GeminiDB Influx

User Guide

 Issue
 01

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Service Overview

1.1 What Is GeminiDB Influx API?

GeminiDB Influx API is a cloud-native NoSQL time-series database with decoupled compute and storage and full compatibility with InfluxDB. This high availability database is secure and scalable, can be deployed, backed up, or restored quickly, and provides monitoring and alarm management. You can also expand storage or compute resources separately. It is widely used to monitor resources, services, IoT devices, and industrial production processes, evaluate production quality, and trace faults. GeminiDB Influx API meets the demand of high concurrent read and write, compressed storage, and SQL-like query, and supports multi-dimensional aggregation computing and visualized data analysis.

It provides high write performance, flexibility, high compression ratio, and high query performance.

• Efficient write

Data is written in parallel, distributed mode, and up to trillions of data records can be written per day.

• Flexibility

Compute nodes can be independently up or down scaled to meet service requirements, and data is not migrated during scale-out. Cluster nodes can be scaled in or out in minutes.

- High compression ratio Compared with open-source HBase, GeminiDB Influx API improves the compression ratio by 5 to 10 times based on the column-oriented storage and dedicated compression algorithm.
- Efficient query

GeminiDB Influx API can easily handle a large number of analysis tasks by running multiple threads concurrently on multiple nodes.

Typical Application Scenarios

• IoT sensor time series data analysis

IoT applications often require a high level of scale and reliability. GeminiDB Influx API can achieve very high throughput and concurrency, so it can handle

a large number of connections in a very short period of time, making it an excellent choice for IoT applications.

Advantages

Intensive write

In less write-intensive scenarios, the write performance is 4.5 times that of the open source version. When write demands are more intensive, the write performance is 3.3 times that of the open source version.

Elastic scalability

Thanks to a distributed architecture with decoupled compute and storage, compute nodes can be expanded in minutes to handle with service peaks.

• Securities and cryptocurrency transactions

GeminiDB Influx API stores user bank statements and builds an anti-fraud system for risk control in banks.

Advantages

Efficient query

GeminiDB Influx API can be deployed in a region close to your users, so they can enjoy faster processing and response.

Real-time analysis

The series data can be synchronized to the cloud to be analyzed in real-time.

• Real-time monitoring with hardware and software

GeminiDB Influx API can store user behavior data to support precision marketing and user profiling.

Advantages

Efficient write and query

GeminiDB Influx API can handle trillions of data records per day. It supports multi-node and multi-thread parallel queries.

Real-time analysis

The series data can be synchronized to the cloud to be analyzed in real-time.

• Environmental protection industry

GeminiDB Influx API supports the writing of massive amounts of time series data, making it stable and reliable for environmental protection data collection.

Advantages

Efficient write and query

Vectorized query APIs and efficient time series data query operators such as aggregation and convolution can process a large number of concurrent data writes and queries.

1.2 Compatible API and Versions

GeminiDB Influx instances support the following types: cluster, cluster (performance-enhanced), and single node.

• These types cannot be converted or upgraded to each other.

 Cluster (performance-enhanced) instances do not support the Flux syntax. To use Flux, you are advised to buy cluster instances.

Туре	Compatible Version	Scenario
Cluster	InfluxQL 1.7/1.8 Flux	One cluster consists of at least three nodes. Nodes can be added to a cluster, which is unsuitable to cope with the ever growing data volume.
(Recom mended) Cluster (perform ance- enhance d)	InfluxQL 1.7/1.8	Compared with cluster instances, instances in a performance-enhanced cluster support a larger scale and higher read/write performance.
Single node	InfluxQL 1.7/1.8 Flux	A single-node instance cannot ensure the SLA. You are advised to use it only for tests and function verification.

1.3 Instance Specifications

Each instance type comes with various specifications based on memory configurations.

This section describes specifications supported by a GeminiDB Influx instance. The instance specifications depend on the selected CPU model.

Data Node Flavo r	vCPU s	Mem ory (GB)	Min. Stora ge Space (GB)	Max. Stora ge Space (GB)	Defau lt Maxi mum Conn ectio ns per Node	Time Series per Node (unit: 10,00 0)	Max. RPs per Clust er	Max imu m Fiel ds per Que ry	Ma xim um Tim e Seri es per Qu ery
gemin idb.inf luxdb. large. 4	2	8	100	96,00 0	250	4	40	1,00 0	5,0 00

 Table 1-1 GeminiDB Influx cluster instance specifications

Data Node Flavo r	vCPU s	Mem ory (GB)	Min. Stora ge Space (GB)	Max. Stora ge Space (GB)	Defau lt Maxi mum Conn ectio ns per Node	Time Series per Node (unit: 10,00 0)	Max. RPs per Clust er	Max imu m Fiel ds per Que ry	Ma xim Tim e Seri es per Qu ery
gemin idb.inf luxdb. xlarge .4	4	16	100	96,00 0	500	16	40	2,00 0	20, 000
gemin idb.inf luxdb. 2xlarg e.4	8	32	100	96,00 0	1,000	64	80	4,00 0	80, 000
gemin idb.inf luxdb. 4xlarg e.4	16	64	100	96,00 0	2,000	256	160	8,00 0	320 ,00 0
gemin idb.inf luxdb. 8xlarg e.4	32	128	100	192,0 00	4,000	1,024	320	16,0 00	1,2 80, 000

Data Node Flavor	vC PU s	M e m or y (G B)	Min. Stora ge Spac e (GB)	Max. Storage Space (GB)	Def ault Maximu MConnections PerNode e	Ti m e Se ri es pe r N od e (u ni t: 10 ,0 00)	M ax. RP s pe r Cl us ter	Ma xi m Fie lds per Qu ery	Ma xim Ti me Ser ies per Qu ery
geminidb.influxdb- geminifs.large.4	2	8	100	64000	2 5 0	4	40	1,0 00	5,0 00
geminidb.influxdb- geminifs.xlarge.4	4	16	100	64000	5 0 0	16	40	2,0 00	20, 000
geminidb.influxdb- geminifs.2xlarge.4	8	32	100	64000	1, 0 0 0	64	80	4,0 00	80, 000
geminidb.influxdb- geminifs.4xlarge.4	16	64	100	64000	2, 0 0 0	25 6	16 0	8,0 00	320 ,00 0
geminidb.influxdb- geminifs.8xlarge.4	32	12 8	100	64000	4, 0 0 0	1, 02 4	32 0	16, 00 0	1,2 80, 000

Table 1-2 Specifications of a GeminiDB Influx instance with cloud	l native storage
---	------------------

Data Node Flavo r	vCPU s	Mem ory (GB)	Min. Stora ge Spac e (GB)	Max. Stora ge Spac e (GB)	Defa ult Maxi mum Conn ectio ns per Node	Time Serie s per Node (unit: 10,00 0)	Max. RPs per Clust er	Maxi mum Field s per Quer y	Maxi mum Time Serie S per Quer Y
gemi nidb.i nflux db.sin gle.xl arge. 2	4	8	100	1,000	250	3	40	1,000	3,500
gemi nidb.i nflux db.sin gle.2x large. 2	8	16	100	2,000	500	12	40	2,000	14,00 0
gemi nidb.i nflux db.sin gle.4x large. 2	16	32	100	4,000	1,000	48	80	4,000	56,00 0
gemi nidb.i nflux db.sin gle.8x large. 2	32	64	100	8,000	2,000	192	160	8,000	112,0 00

 Table 1-3 Specifications of GeminiDB Influx single-node instances

Specification	vC P U s	Mem ory (GB)	Min. Storage Space (GB)	Max. Storage Space (GB)	Defaul t Maxim um Conne ctions per Node	Time Series per Node (unit: 10,000)	Ma x. RPs per Clu ste r
geminidb.infl uxdb.sqlstore. large.4	2	8	100	96,000	250	4	40
geminidb.infl uxdb.sqlstore. xlarge.4	4	16	100	96,000	500	16	40
geminidb.infl uxdb.sqlstore. 2xlarge.4	8	32	100	96,000	1,000	64	80
geminidb.infl uxdb.sqlstore. 4xlarge.4	16	64	100	96,000	2,000	256	160
geminidb.infl uxdb.sqlstore. 8xlarge.4	32	128	100	30,000	4,000	1,024	320

Table 1-4 Specifications of a GeminiDB Influx cluster (performance-enhanced) instance

When the memory usage of a GeminiDB Influx instance node reaches:

- 90% or higher: Queries running the longest are killed and new queries are not allowed.
- 80% or higher: The speed for handling new I/O requests is slowed down.

A GeminiDB Influx single-node instance (including read replicas) is deployed on a single server. Therefore, SLA cannot be guaranteed. You are advised to use it for testing and function verification. When the timeline scale exceeds twice the time series scale supported by a single node, data cannot be written to the single-node instance.

Table 1-5 Requests per second on nodes of different	specifications and memory usages
---	----------------------------------

Memory Usage (Unit: %)	2 vCPL GB	Js 8	4 vCPU GB	s 16	8 vCPl GB	Js 32	16 vCP 64 GB	Us	32 vCP 128 GE	Us B
-	Read	Write	Read	Write	Read	Write	Read	Writ e	Read	Write

Memory Usage (Unit: %)	2 vCPL GB	Js 8	4 vCPU GB	s 16	8 vCPl GB	Js 32	16 vCP 64 GB	Us	32 vCP 128 GE	Us B
80 ≤ Memory usage < 85	100	300	100	300	180	480	280	750	470	1200
85 ≤ Memory usage < 90	66	200	66	200	120	320	186	500	313	800
90 ≤ Memory usage < 95	50	150	50	150	90	240	140	375	235	600
95 ≤ Memory usage < 100	40	120	40	120	72	192	112	300	188	480

1.4 DB Instance Statuses

The status of a DB instance indicates the health of the instance. You can view the DB instance statuses on the management console.

Table 1	-6 DB	instance	statuses
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Status	Description
Available	DB instance is available.
Abnormal	DB instance is faulty.
Creating	DB instance is being created.
Creation failed	DB instance creation fails.
Restarting	DB instance is being restarted.
Resetting password	Administrator password is being reset.
Adding node	Nodes are being added to a DB instance.
Deleting node	Nodes are being deleted from a DB instance.
Scaling up	The storage space of the DB instance is being expanded.
Changing instance class	The CPU or memory of a DB instance is being changed.
Uploading backup	The backup file is being uploaded.
Backing up	Backup is being created.
Checking restoration	The backup of the current DB instance is being restored to a new DB instance.

Status	Description
Changing to yearly/monthly	The billing mode is being changed from pay-per-use to yearly/monthly.
Changing to pay-per-use	The billing mode is being changed from yearly/monthly to pay-per-use.
Creating cold storage	Cold storage is being created.
Scaling up cold storage	Cold storage is being scaled up.
Configuring SSL	SSL is being enabled or disabled.
Frozen	The instance is frozen because your balance drops to or below zero.
Unfreezing	DB instance is unfrozen after the overdue payments are cleared.
Checking changes	The yearly/monthly instance is pending check when its billing mode is changed.
Storage full	An instance will be set as read-only and its status will change to Storage full in the following circumstances:
	• Storage space \geq 600 GB; Available space < 18 GB
	• Storage space < 600 GB; Space usage \geq 97%
	The instance will become normal in the following circumstances:
	• Storage space \geq 600 GB; Available space \geq 90 GB
	 Storage space < 600 GB; Space usage ≤ 85%

1.5 Usage Specifications and Suggestions

This section describes the GeminiDB Influx instance specifications and provides suggestions for using GeminiDB Influx from the aspects of naming, TAG, FIELD, and query to solve common problems such as incorrect usage, low efficiency, and difficult maintenance.

Terms and Definition

- Rule: a convention that must be followed when you use GeminiDB Influx API.
- Suggestion: a convention that must be considered when you use GeminiDB Influx API.

Description

• Retention Policy (RP): includes information such as the data retention period and number of backups.

• Data objects: database, RP, MEASUREMENT, TAG, and FIELD

Naming

Rules

- a. The name of a database object must start with a lowercase letter and consist of letters or digits. The length of the name cannot exceed 32 bytes.
- b. The name of a database object contains a maximum of 120 characters in the format of *<Database name>.<RP name>.<MEASUREMENT name>*.
- c. The name of the database object cannot use the system reserved keyword.

The system reserved keywords include: ALL,ALTER,ANY,AS,ASC,BEGIN,BY,CREATE,CONTINUOUS,DATABASE,DATA BASES,DEFAULT,DELETE,DESC,DESTINATIONS,DIAGNOSTICS,DISTINCT,DR OP,DURATION,END,EVERY,EXPLAIN,FIELD,FOR,FROM,GRANT,GRANTS,GR OUP,GROUPS,IN,INF,INSERT,INTO,KEY,KEYS,KILL,LIMIT,SHOW,MEASUREM ENT,MEASUREMENTS,NAME,OFFSET,ON,ORDER,PASSWORD,POLICY,POLI CIES,PRIVILEGES,QUERIES,QUERY,READ,REPLICATION,RESAMPLE,RETENTI ON,REVOKE,SELECT,SERIES,SET,SHARD,SHARDS,SLIMIT,SOFFSET,STATS,SU BSCRIPTION,SUBSCRIPTIONS,TAG,TO,USER,USERS,VALUES,WHERE,WITH, WRITE,WARM

- d. The name of a database object cannot contain Chinese characters or the following special characters: ["].\$,/\0*?~#:|'
- e. The database name cannot be the same as the database name used by systems such as _internal, _kapacitor, _heimdall, _vision and opentsdb.
- f. TAG names cannot be updated or renamed.
- Suggestions
 - a. Shorter TAG names can save more resources because each tag name has an index which is stored in the memory.
 - b. The names of TAG KEY and FIELD KEY cannot be the same.

