capacity: Choose node and storage specifications based on your requirements.
- New users can enjoy a 14-day free trial per NebulaGraph Cloud account, which comes with one database instance of 2 vCPUs, 4 GB of RAM, and 10 GB of storage, without requiring any payment information. For more information, see [Try NebulaGraph Cloud for free](#).
- Payment Method: Click **Add Payment Method** to bind your AWS account as the payment method. You are prompted to log in to your AWS account and purchase [NebulaGraph Cloud](#) on the AWS Marketplace.

Note

After you complete the binding, it may take a few minutes for the payment method to be displayed on the NebulaGraph Cloud Web UI. You can refresh the page to check the status.

5. Review the summary on the right, then click **Create**.

After the database instance is created, a dialog appears to display the administrator user `db_root` and password. The password is shown only once, so take note of it for later use.

5.1.3 Suspend & resume an instance

Required role: Project Admin

To suspend an instance, click ... of an instance on the **Database** page or its details page. In the drop-down list, select **Suspend** and confirm this action.

When the instance is suspended, note that:

- Only the following costs will be charged:
- Disk storage costs: \$0.0002/GB/hour
- Fixed costs for data transfer usage: \$0.0225/hour (charged if access to the instance through a public or private network is enabled)
- The instance is inaccessible, and read and write operations are impossible.
- The instance metrics are not monitored.
- The instance cannot be scaled.

To resume a suspended instance, click the **Resume** button for a database instance on the **Database** page. After confirming this action in a dialog, the instance's status will change from **Suspended** to **Resuming**, and then to **Running**. At this point, you will be charged fully based on your service plan and the affected items above will be restored.

5.1.4 Scale an instance

Required role: Project Admin

The available scaling operations depend on the database tier:

- **Standard:** Resize the node specification and increase the storage size.
- **Professional and Enterprise:** Resize node specifications, scale the numbers of Graph Nodes (query nodes) and Storage Nodes independently, and increase the storage size of each storage node.

Before performing a scaling operation, ensure that the database is on a paid plan and in the **Running** status.

Purchase a capacity bundle

This operation applies only to Standard databases.

When you first upgrade a Standard database to a paid plan, it remains at 2 vCPUs, 4 GB of RAM, and 10 GB of storage. Purchase a capacity bundle before resizing its node specification or increasing its storage size.

1. Open the capacity upgrade dialog from either of the following entry points:
 - On the **Databases** page, click ... for the database and select **Upgrade capacity**.
 - Open the database, go to its **Overview** page, click ..., and select **Upgrade capacity**.
2. Select a capacity bundle and click **Upgrade capacity**.

Resize node specification

The Resize operation is available for Standard, Professional, and Enterprise databases. For Standard databases upgraded from the free-trial capacity, purchase a capacity bundle before resizing.

1. Open the **Resize** dialog from either of the following entry points:
 - On the **Databases** page, click ... for the database and select **Resize**.
 - Open the database, go to its **Overview** page, click ..., and select **Resize**.
2. Review the current node specification displayed next to **Current**.
3. Select the new node specification or specifications available for the database tier. The dialog displays the applicable price for each option.
4. Review the estimated hourly cost and click **Resize**.

 Warning

The database is temporarily unavailable while the resize operation is in progress.

Scale node counts

This operation applies only to Professional and Enterprise databases.

1. Open the **Scale Database** dialog from either of the following entry points:
 - On the **Databases** page, click ... for a Professional or Enterprise database and select **Scale**.
 - Open a Professional or Enterprise database, go to its **Overview** page, click ..., and select **Scale**.
2. Review the current tier and the current numbers of **Graph Nodes** and **Storage Nodes**.
3. Select the new number of Graph Nodes and Storage Nodes. You can adjust the two node counts independently based on your workload.
4. Review the estimated hourly cost and click **Scale**.

 Warning

The database is unavailable while the scaling operation is in progress.

Increase storage size

To increase the database storage capacity, follow these steps. For Professional and Enterprise databases, the selected storage size applies to each storage node.

1. Open the **Increase Storage Size** dialog from either of the following entry points:
 - On the **Databases** page, click ... for the database and select **Increase Storage Size**.
 - Open the database, go to its **Overview** page, click ..., and select **Increase Storage Size**.
2. Enter or select a new **Storage Size**. The new value must be greater than the current storage size and within the range displayed in the dialog.
3. Review the total storage size, which is calculated as follows:

$\text{Storage size per node} \times \text{Number of storage nodes}$
4. Review the estimated hourly cost and click **Increase Storage Size**.

 Warning

After the storage size is increased, it cannot be decreased.

Note that after the storage size is increased, you are not allowed to change it within the following 6 hours due to the [limitation of Amazon EBS](#).

5.1.5 Delete an instance

Required role: Project Admin

To delete an instance, click ... of an instance on the **Database** page or its details page. In the drop-down list, select **Delete** and confirm this action.

For free trial users, your instance will be automatically deleted once the trial ends unless you upgrade to a paid plan beforehand.

5.2 Graph management

5.2.1 Graph management

A schema in NebulaGraph Database is a system object that serves as a container for graph types and graphs. NebulaGraph Cloud provides a visual interface for you to manage graph types and graphs in a default schema `/default_schema`. For details, see the following topics:

- [Manage graph types](#)
- [Manage graphs](#)

5.2.2 Manage graph types

This topic introduces how to manage graph types in NebulaGraph Cloud, including creating, deleting, modifying, and viewing graph types.

Prerequisites

- A database instance is created. For more information, see [Create a database instance](#).
- To perform the operations in this topic, you must be granted related roles. For more information, see [Access control](#).

Create a graph type

Required role: Project Admin

1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. On the left-side navigation pane of the database details page, click **Graph** under **Data**.
3. In the upper-left corner of the **Graph** page, click the plus icon next to **Graph Type**.
4. Enter a name for the graph type in the **Graph Type Name** field.
5. Drag the **+Add** circle to the canvas to create a node type. For each node type, specify the following information:
 - **Node Type Name:** The name of the node type, which must be unique among all node types and edge types within the graph type.
 - **Color:** The color of the node type.
 - **Label:** The label of the node type, which must be unique within the node type.
 - **Properties:** The properties of the node type. Each node type must have at least one property. For each property, specify the following information:
 - **Prop Name:** The name of the property, which must be unique within the node type.
 - **Prop Type:** The data type of the property.
 - **Primary Key:** Whether the property serves as the primary key of the node type. Each node type must have exactly one primary key, which may consist of one or more properties.
 - **Is List:** Whether the property value is a list.
 - **Nullable:** Whether the value of the property can be `NULL`.
 - **Default Value:** The default value of the property.
6. Repeat step 5 to create more node types based on your requirements.
7. Select two node types and draw a line to connect them to create an edge type. For each edge type, specify the following information:
 - **Edge Type Name:** The name of the edge type, which must be unique among all node types and edge types within the graph type.
 - **Direction:** The direction of the edge type.
 - **Color:** The color of the edge type.
 - **Label:** The label of the edge type, which must be unique within the edge type.
 - **Multi Edge Key Mode:** The multi-edge key mode of the edge type. Valid values are as follows:
 - **None:** The edge type has no multi-edge key. In this case, multiple edges between two nodes are not allowed.
 - **Auto:** The multi-edge key is automatically generated by the system.
 - **Customize:** You need to specify the properties that form the multi-edge key.
 - **Properties:** The properties of the edge type. For each property, specify the following information:
 - **Prop Name:** The name of the property, which must be unique within the edge type.
 - **Prop Type:** The data type of the property.
 - **Multi Edge Key:** Whether the property serves as the multi-edge key of the edge type. This field is displayed only when the field **Multi Edge Key Mode** is set to **Customize**. Each edge type may have one multi-edge key, which may consist of zero or more properties.
 - **Is List:** Whether the property value is a list.
 - **Nullable:** Whether the value of the property can be `NULL`.
 - **Default Value:** The default value of the property.
8. Repeat step 7 to create more edge types based on your requirements.
9. Click **Preview** to preview the GQL statement that is generated based on the graph type you designed.
10. Click **Create Graph Type** to create the graph type.

Schema

- /default_schema
 - Graph Type
 - movie_type
 - ldbc_type
 - Graph
 - movie
 - ldbc_snb

Graph Type List / Sketch

Graph Type Name *
movie_type

Visual Builder Node Type Edge Type Label

+ Add

Director → Direct → Movie

Actor → Act → Movie

User → Watch → Movie

Movie → WriteGenre → Genre

Node Type

Node type name *
Movie

Color
rgba(54, 200, 2, 0.5)

Label
Movie

Properties

Prop Name	Prop Type	Primary Key
Id	INT64	☒
name	STRING	☐

+ Add Property

Save As Sketch Previous Preview

For more information about the GQL syntax for creating graph types, see [CREATE GRAPH TYPE](#).

Delete a graph type

Required role: Project Admin

1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. On the left-side navigation pane of the database details page, click **Graph** under **Data**.
3. In the upper-left corner of the **Graph** page, click **Graph Type**.
4. On the **Graph Type List** page that appears on the right, select the graph type you want to delete.
5. Click at the right of the graph type and select **Delete**.
6. In the confirmation dialog box that appears, click **Delete**.

For more information about the GQL syntax for deleting graph types, see [DROP GRAPH TYPE](#).

Modify a graph type

Required role: Project Admin

1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. On the left-side navigation pane of the database details page, click **Graph** under **Data**.
3. In the upper-left corner of the **Graph** page, click the graph type you want to modify under the **Graph Type** section.
4. Click the **Edit Graph Type** button in the upper-right corner.
5. On the canvas that appears, click the node type or edge type you want to modify and make the necessary changes.
6. Click **Preview** to preview the GQL statement that is generated based on the changes you made.
7. Click **Commit Edit** to apply the changes.

For more information about the GQL syntax for altering graph types, see [ALTER GRAPH TYPE](#).

View a graph type

Required role: Project Admin OR Project Member

1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. On the left-side navigation pane of the database details page, click **Graph** under **Data**.
3. In the upper-left corner of the **Graph** page, click **Graph Type**.
4. On the **Graph Type List** page that appears on the right, select the graph type you want to view.
 - Click  at the right of the graph type and click **View DDL** to view the GQL statement that defines the graph type.
 - Alternatively, click the name of the graph type to enter the detail page:
 - On the **Visual Builder** tab, you can view the graph type you selected as a property graph. You can click a node type or edge type to view more detailed information.
 - On the **Node Type** tab, you can view all node types in the graph type. Besides, you can click the single-arrow icon to display all properties of a specific node type.
 - On the **Edge Type** tab, you can view all edge types in the graph type. Besides, you can click the single-arrow icon to display all properties of a specific edge type.
 - On the **Label** tab, you can view all labels in the graph type by node type or edge type.

5.2.3 Manage graphs

This topic introduces how to manage graphs in NebulaGraph Cloud.

Prerequisites

- A graph type is created. For more information, see [Create a graph type](#).
- To perform the operations in this topic, you must be granted related roles. For more information, see [Access control](#).

Create a graph

Required role: Project Admin

1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. On the left-side navigation pane of the database details page, click **Graph** under **Data**.
3. In the upper-right corner, click the **Create Graph** button.
4. In the dialog box that appears, select a graph type from the drop-down list and enter a name for the graph.
5. Click **OK**. The newly created graph is displayed on the **Graph List** page.

Delete a graph

Required role: Project Admin

1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. On the left-side navigation pane of the database details page, click **Graph** under **Data**.
3. On the **Graph List** page that appears on the right, select the graph you want to delete.
4. Click  at the right of the graph and then click **Delete**.
5. In the confirmation dialog box that appears, click **Delete**.

Manage indexes on graphs

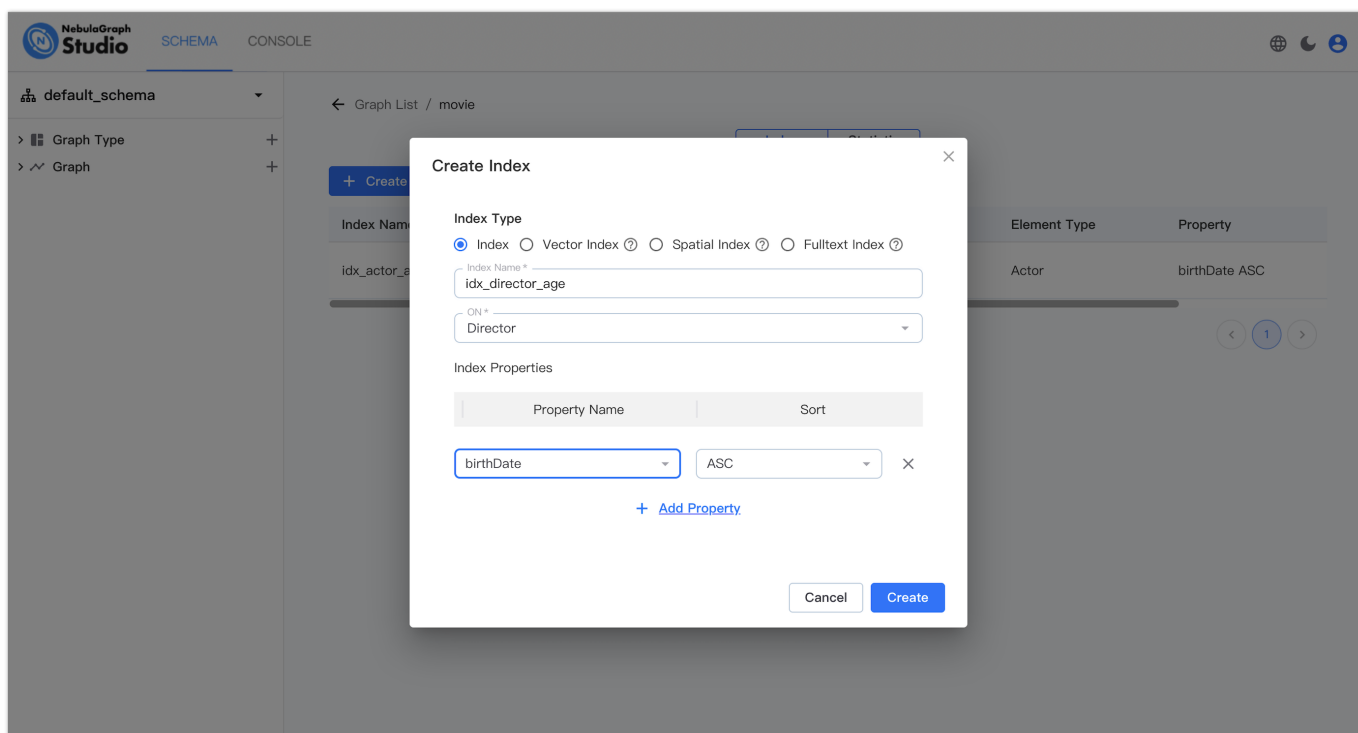
Required role: Project Admin

NebulaGraph Cloud allows you to manage indexes on graphs, including creating, deleting, and rebuilding indexes.

CREATE AN INDEX

Required role: Project Admin

1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. On the left-side navigation pane of the database details page, click **Graph** under **Data**.
3. On the **Graph List** page that appears on the right, select and click the target graph.
4. On the **Index** tab, click the **Create Index** button. For each index, specify the following information based on its type:
 - **Index Type:** The type of the index. NebulaGraph Studio allows you to create indexes of the following types: **Index**, **Vector Index**, **Spatial Index** and **Fulltext Index**.
 - **Index Name:** The name of the index.
 - **ON:** The node type or edge type on which the index is created.
5. For a normal index, set **Index Properties** to the list of properties based on which the normal index is created. Specify at least one property. For each property, specify the following information:
 - **Property Name:** The name of the property.
 - **Sort:** The sorting order of property values in the index. Valid values: **ASC** and **DESC**.
6. For a vector index, set **Property Name** to the `VECTOR` property based on which the vector index is created and can configure the following settings:
 - [METRIC](#)
 - [TYPE](#)
 - When `TYPE` is set to `IVF`:
 - [NLIST](#)
 - [TRAINSIZ](#)
 - When `TYPE` is set to `HNSW`:
 - [MAXDEGREE](#)
 - [EFCONSTRUCTION](#)
 - [CAPACITY](#)
7. For a spatial index, set **Property Name** to the `GEOGRAPHY` property based on which the spatial index is created and configure the following settings:
 - [s2_max_level](#)
 - [s2_max_cells](#)
8. For a full-text index, set **Property Name** to the `STRING` property based on which the full-text index is created.
9. Click **Create** to create the index.



For more information about the GQL syntax for creating indexes, see [Indexes overview](#).

DELETE AN INDEX

Required role: Project Admin

1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. On the left-side navigation pane of the database details page, click **Graph** under **Data**.
3. On the **Graph List** page that appears on the right, select and click the target graph.
4. On the **Index** tab, select the index you want to delete.
5. Click the delete icon at the right of the index to delete it.

REBUILD AN INDEX

Required role: Project Admin

1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. On the left-side navigation pane of the database details page, click **Graph** under **Data**.
3. On the **Graph List** page that appears on the right, select and click the target graph.
4. On the **Index** tab, select the index you want to rebuild.
5. Click the **Repair** button to rebuild the index data.

View statistics about a graph

Required role: Project Admin or Project Member

1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. On the left-side navigation pane of the database details page, click **Graph** under **Data**.
3. On the **Graph List** page that appears on the right, select and click the target graph.
4. Click the **Statistic** tab.
5. To view the latest statistics, click the **Execute Stats** button to update the statistics about the graph. The statistics provide information about the number of nodes and edges in the graph.

5.3 Data import

This topic introduces how to import data into NebulaGraph Cloud.

Data import is available for both fully managed and BYOC databases. BYOC databases provide the same data import workflow and features as fully managed databases.

5.3.1 Prerequisites

- A database instance is created. For more information, see [Create a database instance](#).
- A graph type and a graph are created. For more information, see [Graph management](#).
- To perform the operations in this topic, you must be granted related roles. For more information, see [Access control](#).

5.3.2 Create an import task

Required role: Project Admin

1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. On the left-side navigation pane of the database details page, click **Import** > **Import Data** to create an import task, which includes uploading files, configuring files, and mapping data.

Step 1. Select a graph and upload files

1. In the upper-left corner of the **Import** page, select a graph from the **Load to Graph** drop-down list for data import.
2. On the **Select source** tab, choose one of the following data sources to upload data, then click **Next**.
 - **Local file**: Upload CSV files from your local machine. The size of each file must be less than 400 MB.
 - **Amazon S3**: Click **+Add**, enter your Amazon S3 URL and click **Connect**. You can add up to 10 Amazon S3 URLs. Only CSV files are supported.

When the Amazon S3 data source requires authentication, configure the AWS access key ID and secret access key. If you use temporary AWS security credentials, also configure the corresponding session token. The session token is not required when you use long-term AWS credentials.

Step 2. Preview files

1. On the **Preview files** tab, check the uploaded data files.

Note

The preview displays the first 5 rows of each file. If the file has a header row, it is included in the 5 rows shown.

2. In the upper-right corner of each file, click  and specify the following items:

- **Separator**: Specify a character to separate the fields in the data file. Default value: `,`.
- **Use First Row as Header**: If your files have headers in the first row, select **Yes**. Otherwise, select **No** to exclude headers from data mapping in Step 3 and the system automatically generates column names as `column1`, `column2`, and so on.

3. Click **Apply** to apply the changes to the current file or click **Apply to All Files** to apply the changes to all files.
4. Then click **Next**.

Step 3. Map data and check mappings

1. Configure data mappings. The **Mapping** tab provides two ways to configure data mappings:

- **Left panel:** Manually select types, files, and column mappings using form controls.
- **Right canvas:** Click a node type or edge type directly on the graph visualization to select it. The **Type** field on the left panel automatically updates to match your selection, allowing you to proceed with file and column mapping from there.

Import / Import Data

Select Source Preview Files **Mapping** Confirm

Type
Node Movie

Select a file
sub_movie.csv

Map from file Quick Mapping

Property	Type	Primary Key	Column Name
id	INT64	☒	column1 (5)
name	STRING	☐	column2 (Four Rooms and a Hotel (Working Title))

Both approaches are equivalent — use whichever is more convenient. The canvas and the left panel stay in sync: changes made on either side are reflected on the other in real time.

To complete the mapping, specify the following items on the left panel:

- **Type:** Select a node type or edge type with its name. Alternatively, click the corresponding type on the right canvas to auto-populate this field.
- **Select a file:** Select an uploaded file.
- **Map from file** or **Direction:** Map data from specified columns to graph type properties using the following methods.
- To map data individually, select each column name from the file.
- To map data in batches, click **Quick Mapping** on the right side. If the column name matches the property name, the system maps them automatically. If they do not match, the system maps them sequentially.

Note

In the **Column Name** drop-down list, each column name is followed by a value in parentheses, for example `column1 (4)`. This value is from the last row of the preview data (i.e., the 5th row) to help you identify the content of each column.

2. Click **Next**.
3. On the **Confirm** tab, check the mapping information.
4. Click **Import** to start the import task.
5. On the **Import** page, view the task status.

You can go to the **Query** or **Explore** page from the left navigation pane to view the imported data. For more information, see [Explore graph](#) and [Data query](#).

For a detailed example about mapping, see [Best practice for mapping](#).

5.3.3 Manage import tasks

You can view import tasks and perform actions on these tasks on the **Import** page.

View import tasks

Required role: Project Admin OR Project Member

1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. On the left-side navigation pane of the database details page, click **Import**.
3. On the **Import** page, you can view the import tasks. The task list includes:
 - ID: The import task ID.
 - Graph: The graph where the data is imported.
 - Status: The status of the import task, including **Finished**, **Running**, **Failed**, **Stopped**, **Stopping** and **Queued**.
 - Created At: The time when the import task was created.
 - Import Duration: The time taken to import data.
 - Actions: You can perform different actions on tasks in different statuses. For more information, see [Perform actions on import tasks](#).

Perform actions on import tasks

1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. On the left-side navigation pane of the database details page, click **Import**.
3. On the **Import** page, you can perform the following actions on import tasks in different statuses:

Task status	Supported actions	Descriptions	Required role
Finished	View details	You can view details for finished tasks, including their status, import duration, average QPS, total records, successful records and failed records.	Project Admin or Project Member
	Explore graph	For finished tasks without any failed nodes or edges, you can click Explore Results in the detail pane to start data exploration. This will automatically navigate to the Explore page and create the canvas for the corresponding graph.	Project Admin
	Delete task	You can delete finished tasks without affecting the imported data.	Project Admin
	Download error logs	For finished tasks with failed nodes or edges, you can download the error logs in the status column for troubleshooting if they are provided.	Project Admin
Failed	Retry task	You can retry failed tasks. After you retry a task, its status changes to Queued and then to Running .	Project Admin
	Delete task	You can delete failed tasks without affecting the imported data.	Project Admin
	Download error logs	For failed tasks, you can download the error logs in the status column for troubleshooting if they are provided.	Project Admin
Running	Stop task	You can stop running tasks. After you stop a task, its status changes to Stopping and then to Stopped .	Project Admin
	Delete task	You can delete running tasks without affecting the imported data.	Project Admin
Stopped	Resume task	You can resume stopped tasks. After you resume a task, its status changes to Queued and then to Running .	Project Admin
	Delete task	You can delete stopped tasks without affecting the imported data.	Project Admin

5.3.4 Best practice for mapping

Required role: Project Admin

To show you a best practice for mapping in NebulaGraph Cloud, we take the following local files and graph type of the [demo dataset](#) as an example.