TAG

- Rules
 - a. Fields that use the InfluxQL function (such as MAX, MIN, and COUNT) are stored as FIELD.
 - b. TAG supports only the character string type. If the stored value is not of the character string type, the value is stored as FIELD.
- Suggestions
 - a. TAG can distinguish data better than the MEASUREMENT name does.
 - b. Design the TIME precision as required. Lower precision can bring better performance.
 - c. The field often used as a search criterion is stored as a TAG.
 - d. The field that uses GROUP BY is stored as a TAG.

FIELD

- **Rule**: The type of each field must be the same.
- **Suggestion**: Do not set too many fields. Each field is calculated separately. If there are too many fields, the fuzzy query will fail.

Query

- Rules
 - a. Do not run SELECT * FROM to query data.
 - b. The query statement must contain the time range restriction.
 - c. Before bringing a service online, perform a load test to measure the performance of the database in peak hours.

• Suggestions

- a. During the query, select only the fields that need to be returned.
- b. Shorter time range can bring better query performance.
- c. The more accurate the TAG value is, the better the query performance is. Use a single time series for query, that is, specify all TAG values or more TAG values.
- d. Add **fill(none)** after **group by time intervals** in queries. The function of **fill(none)** is that no timestamp or value is returned for an interval without data points. If there is sparse data, the number of returned query results can be greatly reduced.
- e. If nested queries are used, place the filter for querying time range in the outermost query.

DELETE

Suggestion: Do not execute the DELETE statement to delete data. Set a retention period so that data can be automatically deleted.

Others

 Rule: Select instance specifications based on the service time series scale, number of client connections, and number of retention policies. For details, see Instance Specifications.

If the database load exceeds the specification limit, unpredictable problems may occur. In severe cases, the database may be unavailable.

- Suggestion: Use a load balancer address to connect to the database. For details, see Method 1: Using a Load Balancer Address over SSL Connections (Recommended).
- Note: If cold storage is enabled, cold data cannot be written.

1.6 Constraints

The following tables list the constraints designed to ensure stability and security of GeminiDB Influx instances.

Specifications

Table	1-7	Specifications
Tuble	• •	Specifications

Resource Type	Specifications	Description
CPU and memory	GeminiDB Influx API supports cluster (performance-enhanced), cluster, and single-node instances.	 For details about specifications of different instance types, see Instance Specifications. You can change the specifications to meet your service requirements by following Changing vCPUs and Memory.
Storage	The storage space depends on the selected instance specifications.	Disk capacity of GeminiDB Influx instances can be scaled up. For details, see Manually Scaling Up Storage Space of a GeminiDB Influx Instance.

Quotas

Table 1-8 Quotas

Resource Type	Constraint	Description
Tag	A maximum of 20 tags can be added for each instance.	For more information, see Managing Tags.
Free backup space	GeminiDB Influx instances provide free backup storage.	For more information, see Backup Storage .
Retention period	The default value is 7 days. The value ranges from 1 to 3660 days.	For more information, see Configuring an Automated Backup Policy.

Naming Rules

Table 1-9 Naming rules

ltem	Description
Instance name	• Can contain 4 to 64 characters.
	 Must start with a letter. Only letters (case-sensitive), digits, hyphens (-), and underscores (_) are allowed.

ltem	Description
Backup name	 Can contain 4 to 64 characters. Must start with a letter. Only letters (case sensitive), digits, hyphens (-), and underscores (_) are allowed.
Parameter template name	 Can contain 1 to 64 characters. Only letters (case sensitive), digits, hyphens (-), underscores (_), and periods (.) are allowed.

Security

Table 1-10 Security

ltem	Description	
Password of database administrator rwuser	 Can contain 8 to 32 characters. Can contain at least two types of the following characters: uppercase letters, lowercase letters, digits, and special characters ~!@#%^*=+? For more information, see Changing the Administrator Password of a GeminiDB Influx Database. Keep your password secure. The system cannot 	
Database port	retrieve it if it is lost. Port for accessing a database. The default value is 8635 and cannot be changed.	
VPC	After a GeminiDB Influx instance is created, the VPC where the instance is deployed cannot be changed.	
Security group	A security group controls access between GeminiDB Influx API and other services. Ensure that the security group you selected allows your client to access the instance. If no security group is available, the system creates one	
Access control	A load balancer address does not support security groups. After an instance is created, configure IP address access control. If no whitelist is configured, all IP addresses that can communicate with the VPC can access the instance.	

Instance Operations

Table 1-11	Instance	operations
------------	----------	------------

Function	Constraint
Database access	 If remote access is not enabled, GeminiDB Influx instances and their associated ECSs must be in the same VPC subnet.
	 The security group must allow access from the associated ECS. By default, a GeminiDB Influx instance cannot be accessed through an ECS in a different security group. You need to add an inbound rule to the security group.
	• The default port of the GeminiDB Influx instance is 8635 and cannot be changed.
Instance deployment	The servers where instances are deployed are not directly visible to you. You can only access the instances through IP addresses and database ports.
Restarting a GeminiDB Influx instance	• GeminiDB Influx instances cannot be rebooted through commands. They must be rebooted on the console.
	 Restarting an instance will interrupt services, so off- peak hours are the best time. Ensure that your application can be reconnected.
Viewing GeminiDB Influx instance backups	GeminiDB Influx instance backups are stored in OBS buckets and are invisible to you.
Changing the CPU or memory of a GeminiDB Influx instance	• Second-level intermittent disconnection occurs once when the specifications are changed on a single node. Therefore, the entire instance is intermittently disconnected several times. Ensure that the client can be reconnected. You are advised to change the specifications during off-peak hours.
	 For a node whose specifications are being changed, its computing tasks are handed over to other nodes. Change specifications of nodes during off-peak hours to prevent instance overload.
Data restoration	To prevent data loss, you are advised to back up key data before data restoration.
Storage	If the storage space of an instance is full, data cannot be written to databases. You are advised to periodically check the storage space.

Function	Constraint
Recycle bin	• You can move unsubscribed yearly/monthly instances and deleted pay-per-use instances to the recycle bin. You can restore an instance that was deleted up to 7 days ago from the recycle bin.
	• The recycling policy is enabled by default and cannot be disabled. Instances in the recycle bin are retained for 7 days by default, and this will not incur any charges.
	• Currently, you can put a maximum of 100 instances into the recycle bin.
	 If you delete an instance running out of storage, it will not be moved to the recycle bin.

2 Billing

2.1 Billing Overview

In this document, you will learn about how instances are billed, how you can renew subscriptions and manage costs, and what happens if your account goes into arrears.

• Billing Modes

There are yearly/monthly and pay-per-use billing modes. Each one has different advantages and disadvantages.

- Yearly/Monthly: You pay upfront for the amount of time you expect to use the instance for. You will need to make sure you have a top-up account with a sufficient balance or have a valid payment method configured first.
- Pay-per-use: You can start using the GeminiDB instance first and then pay as you go.

For details about the two billing modes, see **Overview**.

You can also change the billing mode later if it no longer meets your needs. For details, see **Overview**.

• Billing Items

You will be billed for instance specifications, storage space, backup space, and EIP bandwidths. For details about the billing factors and formulas for each billed item, see **Billing Items**.

For more information about billing samples and the billing for each item, see **Billing Examples**.

• Renewing Subscriptions

If you want to continue using an instance after it expires, you need to renew the instance subscription within the specified period. Otherwise, resources, such as compute and storage, will be automatically released, and data may be lost.

You can renew your subscription manually or automatically. For details, see **Overview**.

• Viewing Bills

You can choose **Billing & Costs** > **Bills** to check the instance transactions and bills. For details, see **Bills**.

Arrears

If there is not a sufficient account balance to pay for your bill and there is no other payment method configured, your account will go into arrears. If you want to continue using your cloud services, you will need to top up your account in a timely manner. For details, see **Arrears**.

• Stopping Billing

If you no longer need to use your GeminiDB Influx instance, you can unsubscribe from or delete it to stop the billing. For details, see **Billing Termination**.

• Managing Costs

GeminiDB Influx costs include resource costs and O&M costs. You can allocate, analyze, and optimize GeminiDB costs to save more money. For details, see **Cost Management**.

2.2 Billing Modes

2.2.1 Overview

There are yearly/monthly and pay-per-use billing modes. Each one has different advantages and disadvantages.

- Yearly/Monthly is a prepaid billing mode. You pay in advance for a subscription term, and in exchange, you get a discounted rate. The longer the subscription term, the bigger the discount. Yearly/Monthly billing is a good option for long-term, stable services.
- Pay-per-use is a postpaid billing mode. You pay as you go and just pay for what you use. The instance usage is calculated by the second but billed every hour. Pay-per-use billing is a good option for scenarios where there are sudden traffic bursts, such as e-commerce promotions.

 Table 2-1 lists differences between the two billing modes.

Billing Mode	Yearly/Monthly	Pay-per-use
Payment	Prepaid Billed by the subscription term you purchase	Postpaid Billed for what you use
Billing Method	Billed by the subscription term you purchase	Calculated by the second but billed every hour
Billing Items	Instance specifications (vCPUs and memory), storage space, backup space, and EIPs	Instance specifications (vCPUs and memory), storage space, backup space, and EIPs

 Table 2-1 Differences between billing modes

Changing the Billing Mode	Yearly/Monthly can be changed to pay-per-use. The change takes effect only after the yearly/monthly subscription expires. For details, see Yearly/Monthly to Pay-per-Use.	Pay-per-use can be changed to yearly/monthly. For details, see Changing a Pay-per-Use Instance to Yearly/Monthly.
Changing the Specificati ons	Supported	Supported
Applicatio n Scenarios	Recommended for resources expected to be in use long term. A cost-effective option for scenarios where the resource usage duration is predictable.	Recommended when the resource demands are likely to fluctuate and you want more flexibility.

2.2.2 Yearly/Monthly Billing

If you expect to use resources for a longer period, you can save money by selecting yearly/monthly billing. This section describes billing rules for yearly/ monthly GeminiDB Influx resources.

Application Scenarios

If you want to ensure resource stability over a certain period of time, yearly/ monthly billing is a good choice for the following types of workloads:

- Long-term workloads with stable resource requirements, such as official websites, online malls, and blogs.
- Long-term projects, such as scientific research projects and large-scale events.
- Workloads with predictable traffic bursts, for example, e-commerce promotions or festivals.
- Workloads with high data security requirements.

Billed Items

You are billed for the following items on a yearly/monthly basis.

Billed Item	Description
Instance specificatio ns	Instance specifications, including vCPUs and memory.

 Table 2-2 Items billed on a yearly/monthly basis

Billed Item	Description
Storage space	If the actual storage usage exceeds your purchased storage, you will be billed for additional storage on a pay-per-use basis.
Backup space	GeminiDB Influx provides backup storage up to 100% of your provisioned database storage at no additional charge.
	After the free backup space is used up, charges are applied based on the backup space pricing details. Pricing is listed on a per-hour basis, but bills are calculated based on the actual usage duration.
(Optional) Public network bandwidth	GeminiDB Influx instances are accessible from public networks, and you are billed for the generated public network traffic, but not for private network traffic.

If you want to purchase a 3-node (specifications of each node: 4 vCPUs | 16 GB) GeminiDB Influx instance with 100 GB of storage space. At the bottom of the instance buying page, price details (excluding the backup space fee) will be displayed.

Figure 2-1 Example price

Required Duration	1	2	3
	Auto-rei	new Deduct	tion rule

Price \$827.62 USD ③

The price includes:

- Selected specifications for your instance
- Storage space

D NOTE

The backup space fee is not included. For details about the backup price, see **Product Pricing Details**.

Backup Storage Space		
DB Instance Type	Hourly	Currency
Cluster	0.00004	Price per GB

Billed Usage Period

A yearly/monthly GeminiDB Influx instance is billed for the purchased duration (UTC+8). The billing starts when you activated or renewed the subscription, and ends at 23:59:59 of the expiry date.

For example, if you purchased a one-month GeminiDB Influx instance on March 08, 2023, 15:50:04, the billed usage period is from March 08, 2023, 15:50:04 to April 08, 2023, 23:59:59.

Billing Examples

Suppose you purchased a one-month GeminiDB Influx instance on March 08, 2023, 15:50:04, and renewed the subscription for one more month before the initial subscription expired. That would include two usage periods:

- March 08, 2023, 15:50:04 to April 08, 2023, 23:59:59
- April 08, 2023, 23:59:59 to May 08, 2023, 23:59:59
 - From April 08, 2023, 23:59:59 to May 01, 2023, 23:59:59, 50 GB of free backup space was used.
 - From May 01, 2023, 23:59:59 to May 08, 2023, 23:59:59, another 10 GB of backup space was used, which was billed for 168 hours.

You will be billed for both usage periods. GeminiDB Influx resources are billed individually.

Resource	Formula	Unit Price
Instance specifications (including vCPUs and memory)	Unit price of the instance specifications x Required duration x Number of nodes	For details about the unit price, see Cluster CPU/Memory on Product Pricing Details
Storage space	Storage space unit price x Required duration x Storage space (GB)	For details about the unit price, see Storage Space on Product Pricing Details .

 Table 2-3 Formulas for billing yearly/monthly GeminiDB Influx resources

Resource	Formula	Unit Price
Backup space	Backup space unit price x Required duration x (Backup space – Storage space) (GB)	For details about the unit price, see Backup Storage Space on Product Pricing Details .
	NOTE The billed duration refers to the length of time the billed backup space was used for.	
Public network bandwidth	Billed by fixed bandwidth	For details, see Product Pricing Details .

Figure 2-2 shows how the total price is calculated.

NOTICE

Prices in the figure are just examples. Actual prices are subject to **Product Pricing Details**.

Figure 2-2 Total price for a yearly/monthly GeminiDB Influx instance



Price Change After Specification Change

If the specifications of a yearly/monthly GeminiDB Influx instance no longer meet your needs, you can change the specifications on the console. The system will recalculate the price and either bill or refund you the difference.

- If you upgrade your GeminiDB Influx instance specifications, you need to pay the difference in price.
- If you downgrade your GeminiDB Influx instance specifications, Huawei Cloud will refund you the difference.

You are not advised to downgrade your GeminiDB Influx instance to a lower specification because the instance performance may be affected. Suppose you

purchased a yearly/monthly GeminiDB Influx instance (4 vCPUs | 16 GB and 3 nodes) on April 08, 2023 and upgraded the instance specifications to 8 vCPUs | 32 GB and 3 nodes on April 18, 2023. The price for the original specifications was \$827.62 USD/month, and that for the new specifications was \$1616.74 USD/ month. The price difference will be calculated as follows:

Price difference for the specification upgrade = Price for the new specifications × Remaining period - Price for the original specifications × Remaining period

The remaining period is the remaining days of each calendar month divided by the maximum number of days in each calendar month. In this example, Remaining period = 12 (Remaining days in April)/30 (Maximum number of days in April) + 8 (Remaining days in May)/31 (Maximum number of days in May) = 0.6581. Cost of upgrade = 1616.74 USD × 0.6581 - 227.62 USD × 0.6581 = 519.32 USD

For more details, see Pricing of a Changed Specification.

Impact of Expiration

Figure 2-3 shows the statuses a yearly/monthly GeminiDB Influx instance can go through throughout its lifecycle. After a GeminiDB Influx instance is purchased, it enters the valid period and runs normally during this period. If the instance is not renewed after it expires, before being deleted, it first enters a grace period and then a retention period.

Figure 2-3 Lifecycle of a yearly/monthly GeminiDB Influx instance



Expiration Reminder

The system will send you a reminder (by email, SMS, or in-app message) 7 days before a yearly/monthly GeminiDB Influx instance expires to remind you to renew the subscription.

Impact of Expiration

If your yearly/monthly GeminiDB Influx instance is not renewed after it expires, it changes to the **Expired** state and enters a grace period. During the grace period, you can access the GeminiDB Influx instance but cannot:

- Change instance specifications.
- Change the billing mode from yearly/monthly to pay-per-use.
- Unsubscribe from it.

If the yearly/monthly GeminiDB Influx instance is not renewed after the grace period ends, its status turns to **Frozen** and it enters a retention period. You cannot perform any operations on the instance while it is in the retention period.

If the yearly/monthly GeminiDB Influx instance is not renewed by the time the retention period ends, it will be released and data cannot be restored.

• For details about renewals, see **Overview**.

2.2.3 Pay-per-Use Billing

Pay-per-use billing means you pay nothing up front and are not tied into any contract or commitment. This section describes billing rules of pay-per-use GeminiDB Influx instances.

Application Scenarios

Pay-per-use billing is good for short-term, bursty, or unpredictable workloads that cannot tolerate any interruptions, such as applications for e-commerce flash sales, temporary testing, and scientific computing.

Billing Items

You are billed for the following items on a pay-per-use basis.

Billing Item	Description
Instance specificatio ns	vCPUs and memory
Storage	Instance storage space, which is billed hourly on a pay-per-use basis.
Backup storage	GeminiDB Influx API provides free backup storage equal to the amount of storage you purchased. After the free backup storage is used up, additional usage will incur bills based on the backup storage pricing details. These fees are settled by the hour. If it has been used less than one hour, you will be billed based on the actual duration.
(Optional) Public network bandwidth	GeminiDB Influx instances are accessible from public networks, and you are billed for the generated public network traffic, but not for private network traffic.

 Table 2-4 Items billed on a pay-per-use basis

If you want to purchase a pay-per-use 3-node (specifications of each node: 4 vCPUs | 16 GB) GeminiDB Influx instance with 100 GB of storage space. At the bottom of the instance buying page, price details (excluding the backup space fee) will be displayed.

Figure 2-4 Example price

```
Price $1.71 USD/hour ⑦
```

The price includes:

- Instance specifications (including vCPUs and memory)
- Selected storage space

D NOTE

The backup space fee is not included. For details about the backup price, see **Product Pricing Details**.

Backup Storage Space		
DB Instance Type	Hourly	Currency
Cluster	0.00004	Price per GB

Billing Cycle

A pay-per-use GeminiDB Influx instance is billed by the second and settled on the hour (GMT+8). After the bill is generated, a new billing cycle starts. The billing starts when the GeminiDB Influx instance is created and ends when the instance is deleted.

NOTE

It takes a certain time to create an instance. The billing starts from the time when the instance is successfully created. You can view the two time points on the **Basic Information** page. You can view the time when the instance is created beside the **Created** field.

For example, if you buy a pay-per-use GeminiDB Influx instance at 8:45:30 and deleted it at 8:55:30, you are billed for the 600 seconds from 8:45:30 to 8:55:30. The billing items include compute resources (vCPUs and nodes), storage, and backup storage.

Billing Examples

Assume that you bought a pay-per-use 3-node instance with 4 vCPUs, 16 GB of memory, 100 GB of storage, and 110 GB of backup storage (100 GB for free) at 09:59:30 on April 18 and deleted the instance at 10:45:46 on April 18, 2023. The billing items include compute resources (vCPUs and nodes) and storage.

- Usage of 30 seconds from 9:59:30 to 10:00:00
- Usage of 2,746 seconds from 10:00:00 to 10:45:46
 - The free backup storage is used from 10:00:00 to 10:45:00.
 - 10 GB of backup storage is billed for 46 seconds from 10:45:00 to 10:45:46.

The price displayed in the pricing details is per hour, so you need to divide it by 3,600 to obtain the price for each second and then multiply the per-second price by the total number of seconds. GeminiDB Influx instances are billed individually as follows.

Resource	Formula	Unit Price	
Compute resources (including vCPUs and nodes)	Unit price of instance specifications x Required duration	See the estimated price of a cluster instance in GeminiDB Price Calculator .	
Storage	Storage unit price x Required duration	See the estimated price of a cluster instance with specified storage in GeminiDB Price Calculator .	
Backup storage	Backup storage unit price x Required duration x (Backup storage – Storage) (GB) NOTE The billed duration refers to the length of time the billed backup storage was used for.	See the estimated price of a cluster instance with specified backup storage in GeminiDB Price Calculator.	
Public network traffic	 Tiered billing by fixed bandwidth 0 Mbit/s to 5 Mbit/s (included): billed at a fixed unit price per Mbit/s Greater than 5 Mbit/s: billed at a different price per Mbit/s 	For details, see the estimated bandwidth price in ECS Price Calculator or EIP Price Calculator.	

Figure 2-5 shows how the total price is calculated.

NOTICE

The prices in the following figure are for reference only. For the actual prices, see **GeminiDB Price Calculator**.

For pay-per-use billing, decimal numerals on the price calculator are rounded off and are accurate to two decimal places. If the rounded price falls below USD0.01, it will be shown as USD0.01.



Figure 2-5 Total price for a pay-per-use GeminiDB Influx instance

Impact on Billing After Specification Changes

If you change the specifications of a pay-per-use instance, the original order will become invalid and a new order will be placed. You will be billed based on the new specifications.

If you change instance specifications within a given hour, multiple records will be generated. Different records record the billing for different specifications.

For example, if you buy a pay-per-use instance with 4 vCPUs and 16 GB of memory at 9:00:00 and upgraded it to 8 vCPUs and 32 GB memory at 9:30:00, two billing records are generated between 9:00:00 and 10:00:00:

- 4 vCPUs and 16 GB of memory from 9:00:00 to 9:30:00
- 8 vCPUs and 32 GB of memory from 9:30:00 to 10:00:00

Impact of Arrears

Figure 2-6 shows the statuses of a pay-per-use GeminiDB Influx instance throughout its lifecycle. After a GeminiDB Influx instance is purchased, it enters the valid period and runs normally during this period. If your account goes into arrears, the instance enters a grace period and then a retention period.





Arrears reminder

The system will bill you for pay-per-use resources after each billing cycle ends. If your account goes into arrears, the system will send an email, SMS message, or in-app message to the one who created the Huawei Cloud account.

Impact

If your account is in arrears due to automated deduction for pay-per-use GeminiDB Influx instances, the instances are not immediately stopped but given a grace period. After you top up your account, Huawei Cloud will bill you for expenditures generated during the grace period. You can view the charges on the **Billing Center** > **Overview** page.

If you do not pay the arrears within the grace period, your instance enters the retention period and its status changes to **Frozen**. You cannot perform any operations on the instance in the retention period.

If you do not pay the arrears within the retention period, your instance will be released, and data will be lost.

NOTE

- During the retention period, you cannot access or use your instance but the data stored in it can be retained. The retention period for the Huawei Cloud International website is 15 days.
- During the grace period, you can access and use only some resources of your instance. The grace period for Huawei Cloud International website is 15 days.
- For details about top-up, see **Topping Up an Account**.

2.3 Billing Items

Billing

You will be billed for instance specifications, storage space, backup space, and public network traffic. For details, see **Table 2-6**.

D NOTE

The billed items marked with asterisks (*) are mandatory.

Billing Item	Description	Billing Mode	Formula
* Specific ations	Billed by instance specifications, including vCPUs and memory. Computing and storage capabilities vary by the number of vCPUs and memory size.	Yearly/ Monthly and pay- per-use	Unit price x Required duration For details about the unit price, see Cluster CPU/Memory on Product Pricing Details.

Table 2-6 Billing Items of a GeminiDB Influx Instance

Billing Item	Description	Billing Mode	Formula
* Storage space	Billed based on unified standards.	Yearly/ Monthly and pay- per-use	Unit price x Storage space x Required duration For details about the unit price, see Storage Space on Product Pricing Details.
Backup space	Billed based on unified standards.	Pay-per- use	Unit price x Billed backup space x Required duration For details about the unit price, see Backup Storage Space on Product Pricing Details. NOTE The billed duration refers to the length of time the billed backup space was used for.
Public network traffic	 An EIP is required if a GeminiDB Influx instance needs to access the Internet. Billed by bandwidth, traffic, and the EIP reservation price. EIP for a yearly/monthly GeminiDB Influx instance: billed by bandwidth. EIP for a pay-per-use GeminiDB Influx instance: billed by bandwidth, traffic, or shared bandwidth, traffic, or shared bandwidth. You are also charged for IP reservation if you do not bind the EIP to any instance. 	Yearly/ Monthly and pay- per-use You can purchase a bandwidt h add-on package or a shared traffic package.	 Tiered pricing based on fixed bandwidth. O Mbit/s to 5 Mbit/s (included): billed at a fixed unit price per Mbit/s. Greater than 5 Mbit/s: billed at a different price per Mbit/s. For details about the unit price, see Bandwidth Price on Product Pricing Details or Product Pricing Details.

Billing Examples

Suppose you purchased a one-month GeminiDB Influx instance on March 08, 2023, 15:50:04, and renewed the subscription for one more month before the initial subscription expired. That would include two usage periods:

• March 08, 2023, 15:50:04 to April 08, 2023, 23:59:59

- April 08, 2023, 23:59:59 to May 08, 2023, 23:59:59
 - From April 08, 2023, 23:59:59 to May 01, 2023, 23:59:59, 50 GB of free backup space was used.
 - From May 01, 2023, 23:59:59 to May 08, 2023, 23:59:59, another 10 GB of backup space was used, which was billed for 168 hours.

Figure 2-7 shows how the total price is calculated.

NOTICE

Prices in the figure are only for reference. For details, see Product Pricing Details.





For more billing examples of a pay-per-use GeminiDB Influx instance, see **Billing Examples**.

2.4 Billing Examples

Billing Scenario

A user purchased a pay-per-use GeminiDB Influx instance at 15:30:00 on March 18, 2023. The instance configuration is as follows:

- Specifications: 4 vCPUs | 16 GB
- Nodes: 3
- Public network bandwidth: 6 Mbit/s

After a period of time, the user found that the current GeminiDB Influx instance specifications no longer met service requirements and updated the specifications to 8 vCPUs | 32 GB at 09:00:00 on March 20, 2023. Since the user wanted to use the instance long term, the user then changed the instance to yearly/monthly billing with a one-month duration at 10:30:00 on the same day. So how much will the user be billed for this GeminiDB Influx instance in March and April?
Billing Analysis

The total price of this GeminiDB Influx instance involves both pay-per-use and yearly/monthly usage:

- Pay-per-use usage: March 18, 2023, 15:30:00 to March 20, 2023, 10:30:00
 - March 18, 2023, 15:30:00 to March 20, 2023, 9:00:00
 - Instance specifications: 4 vCPUs | 16 GB
 - Nodes: 3
 - Used storage space: 100 GB
 - Used backup space: 100 GB
 - Public network bandwidth: 6 Mbit/s
 - March 20, 2023, 9:00:00 to March 20, 2023, 10:30:00
 - Instance specifications: 8 vCPUs | 32 GB
 - Nodes: 3
 - Used storage space: 200 GB
 - Used backup space: 210 GB (billed on a pay-per-use basis from March 20, 2023, 10:00:00 to March 20, 2023, 10:30:00)
 - Public network bandwidth: 6 Mbit/s
- Yearly/Monthly: March 20, 2023, 10:30:00 to April 20, 2023, 23:59:59
 - Instance specifications: 8 vCPUs | 32 GB
 - Nodes: 3
 - Used storage space: 200 GB
 - Used backup space: 300 GB (billed on a pay-per-use basis from April 10, 2023, 23:59:59 to April 20, 2023, 23:59:59)
 - Public network bandwidth: 6 Mbit/s
 - Billed duration: one month

NOTICE

Unit prices in this example are used for reference only. The prices shown here are only estimates. As unit prices change from time to time, the prices shown here will differ from actual prices. For details, see the data released on the Huawei Cloud official website.