Demo file to be imported	Node/edge type	Property
sub_user.csv : Contains the information about users.	User	id
sub_movie.csv : Contains the information about movies.	Movie	id and name
sub_user_watched_movies.csv : Contains the information about the relationship between users and movies.	Watch	rate

Before you start, make sure:

- Demo files are downloaded. You can click the above file names to download files directly.
- The node types `User` and `Movie`, the edge type `Watch`, and the graph `movie` are created according to the [demo dataset](#). For more information, see [Create a graph type](#) and [Create a graph](#).
- [Step 1](#) and [Step 2](#) are completed.

Follow the steps below to map the data in `sub_user.csv`, `sub_movie.csv`, and `sub_user_watched_movies.csv` to the node types `User` and `Movie`, and the edge type `Watch`, respectively.

1. In the upper-left corner of the **Import** page, select the graph `movie` from the **Load to Graph** drop-down list.
2. On the **Mapping** tab, specify the items according to the table. You can either select each type from the **Type** drop-down list on the left panel, or click the corresponding node/edge type on the right canvas to auto-populate the **Type** field.

Type	Select a file	Direction	Map from file
Node: User	<code>sub_user.csv</code>	NA	Property <code>id</code> ← Column name <code>user_id(187)</code>
Node: Movie	<code>sub_movie.csv</code>	NA	Property <code>id</code> ← Column name <code>movie_id(4)</code> Property <code>name</code> ← Column name <code>name(Estado De Sitio)</code>
Edge: Watch	<code>sub_user_watched_movies.csv</code>	From: Primary key <code>id</code> ← Column name <code>user_id(187)</code> To: Primary key <code>id</code> ← Column name <code>movie_id(1)</code>	Property <code>rate</code> ← Column name <code>rate(3.5)</code>

Note

The value in parentheses () next to each column name is from the last row of the preview data (that is, the fifth row of the file), helping you identify the content of each column.

3. Click **Import** once you have mapped all the data.

5.4 Data query

5.4.1 Data query

This topic introduces how to perform GQL queries and navigate around the query console in NebulaGraph Cloud.

Prerequisites

- A database instance is created. For more information, see [Create a database instance](#).
- To perform the operations in this topic, you must be granted related roles. For more information, see [Access control](#).

Perform queries

Required role: Project Admin or Project Member

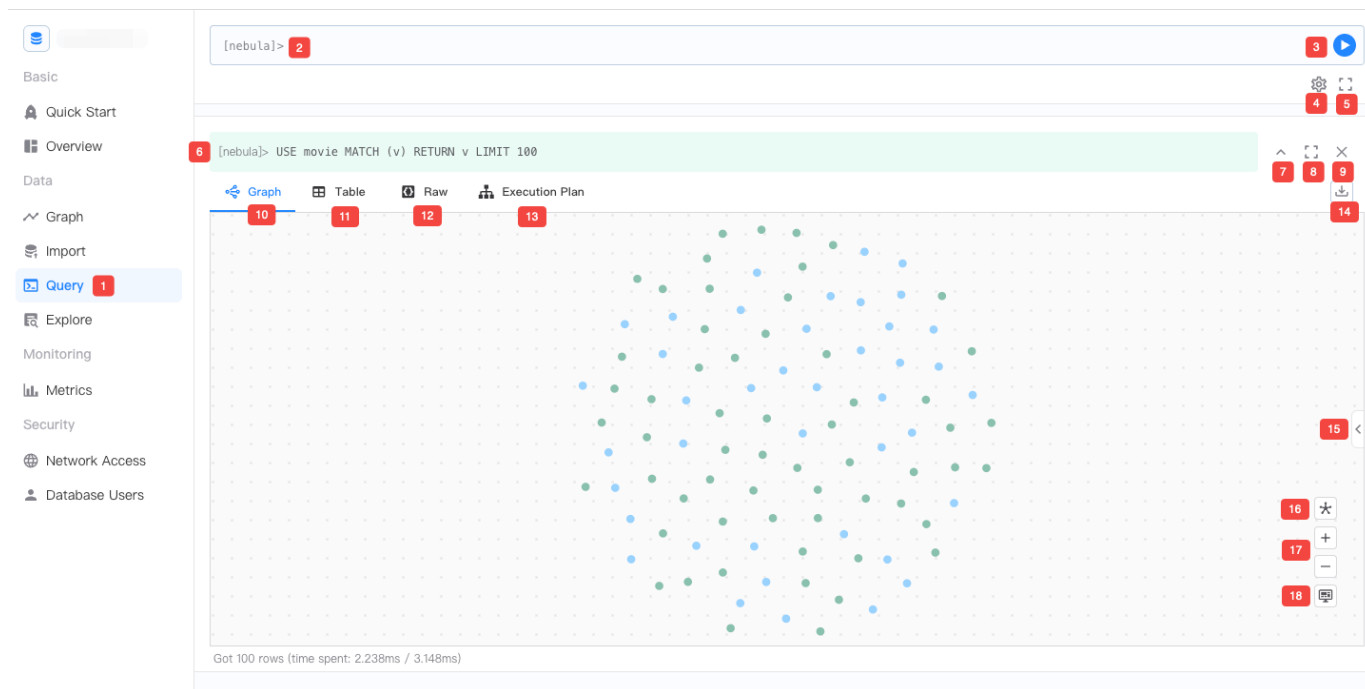
1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. On the left-side navigation pane of the database details page, click **Query**.
3. On the **Query** page, enter a GQL statement in the input area.

For how to write GQL queries, see [GQL guide](#).

For how to navigate around the console, see [UI components](#).

UI components

The following figure shows the console UI.



The following table lists the UI components of the console.

No.	Component	Description
1	Entry	The entry point of the query console.
2	Input area	The area where GQL queries are entered. The input is displayed in different colors based on the syntax type. Auto-completion is supported. Comments must start with double slashes(<code>//</code>). Right-clicking a character string displays a context menu that provides options such as Change All Occurrences, Cut, Copy, and Command Palette.
3	Run button	Execute the GQL query in the input area. You can also press <code>Shift + Enter</code> to execute the query.
4	Settings	Set the query timeout and the maximum number of nodes to be displayed on the canvas. For more information, see Console settings .
5	Input area full screen button	Display the input area in full screen.
6	Executed query	Display the executed query and its running status. The query is displayed in green if the execution is successful and in red if it fails. You can click a query to paste it into the input area.
7	Fold screen button	Fold the execution result window.
8	Full screen button	Display the execution result window in full screen.
9	Close button	Close the execution result window.
10	Graph window	Display the execution result as a graph. You can click the nodes and edges in the graph to view their details at the bottom of the window. The Graph window is not displayed if the execution result cannot be visualized as a graph.
11	Table window	Display the execution result in a tabular format. You can click the column header to sort the data. After switching to the table window, you can click  to search for the data within the table. The Table window is not displayed if the execution result cannot be rendered into a table.
12	Raw data window	Display the execution result in JSON format.
13	Execution Plan window	Display the execution plan of the executed query. For more information, see Viewing execution plans .
14	Export button	Export the execution result. The supported format includes PNG, CSV and JSON. The PNG format is not available if the execution result cannot be visualized as a graph.
15	Unfold button	In the Graph window, unfold the graph details pane to display the nodes and edges by types. In the Execution Plan window, unfold the execution plan details pane to display operator information.
16	Canvas data layout	Set the layout of the canvas data. Up to 8 layout methods can be set.
17	Zoom in/out button	Zoom in or out the canvas.
18	Move button	Move the canvas window.

5.4.2 Console settings

In the query console, you can configure the query and visualization settings. Additionally, the display style for nodes and edges can be adjusted.

Adjust query and visualization settings

You can configure the maximum timeout for a query and the maximum number of nodes rendered on the canvas in the console.

1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. On the left-side navigation pane of the database details page, click **Query**.
- 3.



In the upper right corner, click  to open the **Settings** pane.

4. Configure the following settings:

- **Query timeout**

Enter a value between 0 and 600 to set the query timeout in seconds in the field below **Query**. The default value is 120.

- **Node display limit**

Enter a value between 300 and 10,000 to set the maximum number of nodes rendered on the canvas in the field below **Visualization**. The default value is 1,000.

Highlight or grey out nodes and edges of specific types

In the query console, you can highlight or grey out nodes and edges of specific types in the Graph window.

1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. On the left-side navigation pane of the database details page, click **Query**.
3. Input and run a GQL query that retrieves nodes and edges in the console.
- 4.



In the Graph window, click  to expand the graph details pane.

5. In the graph details pane, highlight or grey out nodes and edges of specific types:

- **Highlight:** Click the corresponding node type and edge type.

-

Grey out: Hover the mouse over the node type and edge type that you want to grey out on the canvas, then click  to the right of the node type or edge type.

Adjust the display style for node types and edge types

If the execution result of a query contains nodes and edges, you can adjust the display style for the nodes and edges in the Graph window.

1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. On the left-side navigation pane of the database details page, click **Query**.
3. Input and run a GQL query that retrieves nodes and edges in the query console.
- 4.



In the Graph window, click  to expand the graph details pane.

5. In the graph details pane, click the circular icon to the left of the corresponding node type or edge type to adjust the following configuration parameters:
- Node type
 - Color: Click the color block to change the color. You can select a color on the color palette.
 - Size: You can select the size of the node displayed on the canvas.
 - Icon: You can select the icon of the node displayed on the canvas.
 - Edge type
 - Color: Click the color block to change the color. You can select a color on the color palette.
 - Size: You can select the size of the edge displayed on the canvas.

5.4.3 Viewing execution plans

The query console supports the [PROFILE](#) and [EXPLAIN](#) commands to generate execution plans for GQL queries.

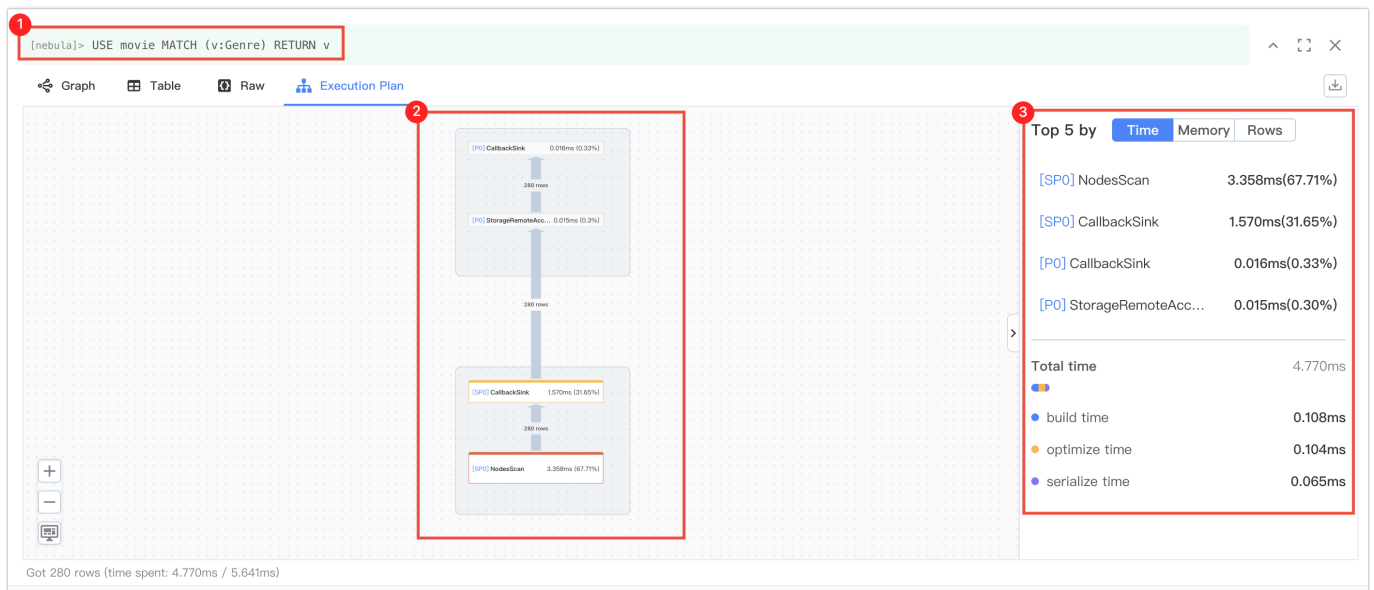
Execution plans are rendered in the Execution Plan window. You can zoom in and out, and move the execution plan on the canvas. You can also view the execution plan window in full screen.