Pay-per-use

From March 18, 2023, 15:30:00 to March 20, 2023, 09:00:00, a GeminiDB Influx instance with specifications 4 vCPUs | 16 GB was used for 41.5 hours, so the price would be calculated as follows.



From March 20, 2023, 09:00:00 to March 20, 2023, 10:30:00, a GeminiDB Influx instance with specifications 8 vCPUs | 32 GB was used for 1.5 hours, so the price would be calculated as follows.



Yearly/Monthly

From March 20, 2023, 10:30:00 to April 20, 2023, 23:59:59, a GeminiDB Influx instance purchased using yearly/monthly billing was used for one month, so the price would be calculated as follows.



From March to April, the total price of this GeminiDB Influx instance is 1776.61 USD (74.63 + 5.28 + 1696.7).

2.5 Billing Mode Changes

2.5.1 Overview

After purchasing a GeminiDB Influx instance, you can change the billing mode if it no longer meets your needs. **Table 2-7** lists changeable billing items of the GeminiDB Influx instance.

Billing Item	Change Description	Reference
Instance specification s (vCPUs and nodes)	 Changing the billing mode of a GeminiDB Influx instance includes the changes to compute resources (vCPUs and nodes). Change from pay-per-use to yearly/monthly to enjoy lower prices. Change from yearly/monthly to pay-per-use to use the GeminiDB Influx instance more flexibly NOTE Such a change takes effect only after the yearly/monthly subscription ends. 	 Changing a Pay-per- Use Instance to Yearly/Monthly Yearly/Monthly to Pay-per-Use
EIP	 A yearly/monthly EIP can be changed to a pay-per-use EIP billed by bandwidth after the yearly/monthly subscription ends. A pay-per-use EIP billed by bandwidth can be changed to a yearly/monthly EIP. Pay-per-use EIPs billed by bandwidth can be changed to pay-per-use EIPs billed by traffic, and pay-per-use EIPs billed by traffic can be changed to pay-per-use EIPs billed by traffic can be changed to pay-per-use EIPs billed by traffic for by bandwidth. For details, see Figure 2-8. 	 Changing a Pay-per- Use Instance to Yearly/Monthly Yearly/Monthly to Pay-per-Use

Table 2-7 Changeable billing items of the GeminiDB Influx instance

Figure 2-8 EIP billing mode change



1: The change takes effect immediately.

2: The change takes effect only after the yearly/monthly subscription period expires.

×: The billing mode cannot be changed.

2.5.2 Changing a Pay-per-Use Instance to Yearly/Monthly

If you have a pay-per-use GeminiDB Influx instance that you expect to use for a long time, you can change it to yearly/monthly billing to reduce costs. Doing so will create an order. After you pay for the order, yearly/monthly billing will be applied immediately.

Suppose you bought a pay-per-use GeminiDB Influx instance at 15:29:16 on April 18, 2023 and changed it to yearly/monthly billing at 16:30:30 on the same day. After you paid for the order, yearly/monthly billing was applied immediately. On the **Billing Center** > **Billing** page, three line items were generated.

- Pay-per-use expenditures for 15:29:16 to 16:00:00 on April 18, 2023
- Pay-per-use expenditures for 16:00:00 to 16:30:30 on April 18, 2023
- A yearly/monthly expenditure generated at 16:30:30 on April 18, 2023

Constraints

Resources such as EIPs that are used by an instance may not support the change with this instance. For details about their billing mode change rules and handling methods, see **Table 2-8**.

Resourc e	Billing Mode	Billed By	Band width Type	Changed to Yearly/ Monthly Billing with the GeminiDB Influx Instance	Handling Measure
EIP	Pay- per-use	Bandwid th	Dedica ted	Supported	Change the EIP to yearly/ monthly billing on the EIP console. For details, see Changing EIP Billing Mode .
EIP	Pay- per-use	Traffic	Dedica ted	Not supported	An EIP that is billed by traffic on a pay-per-use basis cannot be directly changed to be billed on a yearly/monthly basis. To change this:
					 Change the EIP to be billed by bandwidth on a pay-per-use basis.
					 Change the EIP to be billed on a yearly/ monthly basis.
					For details, see Changing EIP Billing Mode.

Table 2-8 EIP billing mode change rules

Prerequisites

- The billing mode of the instance is pay-per-use.
- The instance status is **Available**.

Procedure

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, locate the target instance and click **Change to Yearly**/ **Monthly** in the **Operation** column.

Figure 2-9 Changing a pay-per-use instance to yearly/monthly

Name/ID ⊖	DB Insta	Compati	St	Status ⊖	Specificatio	Storage	Space	Load bal	Enterpri	Billing M	Operation
	Cluster	InfluxDB		Available	2 vCPUs 3 nodes	0%	0/100GB		default	Pay-per-Use Created	Log In Change to Yearly/Monthly More ~

The billing mode of multiple instances can be changed in batches. Perform the following steps:

- 1. Select the instances whose billing mode you want to change.
- 2. Click Change to Yearly/Monthly above the instance list.
- **Step 4** On the displayed page, specify a subscription duration in month. The minimum duration is one month.

If you do not need to modify your settings, click Pay to go to the payment page.

- Step 5 Select a payment method and click Confirm.
- Step 6 View results on the Instances page.

In the upper right corner of the instance list, click \bigcirc to refresh the list. The instance status will become **Available** after the change is successful. The billing mode changes to **Yearly/Monthly**.

----End

2.5.3 Yearly/Monthly to Pay-per-Use

After creating a yearly/monthly GeminiDB Influx instance, you can change it to pay-per-use for more flexibility, and you can recoup part of what you paid for the subscription.

Suppose you bought a yearly/monthly GeminiDB Influx instance at 15:29:16 on April 18, 2023 and changed it to pay-per-use billing at 16:30:00 on May 18, 2023. On the **Billing Center > Billing** page, bills information is generated as follows:

- Yearly/Monthly expenditures for 15:29:16 on April 18 to 23:59:59 on May 18, 2023
- Pay-per-use expenditures for 23:59:59 on May 18, 2023 to the end time of pay-per-use billing. A bill was generated every hour.

NOTE

The pay-per-use billing mode will take effect only after the yearly/monthly subscription has expired. Auto-renewal will not be in effect.

Constraints

Resources such as EIPs that are used by an instance may not support the change with this instance. For details about their billing mode change rules and handling methods, see **Table 2-9**.

Resour ce	Billing Mode	Billed By	Bandwi dth Type	Change to Pay-per-Use Billing with GeminiDB Influx Instance	Handling Measure
EIP	Yearly/ Monthl y	Bandwi dth	Dedicat ed	Not supported	Change the EIP to yearly/monthly billing on the EIP console. For details, see Changing EIP Billing Mode.
EIP	Yearly/ Monthl y	Traffic	Dedicat ed	Not supported	 An EIP billed on a yearly/monthly basis cannot be directly changed to be billed by traffic on a pay-per-use basis. To change this: 1. Change the EIP to be billed by bandwidth on a pay-per-use basis. 2. Change the EIP to be billed by traffic on a pay-per-use basis. For details, see Changing EIP Billing Mode.

Table 2-9 EIP billing mode change rules

Procedure

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- Step 3 On the Instances page, locate the instance whose billing mode you want to change and click More > Change to Pay-per-Use in the Operation column.

Figure 2-10 Change to Pay-per-Use

Name/ID \ominus	DB Insta	Compati	Sto	Status 🕀	Specifications	Storage 5	Space	Load bal	Enterpris	Billing M	Operation
	Cluster	InfluxDB 1.8		Available	2 vCPUs 3 nodes	0%	0/100GB	-	default	Yearly/Month 31 days u	Log In Renew More ~
											Enable Auto-Renewal
											Change to Pay-per-Use
											Change Specifications
											Create Backup
											Scale Storage Space
											Add Node
											Restart
											Reset Password
											Unsubscribe

The billing mode of multiple pay-per-use instances can be changed in batches. Perform the following steps:

- 1. Select the instances whose billing mode you want to change.
- 2. Click More > Change to Pay-per-Use in the Operation column
- **Step 4** On the displayed page, confirm the instance information and click **Change to Payper-Use**. The billing mode will change to pay-per-use after the instance expires. Auto renewal will be disabled after the billing mode of your instances changes to pay-per-use. Exercise caution when performing this operation.
- Step 5 After you submit the change, check whether a message is displayed in the Billing Mode column, indicating that the billing mode will be changed to pay-per-use after the subscription expires.
- Step 6 To cancel the change, choose Billing > Renewal to enter Billing Center. On the Renewals page, locate the instance and click More > Cancel Change to Pay-per-Use.
- Step 7 In the displayed dialog box, click Yes.

----End

2.6 Renewing Subscriptions

2.6.1 Overview

When to Renew Subscriptions

If a yearly/monthly instance is about to expire but you want to continue using it, you need to renew the instance subscription within a specified period, or resources, such as vCPUs and memory, will be automatically released, and data will be lost and cannot be restored.

Only yearly/monthly instance subscriptions can be renewed. If you use pay-per-use instances, just ensure that your account has a valid payment method configured or a top-up account with a sufficient balance.

If you renew the instance before it expires, resources will be retained and you can continue using the instance. For details about statuses after instances have expired and the associated impacts, see **Impact of Expiration**.

How to Renew Subscriptions

You can renew a yearly/monthly instance manually or automatically.

Table 2-10 Renew	ing a yearly/monthly instance

Method	Description
Manually Renewing an Instance	You can renew a yearly/monthly instance anytime on the console before it is automatically deleted.
Auto-renewing an Instance	You can enable auto-renewal to automatically renew the instance before it expires. This prevents resources from being deleted in case you forget to renew a subscription.

You can select a method to renew a yearly/monthly instance based on the phase the instance is currently in.

Figure 2-11 Selecting a renewal method based on the instance's current phase



- An instance is in the **Provisioned** state after it is provisioned.
- When an instance subscription expires, the status will change from **Provisioned** to **Expired**.
- If an expired instance is not renewed, it enters a grace period. If it is not renewed by the time the grace period expires, the instance will be frozen and enter a retention period.
- If you do not renew the subscription before the retention period expires, your resources will be automatically deleted.

NOTE

- During the retention period, you cannot access or use your instance but the data stored in it can be retained. The retention period for Huawei Cloud International website is 15 days.
- During the grace period, you can access and use only some resources of your instance. The grace period for Huawei Cloud International website is 15 days.

You can enable auto-renewal any time before an instance expires. By default, the system will make the first attempt to charge your account for the renewal at 03:00, seven days before the expiry date. If this attempt fails, it will make another attempt at 03:00 every day until the subscription is renewed or expired. You can change the auto-payment date for renewal as required.

2.6.2 Manually Renewing an Instance

You can renew a yearly/monthly instance anytime on the console before it is automatically deleted.

Renewing an Instance on the Console

- **Step 1** Log in to the management console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, locate the instance that you want to renew and click **Renew** in the **Operation** column.

Figure 2-12 Renewal button



Alternatively, click the instance name to go to the **Basic Information** page. In the **Billing Information** area, click **Renew** next to the **Billing Mode** field.

Figure 2-13 Renewal button

Billing Information

Billing Mode	Yearly/Monthly Renew Enable Auto-Renewal
Order	CS2407041143WTUXP
Created	Jul 04, 2024 11:56:52 GMT+08:00
Expiration Date	Aug 04, 2024 23:59:59 GMT+08:00
Upon Expiration	Entering grace period ⑦

NOTE

To renew multiple yearly/monthly instances at a time, perform the following steps:

- 1. Select the yearly/monthly instances to be renewed.
- 2. Click **Renew** above the instance list.

Step 4 On the displayed page, renew the instances.

----End

Renewing a Subscription in Billing Center

- **Step 1** Log in to the management console.
- **Step 2** Hover over **Billing & Costs** in the upper part of the console and choose **Renewal** from the drop-down list.

The **Renewals** page is displayed.

Step 3 Select the search criteria.

On the **Manual Renewals**, **Auto Renewals**, **Pay-per-Use After Expiration**, and **Renewals Canceled** pages, you can view the instances to be renewed.

Figure 2-14 Renewal management

	Billing &	Costs [®] Resources Enterprise Develop								
Renewals	Unpaid Orders Renewal	 Feedback Ø Quick Links 	Renew Domain Set Renewal Date	Modify Message Recipient	Set Deduction Date for Auto-Re					
1. If you want to control we using any networks about to active, tarket to Hown Do Riterova Reviewaits or changes to pay-periods will be applied after the current subscription tens 3. If you want to beam with happen after a readour sequere, refer 1 with a Calcure Tr 4. If you want to renew your subscriptions more easily, refer to Automatically Rememps a	My Packages Bills Invoices	ling Mode from Yearly/Monthly to Pay-p	ver-Use?							
Instances expiring soon: 0 ; Instances to be frozen: 0 ; Instances to be released: 7 . Please	Cost Center									
Expres Expre In 30 days Expre In 15 days Expre In 7 days Expred Fro Service Type All • Region All	Expire in 30 days Expire in 15 days Expire in 7 days Expired Prozen Custom NameliD/Order Number T Enter a resource name, resource (D, or orde Q) Service Type AI • Region AI • Do not show resources that have ordes pending payment									
Manual Renewals (9) Auto Renewals (0) Pay-per-Use After Expiration	n (0) Renewals Canc	eled (0)								
Batch Renew Enable Auto-Renew Change to Pay-per-Use After Expiration	n Cancel Renewal	Batch Export			Export Renewal Prices					
Instance Name/ID Product Type/Specifications	Region	Provisioned/Expires	Status	Validity Period	Operation					
× •		Apr 26, 2023 10:38:08 GMT+08:00 May 26, 2023 23:59:59 GMT+08:00	() Frozen	3 days until deletion Delete after retention period	Cancel Renewal More 👻					
~ D		Apr 26, 2023 09:55:03 GMT+08:00 May 26, 2023 23:59:59 GMT+08:00	(*) Frozen	3 days until deletion Delete after retention period	Renew More 💌					

You can move all resources that need to be manually renewed to the **Manual Renewals** tab page. For details, see **Restoring to Manual Renewal**.

- Step 4 Manually renew resources.
 - Individual renewal: Locate an instance that you want to renew and click **Renew** in the **Operation** column.

Figure 2-15 Individual renewal

Manual Renewats (9) Auto Renewats (0) Pay-per-Use After Expiration (0) Renewals Canceled (0)										
Batch Renew Enable Auto-Renew	Change to Pay-per-Use After Expiration	Cancel Renewal	Batch Export			Export Renewal Prices				
Instance Name/ID	Product Type/Specifications	Region	Provisioned/Expires	Status	Validity Period	Operation				
~ 🗆			Apr 26, 2023 10:38:08 GMT+08:00 May 26, 2023 23:59:59 GMT+08:00	Frozen	3 days until deletion Delete after retention period	Cancel Renewal More +				
× 🗆			Apr 26, 2023 09:55:03 GMT+08:00 May 26, 2023 23:59:59 GMT+08:00	Frozen	3 days until deletion Delete after retention period	Renew More +				

• Batch renewal: Select multiple instances that you want to renew and click **Batch Renew** in the upper left corner.

Figure 2-16 Batch renewal

Manual Renewals (9) Auto Renewals (0) Pay-per-Use After Expiration (0)) Renewals Canceled (0)			
Batch Renew	Enable Auto-Renew	Change to Pay-per-Use After Expiration	Cancel Renewal B	atch Export			Export Renewal Prices
Instanc	e Name/ID	Product Type/Specifications	Region	Provisioned/Expires	Status	Validity Period	Operation
× 🗆				Apr 26, 2023 10:38:08 GMT+08:00 May 26, 2023 23:59:59 GMT+08:00	Frozen	3 days until deletion Delete after retention period	Cancel Renewal More -
~				Apr 26, 2023 09:55:03 GMT+08:00 May 26, 2023 23:59:59 GMT+08:00	(8) Frozen	3 days until deletion Delete after retention period	Renew More -
~				May 16, 2023 15:29:36 GMT+08:00 Jun 16, 2023 23:59:59 GMT+08:00	(8) Frozen	4 days until deletion Delete after retention period	Renew More +

- Step 5 Select a renewal duration and optionally select Renew on the standard renewal date. For details, see Setting the Same Renewal Day for Yearly/Monthly Resources. Confirm the price and click Pay.
 - Image: Control
 Image
 - Figure 2-17 Confirming renewal

Step 6 Select a payment method and make your payment. Once the order is paid for, the renewal is complete.

----End

Setting the Same Renewal Day for Yearly/Monthly Resources

If the instances have different expiry dates, you can set the same renewal day, for example, the first day of each month, to make it easier to manage renewals.

In **Figure 2-18**, a user sets the same renewal day for two resources that will expire at different dates.

Figure 2-18 Setting the same renewal day for resources with different expiry dates

Procedure	1. Configu	re a renewal date.	2. Select res	ources for operations.	3. Renew to the renewa	al date.
Rules	For example, Resource A Expiration: April 17	the renewal date is Renewal for 1	the 1 day of ea	ach month. Additional renewal for 14 days	Expiration: June 01	
	Resource B Expiration: May 08	Renewal for 1	month	Additional renewal fo days	Expiration: July	y 01

For more details, see Setting a Renewal Date.

2.6.3 Auto-renewing an Instance

Auto-renewal can prevent instances from being automatically deleted if you forget to manually renew them. The auto-renewal rules are as follows:

- The first auto-renewal date is based on when an instance expires and the billing cycle.
- The auto-renewal period of an instance depends on the subscription term.
 - Monthly subscriptions renew each month.
 - Yearly subscriptions renew each year.
- You can enable auto-renewal any time before an instance expires. By default, the system will make the first attempt to charge your account for the renewal at 03:00 seven days before the expiry date. If this attempt fails, it will make another attempt at 03:00 every day until the subscription is renewed or expired.
- After auto-renewal is enabled, you can still renew the instance manually if you want to. After a manual renewal is complete, auto-renewal is still valid, and the renewal fee will be deducted from your account seven days before the new expiry date.
- By default, the renewal fee is deducted from your account seven days before the new expiry date. You can change this auto-renewal payment date as required.

For more information about auto-renewal rules, see Auto-Renewal Rules.

Prerequisites

Your yearly/monthly instance is not expired.

Enabling Auto-Renewal During Purchase

You can enable auto-renewal on the instance purchase page, as shown in **Figure 2-19**. For details, see **Buying an Instance**.

Figure 2-19 Enabling auto-renewal



Enabling Auto-Renewal on the Renewals Page

- **Step 1** Log in to the management console.
- **Step 2** Hover over **Billing & Costs** in the upper part of the console and choose **Renewal** from the drop-down list.
- **Step 3** Select the search criteria.
 - On the **Auto Renewals** page, you can view the resources that auto-renewal has been enabled for.

• You can enable auto-renewal for resources on the Manual Renewals, Payper-Use After Expiration, and Renewals Canceled pages.

Figure	2-20	Renewal	management
--------	------	---------	------------

Renewals	Feedback IP Quick Links Renew Domain	Set Renewal Date	Modify Message Recipient	Set Deduction Date for Auto-Renewal				
1 If you want to continue using any resources about to expire, refer to How Do I Renew Resources? and How Do I Change the Billing Mode from Yearly/Monthly to Pay per Use? 2. Renews or change to pay-per use will be applied after the current subscription term ends. 3. If you want to renew your subscriptions more easily, refer to Automatically Renewing & Resource and Setting & Renewal Date 4. If you want to renew your subscriptions more easily, refer to Automatically Renewing & Resource and Setting & Renewal Date								
Instances expiring soon: 0 ; Instances to be frozen: 0 ; Instances to be released: 7 . Please renew in time. View instances.								
Expires Expire in 30 days Expire in 15 days Expire in 7 days Expired Prozen Custom Name/D/Order Number 🖤 Enter a resource name, resource 10, or orde Q Service Type 1 • Region Al • • De not show resources that have orders pending payment.								
Manual Renewals (1) Auto Renewals (0) Pay-per-Use After Expiration (0) Renewals Canceled (0)								
Balch Renew Enuble Ado-Renew Change to Pay-per-Use After Expiration Cancel Renewal Batch Export								
Instance Name/ID Product Type/Specifications Region	Provisioned/Expires	Status	Validity Period	Operation				
 ✓ □ 	Jul 18, 2023 11:34:01 GMT+08:00 Aug 18, 2023 23:59:59 GMT+08:00	Provisioned	25 days until expiration Delete after retention period	Renew More +				

Step 4 Enable auto-renewal for yearly/monthly resources.

• Enabling auto-renewal for a single instance: Locate the instance that you want to enable auto-renewal for and choose **More** > **Enable Auto-Renew** in the **Operation** column.

Figure 2-21 Enabling auto-renewal for an instance

Renewals	Feedback IP Quick Links	Renew Domain Set Renewal Date	Modify Message Recipient	Set Deduction Date for Auto-Renewal			
1. If you want to continue using any resources about to explore refer to How Do I Rever Resourcest 2. Reveals or charges to pay per use will be applied after the current dubcration term ends. 3. If you want to renew your subscriptions more easily, refer to Automatically Revealing a Resource 4. If you want to renew your subscriptions more easily, refer to Automatically Revealing a Resource	and How Do I Change the Billing Mode from Yearly/Monthly to Pa a Retention Period? and Setting a Renewal Date	r-per-Use?					
Instances expiring soon: 0; instances to be frozen: 0; instances to be released: 7. Please renew in	time. View instances.						
Express Express 10 days Express In 30 days Express In 7 days Express Precent Custom Name/D/Circler Number 🖤 Exter a resource Ito, or order Q Service Type Region All							
Manual Renewals (1) Auto Renewals (0) Pay-per-Use After Expiration (0)	Renewals Canceled (0)						
Batch Renew Enable Auto-Renew Change to Pay-per-Use After Expiration	Cancel Renewal Batch Export			Export Renewal Prices C			
Instance NameID Product Type/Specifications R	egion Provisioned/Expires	Status	Validity Period	Operation			
~ []	Jul 18, 2023 11:34:01 GMT+08:00 Aug 18, 2023 23:59:59 GMT+08:0	0 Provisioned	25 days until expiration Defete after retention period Enable Auto-Renew	Renew More 🔺			
			Change to Pay-per-U Cancel Renewal Belease (7)	se After Expiration			

• Enabling auto-renewal for multiple instances at a time: Select the instances that you want to enable auto-renewal for and click **Enable Auto-Renew** above the list.

Figure 2-22 Enabling auto-renewal for multiple instances

Manual Renewals (9) Auto Renewals (0) Pay-per-Use After Expiration (0)) Renewals Cance	eled (0)			
Batch Renew Enable Auto-Renew	Change to Pay-per-Use After Expiration	Cancel Renewal	Batch Export			Export Renewal Prices
Instance Name/ID	Product Type/Specifications	Region	Provisioned/Expires	Status	Validity Period	Operation
× 🗆			Apr 26, 2023 10:38:08 GMT+08:00 May 26, 2023 23:59:59 GMT+08:00	Frozen	3 days until deletion Delete after retention period	Cancel Renewal More +
× 🗆			Apr 26, 2023 09:55:03 GMT+08:00 May 26, 2023 23:59:59 GMT+08:00	Frozen	3 days until deletion Delete after retention period	Renew More 👻
× 🗆			May 16, 2023 15:29:36 GMT+08:00 Jun 16, 2023 23:59:59 GMT+08:00	Frozen	4 days until deletion Delete after retention period	Renew More 👻
~ 🗆			May 18, 2023 18:19:32 GMT+08:00 Jun 18, 2023 23:59:59 GMT+08:00	() Frozen	6 days until deletion Delete after retention period	Renew More 💌
× 🗆			May 18, 2023 17:06:19 GMT+08:00 Jun 18, 2023 23:59:59 GMT+08:00	Frozen	6 days until deletion Delete after retention period	Renew More 💌
× 🗆			Jun 01, 2023 22:51:24 GMT+08:00 Jul 01, 2023 23:59:59 GMT+08:00	Frozen	19 days until deletion Delete after retention period	Cancel Renewal More +
× 🛛			Jun 02, 2023 11:34:42 GMT+08:00 Jul 02, 2023 23:59:59 GMT+08:00	Frozen	6 hours 48 minutes until del. Delete after retention period	Cancel Renewal More +
× 🗹			Jul 18, 2023 11:34:01 GMT+08:00 Aug 18, 2023 23:59:59 GMT+08:00	Provisioned	25 days until expiration Delete after retention period	Renew More 🔻
~			Jul 24, 2023 15:54:35 GMT+08:00 Jul 24, 2024 23:59:59 GMT+08:00	Provisioned	366 days until expiration Delete after retention period	Renew More +

Step 5 Select a renewal period, specify the auto-renewal times, and click **Pay**.

Figure 2-23 Enabling auto-renewal

Enable Au	uto-Renew							
 Huawei C You can n account 7 da You can p 	loud starts deducting renewa nanually renew your resource ays before the expiration of th ay for auto-renewal using yo	al fees from your account 7 days before the es at any time even if auto-renew is enabled he new subscription term. rur account balance, discounts, coupons, an	expiration of the current d. After a manual renewa nd stored-value cards. Pa	subscription t I is complete, lyment Rules	term. Ensure that your a auto-renew is still in ef for Auto-Renewal	iccount balance is suffi lect, and Huawei Cloud	cient. I will start deducting	renewal fees from your
	Instance Name/ID	Service Current Configuration	Region I	Billing M	Validity Period	Current Auto-R	Remaining	End Time
× v			1	Vonthly	25 days until exp	None	Unlimited	
New Auto-Rer Period	new 🕕							
Auto-renewals	1 month	3 months	6 months		9 months		1 year	
	ок							

----End

2.7 Bills

You can view the resource usage and bills for different billing cycles on the **Bills** page in the Billing Center.

Bill Generation

Transaction records for yearly/monthly subscriptions are generated immediately after being paid for.

The usage of pay-per-use resources is reported to the billing system at a fixed interval. A pay-per-use resource is billed by the hour, day, or month, depending on the resource's usage type. The GeminiDB Influx instance usage is billed by the hour. For details, see **Bill Run for Pay-per-Use Resources**.

You are not charged immediately after a record is generated. For example, if a pay-per-use GeminiDB Influx instance (which is billed on an hourly basis) is deleted at 08:30, you will still have expenditures for the 08:00 to 09:00 hour. However, you will not likely be billed for the 08:00 to 09:00 hour until about 10:00. On the **Bills** page of the Billing Center, select the **Bill Details** tab. **Expenditure Time** in the bill indicates the time when the pay-per-use resource is used.

Viewing Bills of a Specific Resource

[Method 1: Use the instance ID to search for a bill.]

- **Step 1** Log in to the management console and choose **Databases** > **GeminiDB Influx API**.
- **Step 2** On the **Instances** page, locate the instance whose bill you want to view and click its name.
- Step 3 Click the icon shown in the figure below to copy the instance ID.