PROFILE command

The query console automatically runs the `PROFILE` command when you execute a GQL query.

EXECUTION PLAN WINDOW DESCRIPTION

The following figure shows a sample execution plan returned by the `PROFILE` command:



The following table describes the different parts in the execution plan.

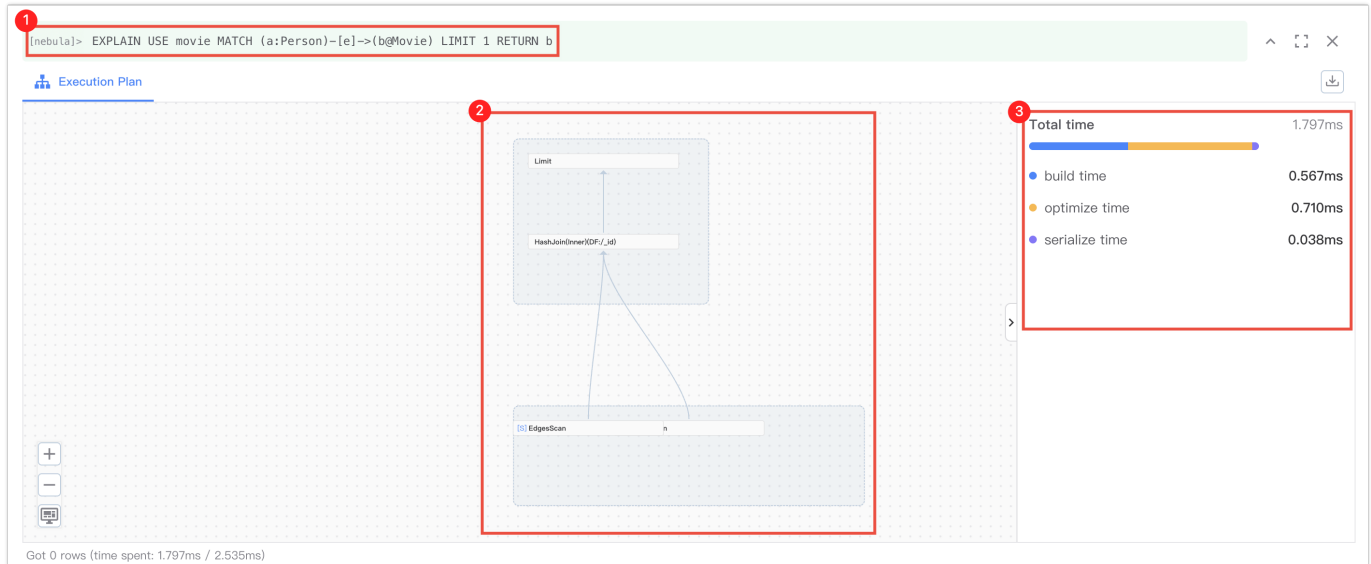
No.	Part	Description
1	Executed query	Displays the GQL query you executed and its running status. The query is displayed in green if the execution is successful and in red if it fails.
2	Operator execution process	<p>Displays operators in execution order. For each operator, the name, execution time, and memory usage are displayed.</p> <p>Operators are highlighted according to their execution time. The more time-consuming the operator, the deeper the color.</p> <p>Arrows depict data flow and indicate the number of rows; the thicker the arrow, the more rows it represents.</p> <p>If you click an operator, the details of the operator are displayed on the detailed information pane. The details are returned by using the <code>verbose</code> format when running the <code>PROFILE</code> command. For more information, see PROFILE.</p>
3	Detailed information pane	<p>Displays the top 5 operators by execution time, memory usage, and row count. You can click an operator to locate it in the operator execution process.</p> <p>Displays the total execution time, as well as build time, optimization time, and serialization time.</p>

EXPLAIN command

If you do not want to execute a GQL query but only want to view its execution plan, you can add the `EXPLAIN` command before a GQL query and click the Run icon to generate the execution plan. In this case, only the Execution Plan window is displayed in the execution results.

EXECUTION PLAN WINDOW DESCRIPTION

The following figure shows a sample execution plan returned by the `EXPLAIN` command.



The following table describes the different parts in the execution plan.

No.	Part	Description
1	Explained query	Displays the explained query. The query is displayed in green if it is valid and in red if it is invalid.
2	Operator execution process	Displays operators in estimated execution order. If you click an operator, the details of the operator are displayed on the detailed information pane.
3	Detailed information pane	Displays the total estimated execution time, as well as build time, optimization time, and serialization time.

5.5 Data exploration

5.5.1 Data exploration

NebulaGraph Cloud provides a visual interface for you to explore relationships and discover insights in data hosted with NebulaGraph Database.

For more information about data exploration, see the following topics:

- [Manage explorations](#): Create, delete, and rename explorations.
- [Explore subgraphs](#): Query nodes, explore relations, and query paths.
- [Manage canvas data](#): Manage the data displayed on the canvas, including filtering, viewing, saving, exporting, and zooming.

Besides, you can adjust [exploration settings](#) to customize your data exploration experience.

5.5.2 Exploration settings

This topic describes the custom settings for queries and visualization in data exploration.

Query settings

You can set the timeout for queries, the limit for the number of results returned, and the limit for the number of edges sampled during path queries.

1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. On the left-side navigation pane of the database details page, click **Explore** under **Data**.
3. .
In the upper right corner, click .
4. On the expanded pane that appears on the right, specify the following settings:
 - **Query Timeout:** Enter a value between 0 and 600 to set the query timeout in seconds. The default value is 120.
 - **Query Limit:** Enter a value between 100 and 5000 to set the limit for the number of results returned. The default value is 100.
 - **Max New Neighbors:** Enter a value between 100 and 5000 to set the limit for the number of edges sampled during path queries. The default value is 100. For more information, see [SAMPLE](#).

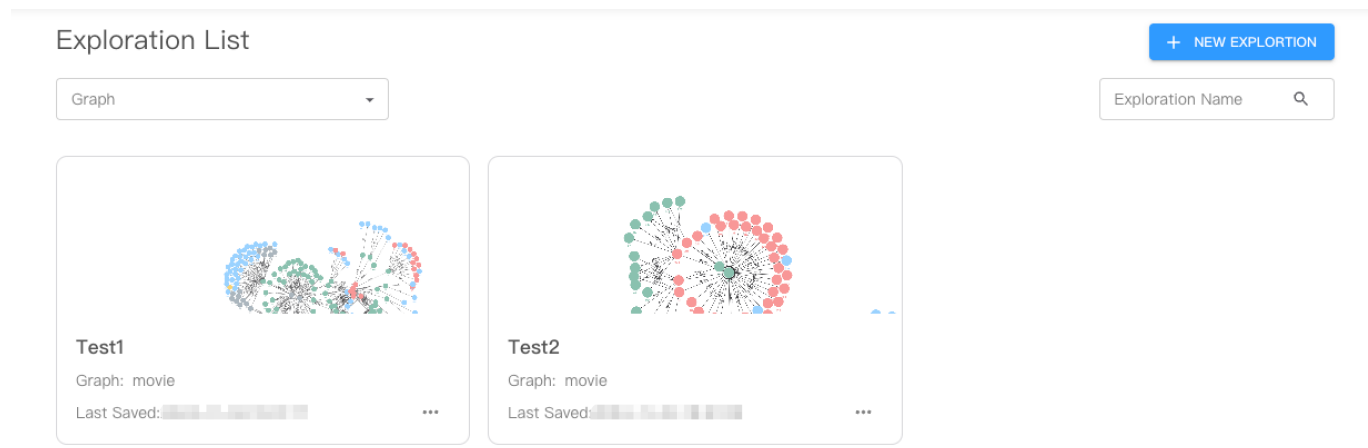
Visualization settings

You can select whether to display properties for nodes or edges when you hover your mouse over them, and whether to highlight the neighbors of nodes when you hover your mouse over them.

1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. On the left-side navigation pane of the database details page, click **Explore** under **Data**.
3. .
In the upper right corner, click .
4. On the expanded pane that appears on the right, enable the following toggle switches:
 - **Property shown on hover:** When enabled, the properties of the nodes or edges are displayed when you hover your mouse over them. It is enabled by default.
 - **Highlight neighbors on hover:** When enabled, the neighbors of nodes are highlighted when you hover the mouse over them. It is disabled by default.

5.5.3 Manage explorations

An exploration in NebulaGraph Cloud is a canvas where you can query and visualize data from NebulaGraph Database. You can create, delete, and rename explorations in NebulaGraph Cloud. This topic introduces how to manage explorations in NebulaGraph Cloud.



Prerequisites

- A graph is created. For more information, see [Manage graphs](#) or [CREATE GRAPH](#).
- To perform the operations in this topic, you must be granted related roles. For more information, see [Access control](#).

Create an exploration

Required role: Project Admin

1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. On the left-side navigation pane of the database details page, click **Explore** under **Data**.
3. Click **New Exploration**.
4. In the dialog box that appears, enter a name for the exploration and select the graph that you want to explore.
5. Click **Create**.

Delete an exploration

Required role: Project Admin

1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. On the left-side navigation pane of the database details page, click **Explore** under **Data**.
3. On the **Exploration List** page, select the exploration that you want to delete.
4. Click **...** in the lower right corner and then click **Delete Exploration**.
5. In the confirmation dialog box that appears, click **Delete**.

Rename an exploration

Required role: Project Admin

1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. On the left-side navigation pane of the database details page, click **Explore** under **Data**.
3. On the **Exploration List** page, select the exploration that you want to rename.
4. Click  in the lower right corner and then click **Edit**.
5. In the dialog box that appears, enter a new name for the exploration and then click **Update**.

5.5.4 Explore subgraphs

This topic introduces how to explore subgraphs in NebulaGraph Cloud.

Prerequisites

- An exploration is created. For more information, see [Manage explorations](#).
- To perform the operations in this topic, you must be granted related roles. For more information, see [Access control](#).

Query nodes

Required role: Project Admin OR Project Member

1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. On the left-side navigation pane of the database details page, click **Explore** under **Data**.
3. On the **Exploration List** page, click the exploration that you want to use.
4. On the left-side pane, click the **Graph Query** icon.
5. On the expanded pane that appears, click **Query Nodes** and specify the following information:
 - **Node Type:** Select the type of nodes that you want to query.
 - **Property:** Select the property of the node type.
 - **Value:** Enter the value of the property. To query multiple nodes, specify multiple values separated by newlines.
6. Click **Query**. The nodes that meet the query conditions are selected in highlight on the canvas.
7. To explore further, select one or more nodes on the canvas and right-click to perform the following operations:
 - **Find Neighbors:** Find the neighbors of the selected nodes.
 - **Style:** Change the style of the selected nodes.
 - **Invert Selection:** Invert the selection of the nodes.
 - **Dismiss:** Dismiss the selected nodes so that they are grayed out on the canvas.

The screenshot displays the NebulaGraph Cloud interface. On the left, the 'Query Node' panel is open, showing the following configuration:

- Type:** Node Type * (Actor)
- Property:** id (INT64)
- Value:** 199
- Query** button

The main canvas shows a graph visualization with a central blue node labeled '199' and several surrounding yellow nodes. A right-click context menu is open over the central node, displaying the following options:

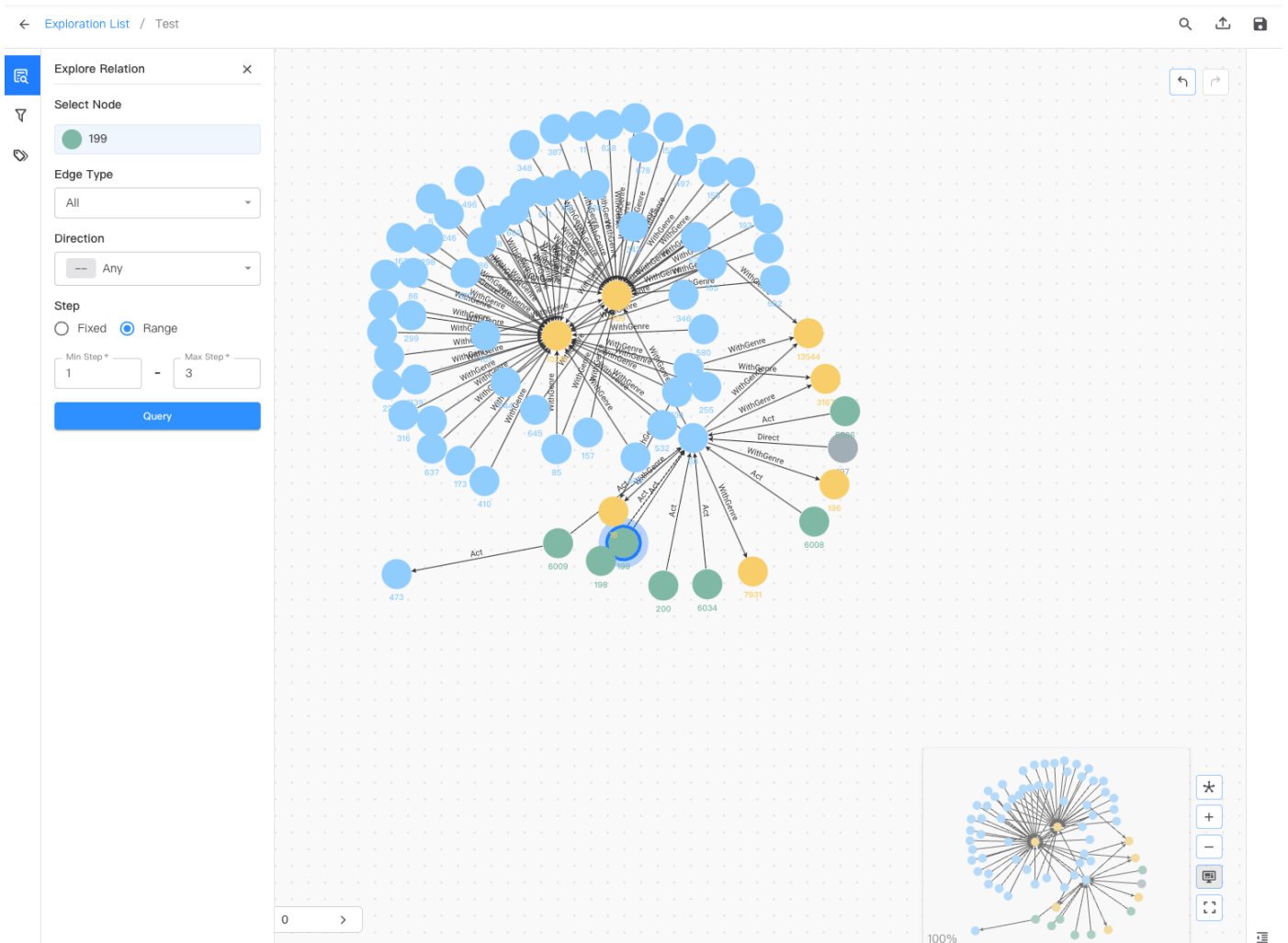
- Find Neighbors
- Style
- Invert Selection
- Dismiss

At the bottom right, there is a zoomed-in view of the graph structure, showing the central node and its neighbors. The interface also includes a top navigation bar with 'Exploration List' and 'Test' tabs, and a bottom status bar showing 's 15'.

Explore relations

Required role: Project Admin OR Project Member

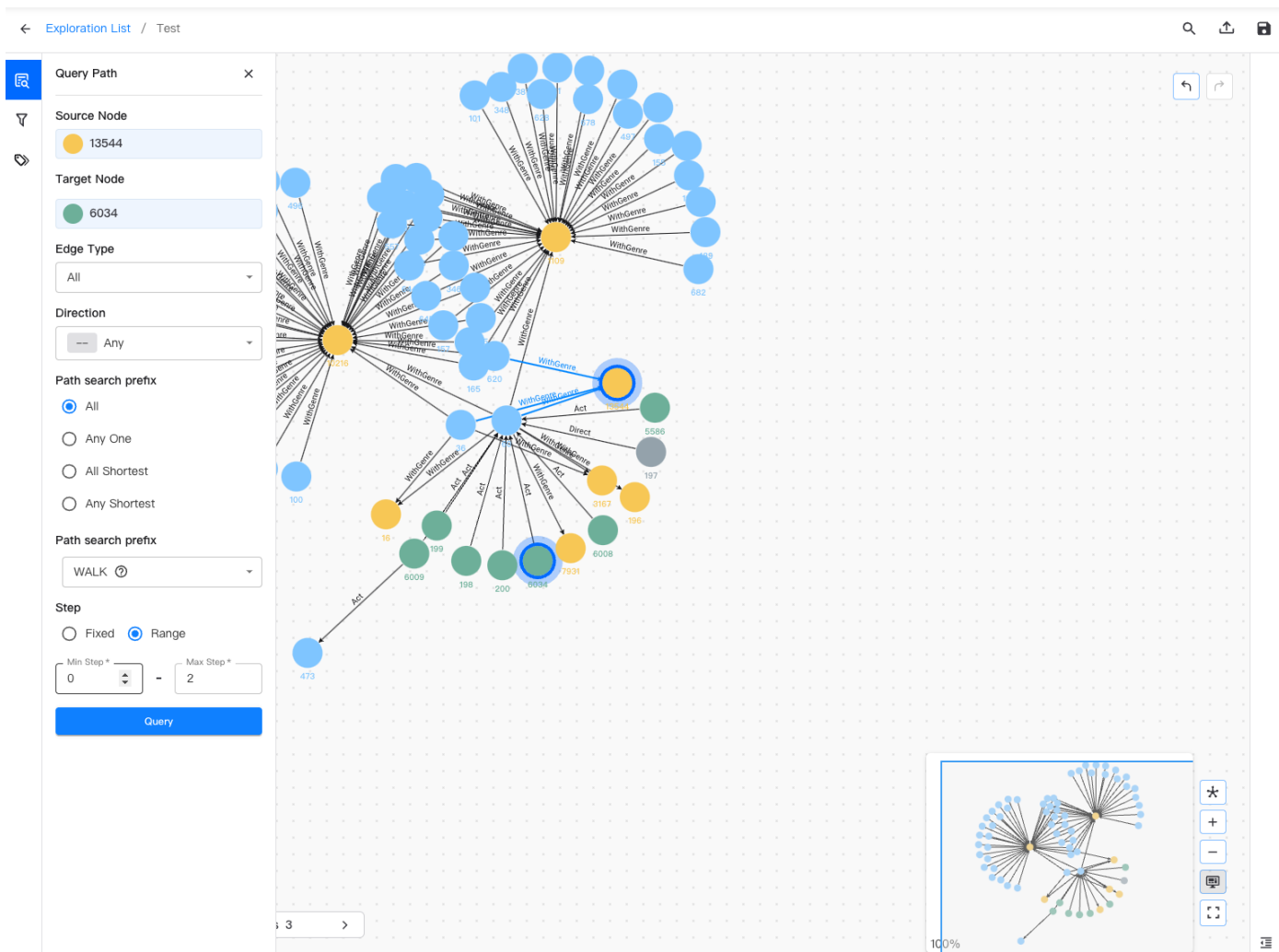
1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. On the left-side navigation pane of the database details page, click **Explore** under **Data**.
3. On the **Exploration List** page, click the exploration that you want to use.
4. On the left-side pane, click the **Graph Query** icon.
5. On the expanded pane that appears, click **Explore Relation** and specify the following information:
 - **Select Node:** Select one or more nodes that you want to explore on the canvas.
 - **Edge Type:** Select the types of edges that connect the nodes from the drop-down list.
 - **Direction:** Select the direction of the edges from the drop-down list.
 - **Step:** Specify the number of steps to explore. The following options are available:
 - **Fixed:** Specify a fixed number of steps.
 - **Range:** Specify a range of steps.
6. Click **Query**. The nodes and edges that meet the query conditions are selected in highlight on the canvas.



Query paths

Required role: Project Admin OR Project Member

1. In NebulaGraph Cloud, [switch to the project](#) you want to use, and click the name of the database to view the database details.
2. On the left-side navigation pane of the database details page, click **Explore** under **Data**.
3. On the **Exploration List** page, click the exploration that you want to use.
4. On the left-side pane, click the **Graph Query** icon.
5. On the expanded pane that appears, click **Query Path** and specify the following information:
 - **Source Node**: Select the source node of the path on the canvas.
 - **Destination Node**: Select the destination node of the path on the canvas.
 - **Edge Type**: Select the types of edges that are allowed in the path from the drop-down list.
 - **Direction**: Select the direction of the edges that are allowed in the path from the drop-down list.
 - **Path Search Prefix**: Select the path search prefix. The following options are available:
 - **All**: Query all paths that match the pattern.
 - **Any One**: Query any path that matches the pattern.
 - **All Shortest**: Query all the shortest paths that match the pattern.
 - **Any Shortest**: Query any shortest path that matches the pattern.
 - **Path Mode**: Select the path mode from the drop-down list. The following options are available:
 - **WALK**: Applies no filtering to the paths. This is the default path mode.
 - **TRAIL**: Filters out paths with repeated edges.
 - **ACYCLIC**: Filters out paths with repeated nodes.
 - **SIMPLE**: Filters out paths with repeated nodes unless these nodes are either the first or last nodes in the path.
 - **Step**: Specify the number of steps to explore. The following options are available:
 - **Fixed**: Specify a fixed number of steps.
 - **Range**: Specify a range of steps.
6. Click **Query**. The paths that meet the query conditions are selected in highlight on the canvas.



5.5.5 Manage canvas data

After querying and displaying graph data (nodes and edges) on the canvas, you can manage the data. This topic explains how to manage canvas data, including filtering, viewing, saving, exporting, and zooming.

Prerequisites

- Before managing canvas data, you need to query data on the **Graph Query** pane and display it on the canvas. For more information, see [Explore subgraphs](#).
- To perform the operations in this topic, you must be granted related roles. For more information, see [Access control](#).

Filter canvas data

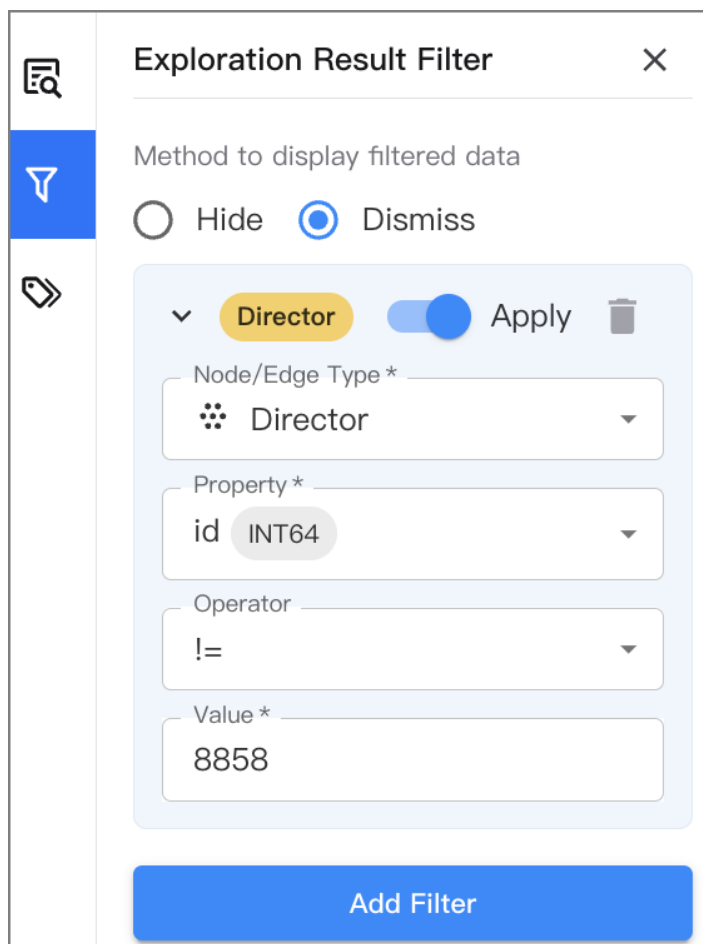
Required role: Project Admin or Project Member

You can filter the data on the canvas to better view specific data.