Figure 2-24 Copying the instance ID

Instance Information			
DB Instance Name	1 3	DB Instance ID	J

Step 4 On the top menu bar, choose **Billing & Costs** > **Bills**.

The **Bills** page is displayed.

Step 5 Choose **Transactions and Detailed Bills** > **Bill Details**. On the displayed page, select **Resource ID** as the filter criteria, enter the obtained instance ID, and click the Q icon.

Figure 2-25 Searching for a bill

Transaction	Bills (?)	Bill Details	D											
Billing Cycle	Dec 2023	•												
Sort By	Usage 📀	Data Period	By bill	ing cycle	By day	Details	Search for reso	urces?						
Resource I	D: a9307387cb0	54eff83dbfc2d7fae	ef355in06 (🛛 🕅 Add	filter								×Q	7 3
Billing	Enterpr 7	Account Nam	ie 🕐 Se	ervice 🍞	Resour 🏹	Billing 🍞	Bill Type 🍸	Resource N	Resource Tag	Specificatio	Region 7	AZ	Usage Type	Unit Price (
Dec 2	default		G	eminiDB (GeminiDB I	Pay-per-Use	Expenditure	geminidb-6e a9307387cb	-	GeminiDB C		AZ1,AZ2	architecture	0.

By default, the bill details are displayed by usage and billing cycle. You can choose other display options as required. For details, see **Bill Details**.

----End

[Method 2: Use the resource name to search for a bill.]

- **Step 1** Log in to the management console and choose **Databases** > **GeminiDB Influx API**.
- **Step 2** On the **Instances** page, locate the instance whose bill you want to view and click its name.
- **Step 3** On the **Basic Information** > **Instance Information** page, obtain the instance name.

Figure 2-26 Copying the instance name

Instance Information



Step 4 On the top menu bar, choose **Billing & Costs** > **Bills**.

The **Bills** page is displayed.

Step 5 Choose Transactions and Detailed Bills > Bill Details. On the displayed page, select Resource Name as the filter criteria, enter the obtained instance ID, and click the Q icon.

Figure 2-27 Searching for a bill

Transaction Bills ⑦	Bill Details (?)											
Billing Cycle Dec 2023	*											
Sort By Usage 🔞	Data Period B	y billing cycle	By day	Details	Search for res	ources?						
Resource Name:	IV Ada	d filter									× C	1 7 🕲
Billing Enterpr 7	Account Name (?)	Service 7	Resour 🏹	Billing 7	Bill Type 🏼 🏹	Resource N	Resource Tag	Specificatio	Region 7	AZ	Usage Type	Unit Price (
Dec 2 default		GeminiDB (GeminiDB S	Pay-per-Use	Expenditure	geminidb-6e a9307387cb	-			AZ1,AZ2	Duration	0.003
Dec 2 default		GeminiDB (GeminiDB N	Pay-per-Use	Expenditure	geminidb-6e e4e2103b54	-			AZ2	Duration	1.7
Dec 2 default		GeminiDB (GeminiDB N	Pay-per-Use	Expenditure	geminidb-6e 36f6da1900				AZ1	Duration	1.7
Dec 2 default		GeminiDB (GeminiDB N	Pay-per-Use	Expenditure	geminidb-6e 1e99218fd9				AZ3	Duration	1.7
Dec 2 default		GeminiDB (GeminiDB I	Pay-per-Use	Expenditure	geminidb-6e a9307387cb				AZ1,AZ2	architecture	0.

By default, the bill details are displayed by usage and billing cycle. You can choose other display options as required. For details, see **Bill Details**.

----End

Scenario Example: Checking the Consistency of the Actual Usage and Billed Usage

Assume that you purchased a pay-per-use GeminiDB Influx instance at 10:09:06 on April 8, 2023 and deleted it later that day, at 12:09:06.

• Transaction Records

Pay-per-use GeminiDB Influx instance usage is calculated by the second and but billed on an hourly basis. You can check the transaction records against the actual usage. The billed resources are billed separately. For details, see **Table 2-11**.

Service Type	GeminiDB Influx
Resour ce Type	Storage
Billing Mode	Pay-per-use
Expend iture Time	For the period of time from 10:09:06 to 12:09:06 on April 08, 2023, 6 transaction records would be generated for the resource usage in the following periods:
	• 2023/04/08 10:09:06 - 2023/04/08 11:00:00
	• 2023/04/08 11:00:00 - 2023/04/08 12:00:00
	• 2023/04/08 12:00:00 - 2023/04/08 12:09:06

Table 2-11 GeminiDB Influx transaction bills

List Price	List price on the official website = Usage x Unit price x Capacity The GeminiDB Influx instance was used for 3,054 seconds in the first period, and the unit price can be obtained on the Pricing Details page. The list price for the first period = $(3054 \div 3600) \times$ 0.0007 × 40 = \$0.02375333 USD. Similarly, you can calculate the GeminiDB Influx instance list price for the other periods.
Discou nted Amoun t	Discounts offered for cloud services, for example, commercial discounts, partner authorized discounts, and promotional discounts. It is the discounted amount based on the list price.
Truncat ed Amoun t	Billing of Huawei Cloud is calculated to the 8th decimal place.However, the amount due is truncated to the 2nd decimal place.The third and later decimal places are referred to as the truncated amounts.Take the first period as an example. The truncated amount is \$0.00375333 USD.
Amoun t Due	Amount due = List price – Discount amount – Truncated amount Take the first period as an example. If the discount amount is 0, the amount due is \$0.02 USD (0.02375333 – 0 – 0.00375333).

• Bill details of the GeminiDB Influx instance

Bill details can display in multiple ways. By default, the bill details of a resource are displayed by usage and by billing cycle. **Table 2-12** illustrates the GeminiDB Influxinstance bill details, which can be used to check against the actual usage.

Service Type	GeminiDB Influx
Resour ce Type	Storage
Billing Mode	Pay-per-use
Resour ce Name/I D	Name and ID Example: nosql-b388 and 21e8811a64bf4de88bc2e2556da17983in12
Specific ations	GeminiDB Influx storage
Usage Type	Duration for a GeminiDB Influx instance

 Table 2-12
 GeminiDB
 Influx bill
 details

Unit Price	When pay-per-use billing is used, the unit price is only provided if the amount is equal to the usage multiplied by the unit price. No unit price is provided in other pricing modes, for example, tiered pricing. You can search for the unit price for pay-per-use GeminiDB Influx
	instances on Product Pricing Details.
Unit	Displayed on the Product Pricing Details page. Example: USD/GB/hour.
Usage	Depends on the unit of the unit price, which is USD/GB/hour. Storage usage is billed by the hour. Example: 2 hours.
Usage Unit	Hour
List Price	List price on the official website = Usage x Unit price x Capacity The instance is used for 2 hours in total, and the unit price is obtained on the Product Pricing Details page. The list price = $2 \times 0.0007 \times 40 = $ \$0.056 USD.
Discou nted Amoun t	Discounts offered for cloud services, for example, commercial discounts, partner authorized discounts, and promotional discounts. It is the discounted amount based on the list price.
Amoun t Due	Amount that should be paid for used cloud services after discounts are applied.

2.8 Arrears

If the available account balance is less than the amount to be settled, the account will be in arrears. To continue using your instances, you need to top up your account in a timely manner.

Arrears Reason

If you do not have yearly/monthly instances, your account falls into arrears any time your configured payment method is unable to pay for the used resources on the pay-per-use basis.

Arrears Impact

• Yearly/Monthly

This is a pre-paid billing mode, so you can continue using yearly/monthly GeminiDB Influx resources even if your account is in arrears. However, you cannot perform operations such as purchasing GeminiDB Influx instances, upgrading instance specifications, and renewing subscriptions, because they will generate new expenditures.

• Pay-per-Use

If your configured payment method is unable to pay a bill for pay-per-use resources, the resources enter a grace period. After you top up your account, Huawei Cloud will bill you for expenditures generated by the resources during the grace period. You can view the expenditures on the **Overview** page of the Billing Center.

If your account is still in arrears after the grace period ends, the resources enter the retention period and their status turns to **Frozen**. You cannot perform any operations on these resources.

After the retention period ends, the compute resources (vCPUs and memory) and EIPs will be released and cannot be restored.



Figure 2-28 Lifecycle of a pay-per-use instance

D NOTE

The grace period and retention period are both 15 days.

Avoiding and Handling Arrears

Make sure you have a valid payment method configured as soon as possible after your account is in arrears. For details, see **Topping Up an Account**.

If a GeminiDB Influx instance is no longer used, you can delete it to avoid generating further expenditures.

To help make sure your account never falls into arrears, you can configure the **Balance Alert** on the **Overview** page of the Billing Center. Then, any time an expenditure quota drops to below the threshold you specify, Huawei Cloud automatically notifies you by SMS or email.

2.9 Billing Termination

Yearly/Monthly Resources

When you purchase a yearly/monthly resource, such as a yearly/monthly GeminiDB Influx instance, you make a one-time up-front payment. By default, the billing automatically stops when the purchased subscription expires.

 If a yearly/monthly resource is no longer needed before the subscription expires, you can unsubscribe from the resource. The system will return a certain amount of money to your account based on whether the resource is subject to five-day unconditional unsubscription or whether cash coupons or discount coupons are used. For details about unsubscription rules, see Unsubscriptions. • If you have enabled auto-renewal but no longer wish to automatically renew the subscription, disable it before the auto-renewal date (7 days before the expiration date by default) to avoid unexpected expenditures.

Pay-per-Use Resources

If pay-per-use resources, such as pay-per-use GeminiDB Influx instances, are no longer required, delete them in a timely manner.

Searching for Resources from Bills and Stopping Billing

To ensure that all related resources are deleted, you can search the billing records by resource ID, and then delete the resources you identify in this way.

[Method 1: Use the resource ID in the bill to search for the resource.]

Step 1 Log in to the management console. On the top menu bar, choose Billing & Costs > Bills.

The **Bills** page is displayed.

Step 2 Choose Transactions and Detailed Bills > Bill Details, and click the icon shown in the following figure to copy the resource ID.

Figure 2-29 Copying the resource ID

Transact	ion Bills 🧿	Bill Details (?)											
Billing Cyc	le Dec 2023	•											
Sort By	Usage 🙆	Data Period	By billing cycle	By day	Details	Search for reso	ources?						
Resource	e ID: a9307387cb0	54eff83dbfc2d7faef355	5in06 🔘 🕅 Ada	filter								× C	1 🛨 🕲
Billing	. Enterpr 🏹	Account Name (Service 7	Resour 7	Billing 7	Bill Type 🍞		U	₽.	Region 7	AZ	Usage Type	Unit Price (
Dec 2	default		GeminiDB (GeminiDB I	Pay-per-Use	Expenditure	geminidb-6e	-	GeminiDB C		AZ1,AZ2	architecture	0.

- **Step 3** Log in to the management console and choose **Databases** > **GeminiDB Influx API**.
- **Step 4** Select the region where the resource is located, select **Instance ID** and enter the resource ID copied in **Step 2**, and click the ^Q icon to search for the resource.

Figure 2-30 Searching for an instance

All projects		~	Q Instan	nce ID:			× Add filter							× 0
	Name/ID \ominus	DE	3 Insta	Compati	St	Status \ominus	Specificatio	Storage	Space	Load bal	Enterpri	Billing M	Operation	
		Ch	uster	InfluxDB Upgrade		Available	2 vCPUs 3 nodes	0%	0/100GB	-	default	Pay-per	Log In Change to Yearly/Monthly	More 🗸

Step 5 Locate the instance you want to delete and click **More** > **Delete** in the **Operation** column. Ensure that the resource is not found in the list.

NOTE

You are billed one hour after the resource usage is calculated, so a bill may still be generated after the pay-per-use resource is deleted. For example, if you delete an instance (which is billed on an hourly basis) at 08:30, the expenditures for that hour from 08:00 to 09:00 are usually not billed until about 10:00.

----End

[Method 2: Use the resource name in the bill to search for the resource.]

Step 1 Log in to the management console. On the top menu bar, choose Billing & Costs > Bills.

The **Bills** page is displayed.

Step 2 Choose **Transactions and Detailed Bills** > **Bill Details**, and click the icon shown in the following figure to copy the resource name.

Figure 2-31 Copying the resource name



- Step 3 Log in to the management console and choose Databases > GeminiDB Influx API.
- **Step 4** Enter the instance name copied in **Step 2** in the search box and click Q.

Figure 2-32 Searching for an instance

All projects		~	Q Instar	ice name:				× Add filter					× 0
	Name/ID 🔶		DB Insta	Compati	St	Status \ominus	Specificatio	Storage Space	Load bal	Enterpri	Billing M	Operation	
			Cluster	InfluxDB Upgrade	-	 Available 	2 vCPUs 3 nodes	0% 0/100G	в	default	Pay-per	Log In Change to Yearly/Monthly	More ~
All projects		~	Q Instar	ice name:				× Add filter					× 0
	Name/ID \ominus		DB Insta	Compati	St	Status 🕀	Specificatio	Storage Space	Load bal	Enterpri	Billing M	Operation	
			Cluster	InfluxDB Upgrade		Available	2 vCPUs 3 nodes	0% 0/100G	в	default	Pay-per	Log In Change to Yearly/Monthly	More ~

Step 5 Locate the instance you want to delete and click **More** > **Delete** in the **Operation** column. Ensure that the resource is not found in the list.

NOTE

You are billed one hour after the resource usage is calculated, so a bill may still be generated after the pay-per-use resource is deleted. For example, if you delete an instance (which is billed on an hourly basis) at 08:30, the expenditures for that hour from 08:00 to 09:00 are usually not billed until about 10:00.

----End

2.10 Cost Management

2.10.1 Cost Composition

GeminiDB Influx costs consist of two parts:

 Resource costs: costs of compute and storage resources. For details, see Billing Modes.



• O&M costs: labor costs incurred during the use of GeminiDB Influx.

2.10.2 Cost Allocation

A good cost accountability system is a prerequisite for cost management. It ensures that departments, business teams, and owners are accountable for their respective cloud costs. An enterprise can allocate cloud costs to different teams or projects so as to have a clear picture of their respective costs.

Huawei Cloud **Cost Center** provides various tools for you to group costs in different ways. You can experiment with these tools and find a way that works best for you.

• By linked account

The enterprise master account can manage costs by grouping the costs of its member accounts by linked account. For details, see Viewing Costs by Linked Account.

• By enterprise project

Before allocating costs, enable Enterprise Project Management Service (EPS) and plan your enterprise projects based on your organizational structure or service needs. When purchasing cloud resources, select an enterprise project so that the costs of resources will be allocated to the selected enterprise project. For details, see Viewing Costs by Enterprise Project.

Figure 2-33 Selecting an enterprise project

Enterprise Project

View Project Management ③

• By cost tag

You use tags to sort your Huawei Cloud resources in a variety of different ways, for example, by purpose, owner, or environment. The following is the process of managing costs by predefined tags (recommended).

Figure 2-34 Adding a tag



For details, see Viewing Costs by Cost Tag.

• By cost category

You can use cost categories provided by **Cost Center** to split shared costs. Shared costs are the costs of resources (compute, network, storage, or resource packages) shared across multiple departments or the costs that cannot be directly split by cost tag or enterprise project. These costs are not directly attributable to a singular owner, and they cannot be categorized into a singular cost type. In this case, you can define cost splitting rules to fairly allocate these costs among teams or business units. For details, see **Viewing Cost By Cost Category**.

2.10.3 Cost Analysis

To precisely control and optimize your costs, you need a clear understanding of what parts of your enterprise incurred different costs. **Cost Center** visualizes your original costs and amortized costs using various dimensions and display filters for cost analysis so that you can analyze the trends and drivers of your service usage and costs from a variety of perspectives or within different defined scopes.

You can also use cost anomaly detection provided by **Cost Center** to detect unexpected expenses in a timely manner. In this way, costs can be monitored, analyzed, and traced.

For details, see **Performing Cost Analysis to Explore Costs and Usage** and **Enabling Cost Anomaly Detection to Identify Anomalies**.

2.10.4 Cost Optimization

You can identify resources with high costs based on the analysis results in the cost center, determine the causes of high costs, and take optimization measures accordingly.

Resource rightsizing

- View GeminiDB Influx monitoring metrics on Cloud Eye, such as the CPU, memory, and disk usage. If the current configuration is too high, you can reduce the configuration by changing specifications.
- Monitor idle GeminiDB Influx resources and delete idle instances in a timely manner.

Billing mode selection

Different types of services have different requirements on resource usage periods, so the most economical billing mode for one resource may not be the best option for another resource.

- For mature services that tend to be stable for the long term, select yearly/ monthly billing.
- For short-term, unpredictable services that experience traffic bursts and cannot afford to be interrupted, select pay-per-use billing.
- Monitor the lifecycle of instances and renew yearly/monthly resources that are about to expire in a timely manner.

2.11 Billing FAQs

2.11.1 What Are the Differences Between Yearly/Monthly and Pay-per-Use Billing?

Yearly/Monthly is a prepaid billing mode in which resources are billed based on the service duration. This cost-effective mode is ideal when the duration of resource usage is predictable. It is recommended for long-term users.

Pay-per-use billing is a postpaid payment mode. This billing mode allows you to make or cancel subscriptions at any time. Pricing is listed on a per-hour basis, but bills are calculated based on the actual usage duration.

2.11.2 Can I Switch Between Yearly/Monthly and Pay-per-Use Billing?

You can change the billing mode of your instance from yearly/monthly to pay-peruse or vice versa.

- For details about how to change the billing mode from yearly/monthly to a pay-per-use, see Yearly/Monthly to Pay-per-Use.
- For details about how to change the billing mode from pay-per-use to yearly/ monthly, see **Changing a Pay-per-Use Instance to Yearly/Monthly**.

2.11.3 How Do I Renew a Single or Multiple Yearly/Monthly Instances?

This section describes how to renew your yearly/monthly GeminiDB Influx instances.

Usage Notes

- Pay-per-use GeminiDB Influx instances do not support this function.
- This function is only available for cluster instances.

Renewing a Single Yearly/Monthly Instance

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, locate the instance that you want to renew and click **Renew** in the **Operation** column.

Figure 2-35 Renewal

Name/ID \ominus	DB Insta	Compati	St	Status \ominus	Specificatio	Storage	Space	Load bal	Enterpri	Billing M	Operation
	Cluster	InfluxDB		Available	2 vCPUs 3 nodes	0%	0/100GB	-		Yearly/Mont 31 days	Log In Renew More ~

Alternatively, click the instance name to go to the **Basic Information** page. In the **Billing Information** area, click **Renew** next to the **Billing Mode** field.

Figure 2-36 Renewal

Billing Information	
Billing Mode	Yearly/Monthly Renew Enable Auto-Renewal
Order	CS2407041143WTUXP
Created	Jul 04, 2024 11:56:52 GMT+08:00
Expiration Date	Aug 04, 2024 23:59:59 GMT+08:00
Upon Expiration	Entering grace period ⑦

Step 4 On the displayed page, renew the instance.

----End

Renewing Instances In Batches

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, select the instances that you want to renew and click **Renew** above the instance list.

Figure 2-37 Renewing instances in batches

Auto Scale	Renew	Change to Yearly/Mo	onthly Change	to Pay-per-Use	Unsubscribe	Upgrade Minor Versi	lon		
		✓ Q	× A	dd filter					
	Name/ID \ominus	DB Insta	Compati St	Status 🕀	Specificatio	Storage Space	Load bal Enterpri	Billing M	Operation
		Cluster	InfluxDB	Available	2 vCPUs 3 nodes	0% 0/100GB		Yearly/Mont 31 days	Log In Renew More ~
		Cluster	InfluxDB	 Available 	2 vCPUs 3 nodes	0% 0/100GB	-	Yearly/Mont 31 days	Log In Renew More ~



----End

2.11.4 How Do I Unsubscribe from a Yearly/Monthly Instance?

If you do not need a yearly/monthly instance any longer, unsubscribe from it.

Usage Notes

- The unsubscription action cannot be undone. To retain data, create a manual backup before unsubscription. For details, see **Creating a Manual Backup**.
- After an unsubscription request is submitted, resources and data will be deleted and cannot be retrieved. Ensure that the manual backup is complete before submitting the unsubscription request.
- This function is only available for cluster instances.

Unsubscribing from a Single Yearly/Monthly Instance

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, locate the instance you want to unsubscribe from and click **Unsubscribe** or choose **More** > **Unsubscribe** in the **Operation** column.

Figure 2-38 Unsubscribe

□ Name/ID ⇔	DB Insta	Compati	Sto	Status 🖨	Specifications	Storage	Space	Load bal	Enterpris	Billing M	Operation
	Cluster	InfluxDB 1.8		Available	2 vCPUs 3 nodes	0%	0/100GB	-	default	Yearly/Month 31 days u	Log In Renew More ~
											Enable Auto-Renewal
											Change to Pay-per-Use
											Change Specifications
											Create Backup
											Scale Storage Space
											Add Node
											Restart
											Reset Password
											Unsubscribe

- **Step 4** In the displayed dialog box, click **Yes**.
- **Step 5** On the displayed page, confirm the order to be unsubscribed and select a reason. Then, click **Confirm**.

For details, see **Unsubscription Rules**.

Step 6 In the displayed dialog box, click **Yes**.

NOTICE

- 1. After an unsubscription request is submitted, resources and data will be deleted and cannot be retrieved.
- 2. Ensure that the manual backup is complete before submitting the unsubscription request.
- **Step 7** View the unsubscription result. After you unsubscribe from the instance order, the instance is no longer displayed in the instance list on the **Instances** page.

----End

Unsubscribing from Yearly/Monthly Instances In Batches

- **Step 1** Log in to the Huawei Cloud console.
- Step 2 In the service list, choose Databases > GeminiDB.
- **Step 3** Choose **Instances** in the navigation pane on the left, select the instances you want to unsubscribe from and click **Unsubscribe** above the instance list.

Figure 2-39 Unsubscribe

Auto Scale Renew	Change to Yea	arly/Monthly	Chang	pe to Pay-per-Use (Unsubscribe	Upgra	ide Minor Ver	sion			
All projects	 Q 				× Add filter						
✓ Name/ID	DB Insta	Compati	Sto	Status 🕀	Specifications	Storage	Space	Load bal	Enterpris	Billing M	Operation
	Cluster	InfluxDB 1.8		Available	2 vCPUs 3 nodes	0%	0/100GB		default	Yearly/Mo	Log In Renew More ~
	Cluster	InfluxDB 1.8	-	Available	2 vCPUs 3 nodes	0%	0/100GB		default	Yearly/Month 31 days u	Log In Renew More ~

- **Step 4** In the displayed dialog box, click **Yes**.
- **Step 5** On the displayed page, confirm the order to be unsubscribed and select a reason. Then, click **Confirm**.

For details, see Unsubscription Rules.

Step 6 In the displayed dialog box, click Yes.

NOTICE

- 1. After an unsubscription request is submitted, resources and data will be deleted and cannot be retrieved.
- 2. Ensure that the manual backup is complete before submitting the unsubscription request.
- **Step 7** View the unsubscription result. After you unsubscribe from the instance order, the instance is no longer displayed in the instance list on the **Instances** page.

----End

3 Getting Started with GeminiDB Influx API

3.1 Getting to Know GeminiDB Influx API

This section describes GeminiDB Influx instance types and instructs you to quickly create and connect to a GeminiDB Influx instance.

Table 3-1	Instance types

Instance Type	Scenario	Reference
Cluster	One cluster consists of at least three nodes. Nodes can be added to a cluster, which is unsuitable to cope with the ever growing data volume.	Buying and Connecting to an Instance
(Recomm ended) Cluster (performa nce- enhanced)	Compared with cluster instances, instances in a performance-enhanced cluster support a larger scale and higher read/write performance.	Buying and Connecting to an Instance
Single node	A single-node instance cannot ensure the SLA. You are advised to use it only for testing and function verification.	Buying and Connecting to a Single-Node Instance

Connection Methods

DAS enables you to manage instances on a web-based console, simplifying database management and improving working efficiency. You can connect and

manage instances through DAS. By default, you have the permission of remote login. DAS is secure and convenient for connecting to GeminiDB Influx instances.

Table	3-2	Connection	on	DAS
Tuble	52	connection	011	0,00

Method	Scenario	Remarks
DAS	You can connect to a GeminiDB Influx instance on a web-based console.	 Easy to use, secure, advanced, and intelligent By default, you have the permission of remote login. DAS is secure and convenient for connecting to instances.

More Connection Operations

• See Connecting to a GeminiDB Influx Instance.

3.2 Buying and Connecting to a Cluster or Cluster (Performance-Enhanced) Instance

This section describes how to buy and connect to a GeminiDB Influx cluster or cluster (performance-enhanced) instance on the GeminiDB console.

- Cluster: One cluster consists of at least three nodes. Nodes can be added to a cluster, which is unsuitable to cope with the ever growing data volume.
- (Recommended) Cluster (performance-enhanced): Compared with cluster instances, instances in a performance-enhanced cluster support a larger scale and higher read/write performance.

Each tenant can create a maximum of 50 GeminiDB Influx instances by default. To request a higher quota, choose **Service Tickets** > **Create Service Ticket** in the upper right corner of the console and contact the customer service.

- Step 1: Buying a Cluster or Cluster (Performance-Enhanced) Instance
- Step 2: Connecting to an Instance Through DAS

For details about other connection methods, see **Connecting to a GeminiDB** Influx Instance.

Step 1: Buying a Cluster or Cluster (Performance-Enhanced) Instance

For details, see **Buying a GeminiDB Influx Cluster Instance** or **(Recommended) Buying a GeminiDB Influx Cluster (Performance-Enhanced) Instance**.

- 1. Log in to the Huawei Cloud console.
- 2. In the service list, choose **Databases** > **GeminiDB**.
- 3. On the Instances page, click Buy DB Instance.
- 4. On the displayed page, select a billing mode, configure instance specifications, and click **Next**.

The following parameters are for reference only. Select proper specifications as needed. **Table 4-8** lists details about the parameters.

Figure 3-1 Billing mode and basic information of a cluster instance

Billing Mode	Yearly/Monthly	Pay-per-use				
Region	• Regions are geographic a	vreas isolated from each	other. For low network	k latency and quick resource	access, select the nearest	region.
DB Instance Name	geminidb-dd51					
Compatible API	Redis	Cassandra	HBase	InfluxDB	MongoDB	
Storage Type	Classic	Cloud native				
	The traditional architecture	e is stable and reliable.				
DB Instance Type	Cluster (performance	-enhanced)	Cluster	Single node		
	You can buy 10 more Influ	xDB instances that are	compatible with the In	fluxDB database. Increase q	uotas	
DB Engine Version	1.8					
AZ						
	Three-AZ deployment is re	ecommended to provide	e cross-AZ DR and ens	sure RPO is 0.		