FILTER CONDITIONALLY

You can filter specific data to be displayed on the canvas based on filter conditions. The steps are as follows:

1. In the left navigation bar of the canvas, click the  icon.
2. Set the display method for data that does not meet the conditions: **Hide** or **Dismiss**.
 - **Hide:** Data that does not meet the conditions is hidden and not displayed on the canvas.
 - **Dismiss:** Data that does not meet the conditions is grayed out.
3. In the **Exploration Result Filter** pane, set the filter conditions. Data that meets the conditions is displayed on the canvas, while data that does not meet the conditions is hidden or grayed out.
 - **Node/Edge Type:** The node type or edge type to be displayed. Data of this type that does not meet the conditions is filtered out.
 - **Property:** The property of the node or edge to be displayed.
 - **Operator:** The operator for the filter condition.
 - **Value:** The value of the property.
4. Click **Apply**.



The image shows a dialog box titled "Exploration Result Filter" with a close button (X) in the top right corner. On the left side, there is a vertical sidebar with three icons: a magnifying glass, a funnel, and a tag. The funnel icon is highlighted with a blue background. The main area of the dialog contains the following elements:

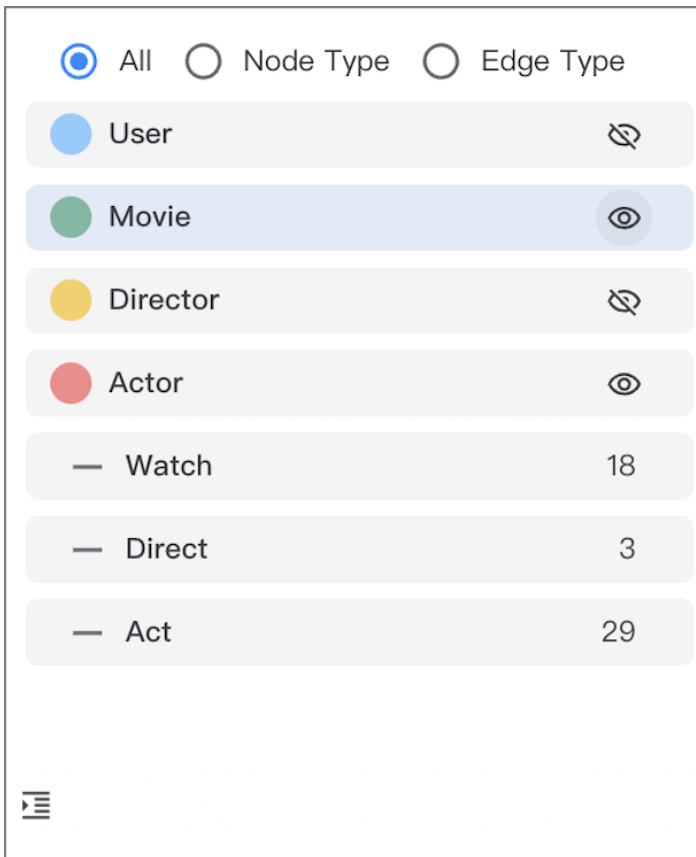
- Method to display filtered data:** Two radio buttons are present: "Hide" (unselected) and "Dismiss" (selected).
- Filter Configuration:** A light blue rounded rectangle contains:
 - A dropdown menu showing "Director" with a small downward arrow.
 - A toggle switch that is turned on, followed by the text "Apply" and a trash icon.
 - A label "Node/Edge Type *" followed by a dropdown menu showing "Director" with a small downward arrow.
 - A label "Property *" followed by a dropdown menu showing "id" with a small downward arrow.
 - A label "Operator" followed by a dropdown menu showing "!=" with a small downward arrow.
 - A label "Value *" followed by a text input field containing "8858".
- Add Filter:** A large blue button at the bottom with the text "Add Filter".

To filter multiple node types or edge types, click **Add Filter** and repeat the above steps.

FILTER BY DATA TYPE

In addition to filtering specific data based on conditions, you can also filter data of the same type based on the selected node type or edge type. The steps are as follows:

1. In the lower right navigation bar of the canvas, click .
2. On the **All** tab, all node types and edge types on the canvas are displayed by default.
 - You can click the **Node Type** tab to filter nodes by node type.
 - You can click the **Edge Type** tab to filter edges by edge type.
3. Select the node type or edge type you want to hide, and click . To show the data again, click .



FILTER USING THE SEARCH BOX

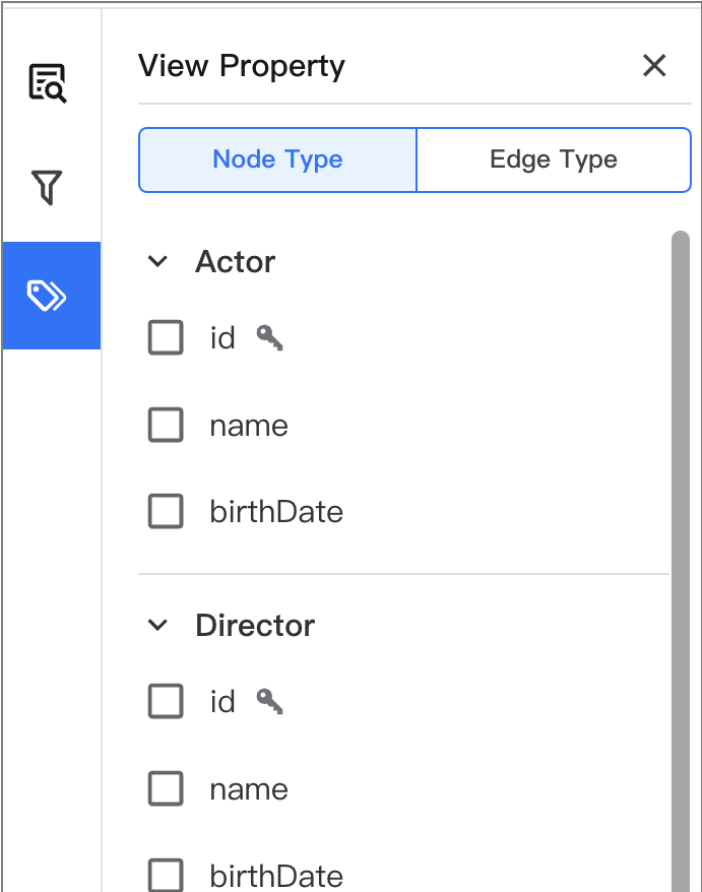
In the top navigation bar of the canvas, click , and enter the property value of the node or edge in the search box to filter the data to be displayed based on that value.

Display canvas data properties

Required role: Project Admin or Project Member

You can configure whether to display the properties of nodes and edges on the canvas.

1. In the left navigation bar of the canvas, click the  icon.
2. Configure whether to display the properties of nodes and edges on the canvas.
 - To display properties, check the property names.
 - To hide properties, uncheck the property names.



View canvas data information

Required role: Project Admin OR Project Member

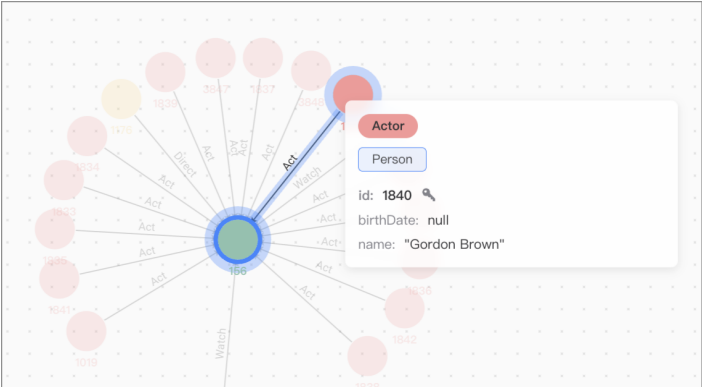
You can view information about the data on the canvas, including data volume and properties.

VIEW CANVAS DATA STATISTICS

In the lower right navigation bar of the canvas, click  to view the number of nodes and edges on the canvas.

VIEW CANVAS DATA PROPERTIES

In the canvas, hover the mouse over the target node or edge to automatically display the data information, including data type, labels, properties, etc.

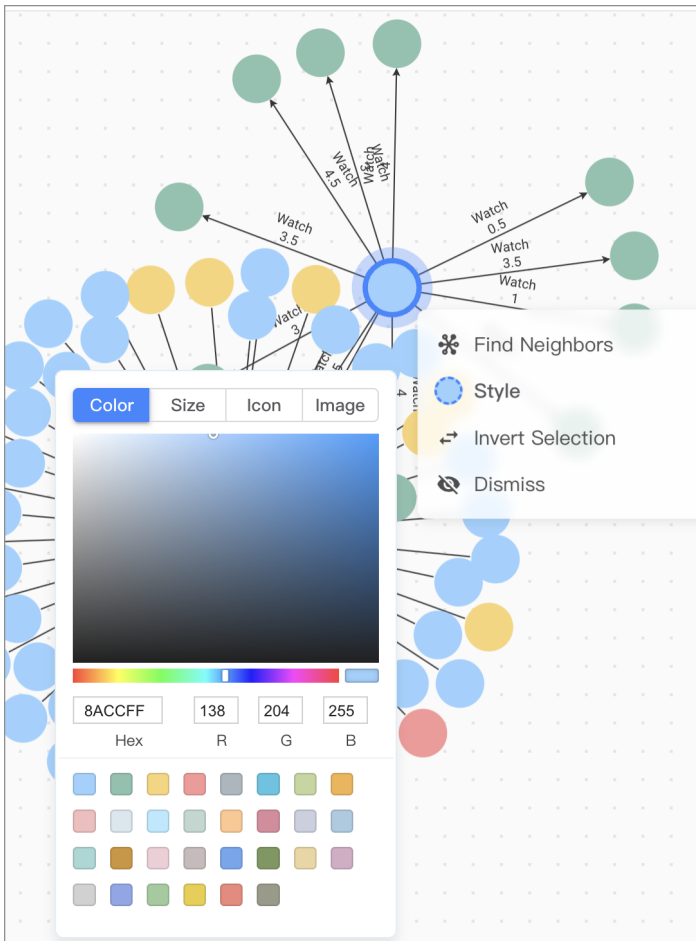


Set canvas data styles

Required role: Project Admin OR Project Member

SET STYLE FOR A SINGLE NODE OR EDGE

1. On the canvas, select the target node or edge and right-click.
2. Click **Style**.
3. In the style setting panel, set the style for the node or edge.
 - For the node, you can set the color, size, icon, and image.
 - For the edge, you can set the color and size.



SET STYLE FOR MULTIPLE NODES OR EDGES OF THE SAME NODE TYPE OR EDGE TYPE

1. In the lower right navigation bar of the canvas, click the  icon.
2. Select the target node type or edge type to configure the style for all nodes or edges of that type simultaneously.
 - For nodes of the same type, you can set the color, size, icon, and image.
 - For edges of the same type, you can set the color and size.

Set canvas data layouts

Required role: Project Admin OR Project Member

In the lower right navigation bar of the canvas, click  to set the layout of the canvas data.

NebulaGraph Cloud supports 8 layout methods to display the relationships between data on the canvas.

Layout	Icon
Force	
Dagre	
Dagre-LR	
Circular	
Grid	
Radial	
Concentric	
Neural Network	

Save canvas data

Required role: Project Admin or Project Member

In the upper right corner of the canvas, click  to save the data to the exploration. The saved exploration can be viewed on the **Exploration List** page.

Export canvas data

Required role: Project Admin or Project Member

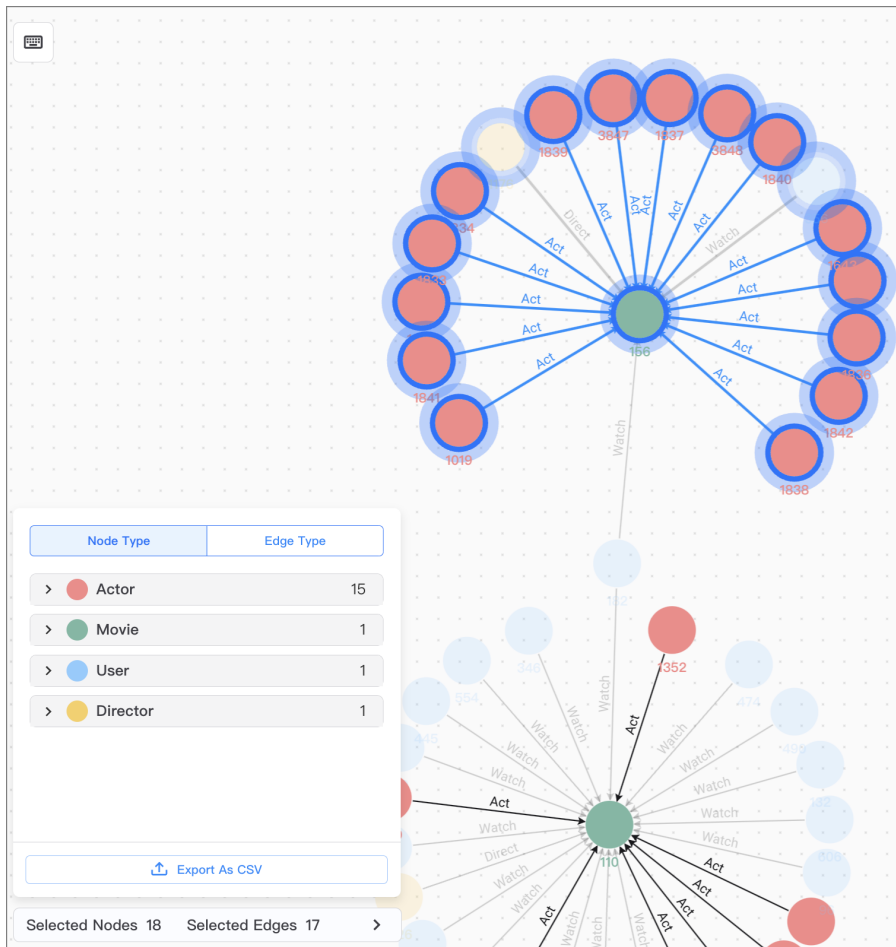
EXPORT ALL CANVAS DATA

In the upper right corner of the canvas, click  to export the data on the canvas. The export formats include PNG, JSON, and CSV.

EXPORT SELECTED CANVAS DATA

In addition to exporting the entire canvas data, you can also export the selected nodes or edges. The export format is CSV.

1. Select the nodes or edges to be exported.
2. In the lower left corner of the canvas, click .
3. Click **Export as CSV**.



Zoom canvas data

Required role: Project Admin or Project Member

In the lower right corner of the canvas, you can zoom the canvas data in the following ways:

- Click  to zoom in on the canvas.
- Click  to zoom out on the canvas.
- Click  to move the canvas screen.
- Click  to display the canvas data in full screen and click  to exit full screen.

5.5.6 Canvas operations and shortcuts

This topic lists the basic operations and shortcuts that you can use on a canvas.

Basic operations

Operation	Description
Move the canvas	Hold down the left mouse button and drag the canvas.
Zoom in or out	Use the mouse wheel to zoom in or out.
Select a single node or edge	Left-click a node or an edge.
Select multiple nodes and edges	Hold Shift and left-click nodes and edges.
Batch selection	Hold down the right mouse button and drag to frame nodes and edges; or hold Shift, left-click, and then drag to frame nodes and edges.
Move selected nodes	Left-click and drag the selected nodes.

Shortcuts

Shortcut	Description
Shift + '-'	Zoom out
Shift + '+'	Zoom in
Ctrl/Cmd + 'Z'	Undo
Ctrl/Cmd + Shift + 'Z'	Redo
Ctrl/Cmd + 'A'	Select all nodes
Selected elements + Enter	Expand
Selected elements + 'Backspace'	Hide selected elements
Selected elements + Shift + 'Backspace'	Hide unselected elements

5.6 Backup and restore

5.6.1 Backup and restore overview

NebulaGraph Cloud provides backup and restore capabilities to help you protect your data and recover from unexpected situations. You can create backups of your database instances and restore them to new clusters when needed.

Backup types

NebulaGraph Cloud supports two backup methods:

- **Manual backup:** You can create a backup at any time by clicking the **Backup** button. This is useful when you want to capture a snapshot before making significant changes to your database.
- **Scheduled backup:** You can configure automatic backups to run at regular intervals. This ensures your data is backed up consistently without manual intervention.

Feature availability by plan

The availability of backup features depends on your subscription plan:

Feature	Standard plan	Professional plan	Enterprise plan
Manual backup	✓	✓	✓
Scheduled backup	×	✓	✓
Restore from backup	✓	✓	✓

Permissions

Backup and restore operations require elevated privileges. Only users with the following roles can access backup and restore features:

Role	Permissions
Organization Owner	A role that has full privileges of all resources in the organization, including organization management, project management, database management, billing, and organization access. There is only one user with this role in an organization.
Project Admin	A role to manage the project resources and project members.

For more information, see [Access control](#).

Backup storage pricing

Backup storage is billed at **\$0.023 per GB per month**. The cost is calculated based on the total size of all retained backups. You can view the size of each backup in the backup list.

5.6.2 Manual backup

Manual backup allows you to create an on-demand snapshot of your database instance. This is available for Standard, Professional, and Enterprise plan users.

Prerequisites

Before creating a backup, ensure that:

- Your database instance is in a running state.
- You have sufficient [permissions](#) to perform backup operations.

Create a manual backup

1. Log in to NebulaGraph Cloud and navigate to your project.
2. In the left navigation pane, click **Backup** under your database instance.
3. In the upper-right corner of the page, click the **Backup** button.
4. Wait for the backup process to complete. The backup status will change from **Running** to **Succeeded**.



Note

Avoid write operations during the backup period to ensure data consistency.

View backup list

The backup list displays all available backups for your database instance. Each backup entry includes the following information:

Column	Description
ID	The unique identifier of the backup.
Created At	The timestamp when the backup was created.
Status	The current status of the backup (e.g., Succeeded, In Progress, Failed).
Size	The total size of the backup file.
Expires In (Days)	The number of days until the backup is automatically deleted.
Creation Type	Indicates whether the backup was created manually or by a scheduled job.
Actions	Available operations for the backup, such as Restore .

Delete a backup

Backups are automatically deleted after the retention period expires. Currently, manual deletion of individual backups is not supported. To manage storage costs, configure an appropriate retention period for scheduled backups.

5.6.3 Scheduled backup

Scheduled backup enables automatic, recurring backups of your database instance. This feature is available for Professional and Enterprise plan users.

Prerequisites

- Your database instance must be on the Professional or Enterprise plan.
- The database instance must be in a running state.
- You have sufficient [permissions](#) to perform backup operations.

Enable scheduled backup

1. Log in to NebulaGraph Cloud and navigate to your project.
2. In the left navigation pane, click **Backup** under your database instance.
3. Toggle the **Scheduled Backup** switch to enable automatic backups. The toggle is enabled by default.
4. Click **Edit** to [edit the scheduled backup settings](#) as needed.

Edit scheduled backup settings

1. In the Backup page, locate the scheduled backup information displayed below the toggle switch.
2. Click the **Edit** link next to the "Next Scheduled Backup" timestamp.
3. [Configure the backup policy](#) as needed.
4. Click **Confirm** to apply the changes.

Configure backup policy

When editing scheduled backups, you can configure the following parameters:

- **Backup frequency:** Specify how often backups should be created. You can set the interval in days (e.g., every 1 day, every 7 days) and the time of day when the backup should run.
- **Backup time:** Select the time when the scheduled backup should start. Choose a time during low-traffic periods to minimize the impact on database performance.
- **Backups retained (days):** Specify how long backups should be retained before automatic deletion, up to 90 days. For example, setting this value to 7 means backups older than 7 days will be automatically deleted.

Example configuration:

- Every **1** Day at **02:00**
- Backups retained: **7** days
- Next Scheduled Backup: 2026/2/10 00:00:00 After configuring the backup policy, click **Confirm** to save your settings.

Note

Please avoid write operations during the backup period to ensure data consistency.

Disable scheduled backup

To stop automatic backups, toggle the **Scheduled Backup** switch to the off position. Existing backups will be retained until their expiration date.

5.6.4 Restore from backup

The restore operation allows you to recover your data by creating a new database instance from a backup file. This is useful for disaster recovery, testing, or creating a copy of your production environment.

Prerequisites

- At least one successful backup exists for the source database.
- You have sufficient quota to create a new database instance.
- You have the necessary [permissions](#) to perform restore operations.

Restore to a new database

Restoring a backup creates a new database instance with the same data and configuration as the original at the time of backup.

1. In the left navigation pane, click **Backup** under your database instance.
2. Locate the backup you want to restore in the backup list.
3. In the **Actions** column, click **Restore**.
4. On the **Restore to a New Database** page, configure the following settings:

Basic settings:

Parameter	Description
Restore From Backup	The source backup file (automatically populated).
Cloud Provider	The cloud provider for the new database instance.
Region	The region where the new database instance will be deployed.
Target Database Name	Enter a name for the new database instance. The default name follows the pattern <code>{original_name}_restore</code> .

Capacity settings:

Parameter	Description
Query Node	Select the vCPU and RAM configuration for the query node (e.g., 2 vCPU, 4 GB RAM × 1).
Storage Node	Select the vCPU and RAM configuration for the storage node (e.g., 2 vCPU, 4 GB RAM × 3).
Storage Size Per Node	Configure the storage capacity for each node. The total storage size is calculated as: Storage per node × Number of nodes.

Warning

If your configuration has reached the maximum limit for disk capacity, a warning message will be displayed. Please proceed with caution and consider adjusting your configuration if needed.

5. Review the **Summary** panel on the right side of the page, which displays:

- Database Tier
- Database Name
- Storage Size
- Capacity details
- Estimated Cost (hourly rate)

6. Click **Restore** to initiate the restore process.

Monitor restore progress

After initiating a restore, the new database instance will appear in your database list. The instance status will show the current progress of the restore operation. Once the restore is complete, the status will change to "Running" and the database will be ready for use.

Cost estimation

The restore operation creates a new database instance, which incurs charges based on the selected configuration. The estimated cost is displayed in the Summary panel before you confirm the restore operation.

Example cost breakdown:

- Configuration: 2 vCPU, 4 GB RAM × 1 (Query Node) + 2 vCPU, 4 GB RAM × 3 (Storage Node)
- Storage: 30 GB total
- Estimated cost: \$0.199/hour (excluding network transfer fees and backup storage fees)

6. NebulaGraph Cloud release notes

6.1 20261020

- Added support for NebulaGraph Database version 5.3.2.

6.2 20260923

- Added data import support for BYOC databases, providing the same data import experience as fully managed databases.
- Added support for configuring a session token when connecting an Amazon S3 data source in the data import service. This allows you to access Amazon S3 by using temporary AWS security credentials.

For more information, see [Data import](#).

6.3 20260920

- Optimized BYOC status synchronization. A timeline and real-time synchronization of Terraform deployment logs are now provided, making it easier to track the data plane deployment progress and troubleshoot issues.
- Optimized the restriction that databases in intermediate states cannot be operated on. The [Scale](#) and [Increase Storage Size](#) operations can now be performed on instances in intermediate states.
- Various other interaction improvements.

6.4 20260912

- Added support for BYOC (Bring Your Own Cloud) databases. You can now deploy databases in your own AWS account. Using the AWS IAM Terraform permission templates provided by NebulaGraph Cloud, you can grant NebulaGraph Cloud limited access to the services and resources in your account for data plane initialization and day-to-day database management.
- At the time of this release, all features in BYOC mode provided the same experience as with fully managed databases, except that the data import service was temporarily unavailable.
- To use BYOC, request a license from NebulaGraph Cloud in advance. Billing for BYOC databases differs from that of fully managed databases.

6.5 20260902

- Added the Enterprise plan for production workloads that require enterprise HA and larger specifications. The Enterprise plan includes all Professional plan features and provides:
- Cross-AZ deployment with a replica factor of 3 by default.
- Zone-aware routing policy support.
- Query and storage node specifications with up to 32 vCPUs and 256 GB RAM, and up to 2,560 GB of storage per storage node.
- A default capacity of 3 query nodes with 2 vCPUs and 8 GiB RAM each, 3 storage nodes with 2 vCPUs and 16 GiB RAM each, and 40 GB of storage per storage node.

For more information, see [Upgrade to a paid plan](#).

- Added **Scale** and extended **Resize** support to Professional and Enterprise databases. You can access these operations from the **Databases** page or the database **Overview** page. For more information, see [Resize node specification](#) and [Scale node counts](#).

6.6 20260828

- Added support for NebulaGraph Database version 5.3.0, which includes the following:
 - [Set types](#) and related [set functions](#).
 - [Map types](#) and related [map functions](#).
- Horizontal aggregate functions. For more information, see [Aggregator value variables](#).
- [Vertex-centric indexes](#).
- [Procedure](#) input parameters now support node, edge, and table types.
- [start_node_id\(\)](#) and [end_node_id\(\)](#).
- Parameterizing labels and graph element types. For more information, see [MATCH](#).
- Defining [user-defined functions \(UDFs\)](#) in GQL.
- Dynamic optimization of query execution plans (disabled by default). For more information, see [EXPLAIN](#).
- The built-in subgraph procedure [algo.subgraph](#).
- New [list functions](#) for [list types](#).

6.7 20260521

- Added the alert notification feature. You can now set up alert rules to monitor database metrics, configure notification channels (email, webhook, Slack, PagerDuty), and view alert history. For more information, see [Manage project alerts](#).

6.8 20260423

- Added Query History, enabling you to view past queries on the Query page.

6.9 20260417

- Added support for NebulaGraph Database version 5.2.2, which includes the following main features:
- Added the subgraph procedure for extracting a subgraph from a persistent graph in GQL.

6.10 20260402

- Added an interactive canvas (Beta) to the Import page for visualizing and configuring data-to-graph-type mappings. You can click types on the canvas to start mapping, as an alternative to the left-panel form controls.
- Upgraded the database kernel to version 5.2.2. Key changes include:
- Added support for the subgraph procedure for extracting a subgraph from a persistent graph in GQL.

6.11 20260206

- Supported database backups. You can create manual backups or schedule recurring backups to protect your data. For more information, see [Manual backup](#) and [Schedule backup](#).
- Supported database restore. You can restore data by creating a new instance from an existing backup. For more information, see [Restore from backup](#).

6.12 20260109

- Supported credit card payments. When upgrading to a paid plan, you can use major credit cards such as Visa and MasterCard to pay for your subscription. For more information, see [Add a payment method](#).
- Supported usage dashboard. Organization owners can view the usage and cost details and track spending trends over time for better budget management. For more information, see [View usage details](#).

6.13 20251219

- Added support for NebulaGraph Database version 5.2.0, which includes the following:
 - Changes
 - The [KILL SESSION](#) command cannot be used to kill the current session anymore.
 - The [SHOW INDEXES](#) command now returns indexes created on specific graphs or temporary graphs. To query all indexes, use the [SHOW ALL INDEXES](#) command instead.
 - The following syntax is updated. The original syntax is still supported for backward compatibility. See the corresponding topics for detailed information.
 - [CREATE NORMAL INDEX](#)
 - [CREATE VECTOR INDEX](#)
 - [DROP INDEX](#)
 - [REPAIR INDEX](#)
 - [CREATE TTL](#)
 - [ALTER TTL](#)
 - [DROP TTL](#)
 - [SHOW TTLS](#)
 - [SHOW STATS](#)
 - Features
 - Supported DML operations on [temporary graphs](#).
 - Supported creating and dropping [normal indexes](#) on temporary graphs.
 - Supported calling [procedures](#) on temporary graphs.
 - Supported the following statements within procedures:
 - [Match compute statement](#)
 - [Variable manipulation statement](#)
 - [Control flow statement](#)
 - [Logging statement](#)
 - [IMPORT statement](#)
 - [EXPORT statement](#)
 - Supported [spatial data type](#) and [spatial functions](#).
 - Supported [spatial indexes](#) and [full-text indexes](#).
 - Supported [sampling](#) on edges.
 - Supported [variable names](#) enclosed with backticks.
 - Supported specifying schemas when creating [graph types](#) and [graphs](#).
 - Supported [specifying schemas](#) by relative paths.
 - Supported specifying schema paths that are not enclosed with quotation marks.
 - Supported [SHOW WARNINGS](#) and [SHOW ALL WARNINGS](#).
 - Supported [CLEAR WARNINGS](#) and [CLEAR ALL WARNINGS](#).
 - Supported the following functions:
 - [split\(\)](#)
 - [md5\(\)](#)
 - [zip\(\)](#)
 - [ftscore\(\)](#)

- Enhancements
- Optimized the performance of multi-hop and full-path queries.
- Added the following features in NebulaGraph Cloud:
 - For [Graph management](#):
 - Added support for new data types: list, vector, and spatial type.
 - Added support for creating vector indexes, spatial indexes, and full-text indexes.
 - For [Data query](#):
 - Added syntax highlighting in the query input box.
 - Added support for adjusting query and visualization settings. For more information, see [Adjust query and visualization settings](#).
 - Optimized the display style for query results and the overall interaction experience in the console, including:
 - Improved the display layout for node/edge type property information.
 - Enabled filtering of nodes and edges in graph results by type.
 - Added support for adjusting the display style for nodes and edges in graph results.
 - Added support for exporting graphic results in PNG format.
 - Added support for expanding or collapsing query results.
 - Added support for searching data in the Table window.
 - Added support for viewing query execution plans. For more information, see [Viewing execution plans](#).
 - For [Data exploration](#):
 - Added support for adjusting query and visualization settings. For more information, see [Exploration settings](#).

6.14 20251111

- Enhancements
- Improved user experience during instance creation. You can now view real-time progress of instance creation, making it more transparent and user-friendly.
- Added a Quickstart page to help new users get started with NebulaGraph Cloud quickly and easily.

6.15 20251017

- Enhancements
- Enhanced data import features, including:
 - Supported viewing details of finished tasks, such as average QPS and the counts of successful and failed records after data import.
 - Supported stopping, resuming, or retrying import tasks depending on their status.
- Added dark mode. You can switch between light and dark modes based on your preference.

6.16 20250904

- Highlights
- NebulaGraph Cloud has officially passed SOC 2 Type I audit, strengthening the foundation of enterprise-grade data security and compliance. This demonstrates our commitment to rigorous security standards and the protection of your data.
- Features
- Supported a multi-level resource hierarchy for you to manage resources across different teams more efficiently and flexibly. For more information, see the following topics:
 - [Organization management](#)
 - [Project management](#)
 - [Database management](#)
- Implemented Role-Based Access Control (RBAC) for precise access management. For more information, see [Access control explained](#).

6.17 20250731

- Enhancements
- Enhanced data import features for a simpler, more flexible experience, including:
 - Configurable file separators and first-row header inclusion for mapping.
 - One-click settings application to a single file or all files.
- Increased peak QPS (Queries Per Second) by sevenfold for data imports, significantly enhancing import efficiency.

6.18 20250618

- Features
- Upgraded NebulaGraph Database to version 5.1.0.
- Enhancements
- Supported interactive graph exploration In NebulaGraph Cloud console. For more information, see [Data exploration](#).

6.19 20250522

- Features
- Implemented a notification system to ensure seamless account management:

If your AWS account or subscription encounters an issue, you will receive email notifications prompting you to resolve it within a 14-day grace period. During this period, your database instances and data will be suspended, and you cannot create new instances until the issue is resolved. If the issue remains unresolved after the grace period, your database instances and data will be deleted.
- Enhancements
- Added metrics to the **Infrastructure** and **Service** pane on the **Metrics** page. You can monitor infrastructure-level metrics for both storage and query nodes. For more information, see [Monitor database information and metrics](#).
- Removed the schema drop-down list from the **Graph** page to streamline graph management within a single schema, enhancing usability.

6.20 20250427

- Features

- Supported multiple plan tiers: Standard and Professional. You can choose the following plan according to your needs.
- The **Standard** plan: Ideal for users who need to quickly set up a database for development, learning, experimentation, or prototyping.
- The **Professional** plan: Tailored to users who require a production-ready database with a storage-compute separation architecture, offering high availability, scalability, and better performance.

For more information, see [Upgrade to a paid plan](#).

- Enhancements

- Updated the disk storage pricing from a fixed model to a tiered model. For more information, see [Disk storage specification](#).

6.21 20250415

- Enhancements

- Supported 6-hour grace period after unsubscribing from the paid plan. During this period, your database instances and data are retained, and you can re-subscribe to the paid plan to continue using the service. Otherwise, the instances and data will be deleted after the grace period.

6.22 20250402

- Features

- Added a "Get started" guide at the top of the overview page to help you quickly master NebulaGraph Cloud.
- Added a "Feedback" button in the upper-right corner of the NebulaGraph Cloud interface for you to share suggestions with us.

- Enhancements

- Supported selecting the `us-west-2` region for database creation.

- Performance

- Improved import efficiency by leveraging optimized GQL statements during the import process.
- Introduced a "Check & Run" step for you to verify mappings before starting the import task.

- Usability

- Enhanced the user experience with seamless navigation to the "Query" or "Graph" page.

6.23 20250313

- Features
- Supported [database instance management](#), including suspending, resuming, resizing instances, and increasing their storage capacity.
- Integrated a visualized database management tool, [NebulaGraph Explorer](#), to help you explore data insights in an intuitive way.
- Enhancements
- Performance
- Upgraded NebulaGraph Database to version 5.0.2, compatible with the NebulaGraph Cloud of version 20250313, for better performance and stability.

6.24 20250228

- Features
- Added support for a 14-day free trial for new users without requiring any payment information. For more information, see [Try NebulaGraph Cloud for free](#).
- Enhancements
- Optimized the design of the "Help" dialog on the NebulaGraph Cloud user interface.
- Added a "Learn GQL" quick-access button to the upper-right corner of the NebulaGraph Cloud user interface.
- Optimized the user experience design on the database creation page.
- Highlighted the database status on the database list page.

6.25 20250214

- Enhancements
- Supported setting metrics refresh intervals for real-time monitoring, with options ranging from 5 seconds to 5 minutes.
- Added the terms of service and privacy policy to the login page.



<https://www.nebula-graph.io/docs/cloud/master>