Figure 3-2 Billing mode and basic information of a cluster (performanceenhanced) instance

Billing Mode	Yearly/Monthly	Pay-per-use				
Region	•	~				
	Regions are geographic a	reas isolated from eacl	n other. For low netv	work latency and quick resou	rce access, select the nearest r	region.
DB Instance Name	geminidb-3944					
Compatible API	Redis	Cassandra	HBase	InfluxDB	MongoDB	
Storage Type	Classic	Cloud native				
	The traditional architecture	e is stable and reliable.				
DB Instance Type	Cluster (performance-	enhanced)	Cluster	Single node		
	You can buy 10 more Influ	xDB instances that are	compatible with the	e InfluxDB database. Increas	e quotas	
DB Engine Version	1.8					
AZ		[IPv6				

Parameter	Example Value	Description
Billing Mode	Pay-per-use	 Billing mode of an instance Yearly/Monthly is a prepaid billing mode in which you pay for resources before using it. Bills are settled based on the subscription period. The longer the subscription term, the bigger the discount. This mode is a good option for long-term stable services.
		• Pay-per-use is a postpaid billing mode. You are billed based on how long you have actually used GeminiDB in 1-second increments and settled by the hour. This mode allows you to adjust resource usage easily. You neither need to prepare for resources in advance, nor end up with excessive or insufficient preset resources.
Region	Select CN- Hong Kong .	 The region where the tenant is located. It can be changed in the upper left corner. NOTE To reduce network latency, select a region nearest from which you will access the instance. Instances deployed in different regions cannot communicate with each other through a private network. After you buy an instance, you cannot change its region. Cluster (performance-enhanced) instances are available only in the following region: AP-Bangkok
DB Instance Name	User-defined	 The instance name: Can be the same as an existing instance name. Can contain 4 to 64 characters and must start with a letter. It is case-sensitive and allows only letters, digits, hyphens (-), and underscores (_).
Compatible API	InfluxDB	GeminiDB is compatible with mainstream NoSQL APIs, including Redis, DynamoDB, Cassandra, HBase, MongoDB, and InfluxDB. You can select GeminiDB APIs by following How Do I Select an API?

Parameter	Example Value	Description
Storage Type	Classic	Classic: classic architecture with decoupled storage and compute
		 Cloud native: more flexible, new-gen version with support for more AZs NOTE
		 Cloud native storage is only available for cluster (performance-enhanced) instances.
		 The way you use instances with classic or cloud native storage is similar. Cloud native storage supports more AZs. If both classic and cloud native are supported, you can select any of them.
DB Instance Type	Cluster	• One cluster consists of at least three nodes. Nodes can be added to a cluster, which is unsuitable to cope with the ever growing data volume.
		• Compared with cluster instances, instances in a performance-enhanced cluster support a larger scale and higher read/write performance.
DB Engine Version	1.8	• If Storage Type is set to Classic , the version is fixed at 1.8 .
		 If Storage Type is set to Cloud native, the version is fixed at 1.7.
AZ	AZ 1, AZ 2, and AZ 3	Availability zone where the instance is created. An AZ is a part of a region with its own independent power supplies and networks. AZs are physically isolated but can communicate with each other over a private network.
		Instances can be deployed in a single AZ or three AZs.
		 To deploy instances in a single AZ, select one AZ.
		• If you want to deploy your instance across AZs for disaster recovery, select three AZs. Nodes of the instance are evenly distributed across the three AZs.

Data Node Specifications		vCPU Memory							
		● 2 vC	PUs 8 GB						
		○ 4 vC	PUs 16 GB						
		○ 8 vC	PUs 32 GB						
		○ 16 v	CPUs 64 GB						
32 vCPUs 128 GB									
		Currently se	elected 2 vCP	Us 8 GB					
Data Nodes - 3 + The quantity ranges from 3 to 12.									
		lf you selec	t 3 AZs, set the	number of nod	es to a multiple	of 3 to balance	the load be	etween AZs.	
	100 GB								
Storage Space	0	16,000	32,000	48,000	64,000	80,000	96,000	- 100 -	+ GB
Purchase Cold Storage	Yes	No							

Figure 3-3 Storage and specifications

A Enabling cold storage does not back up cold data, so the data is not restored when the instance is restored. Cold data can be automatically separated from hot data. Cold storage is appropriate for large volumes of data that is not requestly accessed it is less expensive than hot storage, but you can still read the data at any time.

Parameter	Example Value	Description
Data Node Specifications	2U8GB	Data nodes provide read and write capabilities for time series databases. The specifications depend on configurations of the DFV shared resource pool and memory. Select specifications based on service requirements.
		For details about supported specifications, see Instance Specifications.
Data Nodes	3	Select the number of data nodes based on service requirements. After an instance is created, you can add nodes. For details, see Adding Instance Nodes .
		Currently, a maximum of 12 nodes are supported. To add more, choose Service Tickets > Create Service Ticket in the upper right corner of the console and contact the customer service.
Storage Space	100 GB	The storage is an integer and the minimum storage is 100 GB. You can add a minimum of 1 GB at a time.

Parameter	Example Value	Description
Purchase Cold Storage	Do not purchase cold storage. If you do not enable cold storage when creating an instance, you can enable it later based on service requirements. For details, see Enabling Cold Storage .	
		NOTE Cold storage cannot be disabled after being enabled.

Figure 3-4 Network and database configurations

Data Node Specifications	Flavor Name	vCPU Memory
	geminidb.influxdb.large.4	2 vCPUs 8 GB
	geminidb.influxdb.xlarge.4	4 vCPUs 16 GB
	geminidb.influxdb.2xtarge.4	8 vCPUs 32 GB
	geminidb.influxdb.4xlarge.4	16 vCPUs 64 GB
	geminidb.influxdb.8xlarge.4	32 vCPUs 128 GB
	Currently selected geminidb.influxdb.large.4 2 vCPUs 8 GB	
Data Nodes	- 3 + The quantity ranges from 3 to 16.	
	If you select 3 AZs, set the number of nodes to a multiple of 3 to balance the load between AZs.	
Analysis Node Specifications	Flavor Name	vCPU Memory
	geminidb influxdb analysis large.4	2 vCPUs 8 GB
	Currently selected geminidb.influxdb.analysis.large.4 2 vCPUs 8 GB	
Analysis Nodes	- 0 + Value range: 0 to 12	
Storage Space	100 GB	
	(ii) 100 2,400 4,800 7,200 9,500 12,000	- 100 + GB
Purchase Cold Storage	Yes No	
	Enabling cold storage does not back up cold data, so the data is not restored when the instance is restored.	
	Cald data can be automatically constant from bat data. Cald starson is constantiate for large volumes of data that is not frequently accorded it is la	on even of the state and the second the state of the stat

Parameter	Example Value	Description
VPC	default_vpc	Virtual private network where your instances are located. A VPC isolates networks for different services. You can select an existing VPC or create a VPC.
		NOTE
		 After a GeminiDB Influx instance is created, the VPC where the instance is deployed cannot be changed.
		• To connect a GeminiDB Influx instance to an ECS over a private network, ensure they are in the same VPC. If they are not, create a VPC peering connection between them.

Parameter	Example Value	Description
Subnet	default_subnet	A subnet provides dedicated network resources that are logically isolated from other networks for security purposes.
Security Group	default	A security group controls access between GeminiDB Influx instances and other services. Ensure that the security group you selected allows your client to access the instance. If no security group is available, the system creates one for you.
Administrator Password	Configured based on the password policy	 Password of the administrator account. The password: Can contain 8 to 32 characters. Can include uppercase letters, lowercase letters, digits, and any of the following special characters: ~!@#%^*=+? For security reasons, set a strong password. The system will verify the password strength. Keep your password secure. The system cannot retrieve it if it is lost.
Parameter Template	Default-InfluxDB-1.8	A template of parameters for creating an instance. The template contains API configuration values that are applied to one or more instances. After an instance is created, you can modify its parameters to better meet your service requirements. For details, see Modifying Parameters of GeminiDB Influx Instances.
Parameter	Example Value	Description
-----------------------	---------------	---
Enterprise Project	default	This parameter is provided for enterprise users.
		An enterprise project groups cloud resources, so you can manage resources and members by project. The default project is default .
		Select an enterprise project from the drop-down list. For more information about enterprise projects, see <i>Enterprise Management User</i> <i>Guide</i> .

Retain the default values for other parameters.

- 5. On the order confirmation page, check the instance information. If you need to modify the information, click **Previous**. If no modification is required, read and agree to the service agreement and click **Submit**.
- 6. Click **Back to Instance Management** to go to the instance list.
- 7. On the **Instances** page, view and manage the created instance.
 - Creating an instance takes about 5 to 9 minutes. During the process, the instance status displayed in the DB instance list is **Creating**.

default

Log In Renew More 🗸

- After the instance is created, its status becomes **Available**.

Figure 3-5 Available cluster instance

lqLinfluxdb_ 5b82522b1 Cluster (perfor... InfluxDB 1.8 Classic 📀 Available

 Owner
 Op
 Description
 Description
 Last Reason across
 Description
 Description

 entation
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 Mexico
 Description
 Last Reason across
 Description
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Figure 3-6 Available cluster (performance-enhanced) instance

Step 2: Connecting to an Instance Through DAS

- 1. Log in to the Huawei Cloud console.
- 2. In the service list, choose **Databases** > **GeminiDB**.
- 3. In the instance list, locate a target instance and click **Log In** in the **Operation** column.

Figure 3-7 Connecting to a GeminiDB Influx Instance

17540auticlabel57c269bel52ent

Alternatively, click the instance name to go to the **Basic Information** page. Click **Log In** in the upper right corner of the page.

Figure 3-8 Connecting to a GeminiDB Influx Instance



4. Enter a password for logging in to the instance.

Figure 3-9 Logging in to the GeminiDB Influx instance

Log In	to InfluxDB Ins	tance
DB Instance Nan	ne	
Password	Enter your password.	Ø
	Log In	

If you need to log in again after the password is reset, click **Re-login** in the upper right corner and use the new password.

Figure 3-10 Re-login

DB Instance Name geminide-	Re-login Save to Executed Commands ()
Execute (7.1) Save (My Commands) (Clear (7.10)	
1	

5. Manage relevant databases.

Figure 3-11 Instance homepage

DB Instance Name:					
Execute (F8)	Save My Ce	Clear (F10)]		
1					
Executed Comm	nands Messages	Results			
4					

- Save commands to the execution record.

This function is enabled by default to save the recently executed commands for your later query.

Then you can click the **Executed Commands** tab on the lower page to view historical commands.

NOTE

Commands with passwords are not displayed on the **Executed Commands** tab page.

Figure 3-12 Executed commands

Executed Commands Messages Results			
Executed	Command	Time Required	Result
Jan 02, 2824 14 47:14 GMT+08:00	show databases	2mi	Succeeded
Jan 02, 2824 14:47:06 GMT+00:00	show users	2500	Succeeded

If this function is disabled, the commands executed subsequently are not displayed. You can click
 next to **Save Executed SQL Statements** in the upper right corner to disable this function.

- Execute a command.

Enter a command in the command window and click **Execute** or **F8**.

Figure 3-13 Execute a command.

Execute (F8)	Save	My Comm	ands	Clear (F10)]
1 show da	tabases				
Executed Comman	ids Mes	sages	Results		
		-			
name: databases					
name					
internal					

After a command is executed, you can view the execution result on the **Results** page.

- Save a command.

You can save a command to all instances or the current instance. Then you can view details in **My Commands**.

D NOTE

Commands with passwords cannot be saved to My Commands.

Figure 3-14 Save a command.

Execute (F8) Save My Commands Clear (F10)	Save	×
1 show databases	Title myornd Application Scope All instances Current instance	
	CK Cancel	

- View my commands.

Common commands are displayed the My Commands page.

You can set a filter to narrow the scope of commands. If you select **All**, all commands saved in the current account are displayed.

Figure 3-15 Filtering commands

My Comn	nands					
Create C	ommand			All 🔺	Enter a title or command.	Q
No.	Title	Application S	Command	All	Operation	
1	showdb	Current instance	show databases	All instances Edit Delete C		Command Wind
				Current Instance		

Alternatively, you can enter a command title or statement in the search box to search for the corresponding command.

Figure 3-16 Searching for a command

My Commands

Create Comman	d			All	Ŧ	show	X Q
No.	Title	Application S	Command				Operation
1	showdb	Current instance	show databases				Edit Delete Copy to Command Wind

On the **My Commands** page, you can also create, edit, and delete a command or copy it to the command window.

Figure 3-17 Managing a command

My Commands

Create Comman	d			All	▼ show	X Q
No.	Title	Application S	Command			Operation
1	showdb	Current instance	show databases			Edit Delete Copy to Command Wind

Clear a command.

You can also press F10 to clear the command in the command window.

FAQs

Question: What should I do if the DAS console cannot be redirected after I click **Log In** in the **Operation** column in the instance list or click **Log In** on the **Basic Information** page?

Solution: Set your browser to allow pop-ups and try again.

3.3 Buying and Connecting to a Single-Node Instance

This section describes how to buy and connect to a single-node GeminiDB Influx instance on the GeminiDB console.

A single-node instance cannot ensure the SLA. You are advised to use it only for testing and function verification.

Each tenant can create a maximum of 50 GeminiDB Influx instances by default. To request a higher quota, choose **Service Tickets > Create Service Ticket** in the upper right corner of the console and contact the customer service.

- Step 1: Buying a Single-Node Instance
- Step 2: Connecting to an Instance Through DAS

For details about other connection methods, see **Connecting to a GeminiDB Influx Instance**.

Step 1: Buying a Single-Node Instance

For details, see **Buying a Single-Node GeminiDB Influx Instance**.

- 1. Log in to the Huawei Cloud console.
- 2. In the service list, choose **Databases** > **GeminiDB**.
- 3. On the **Instances** page, click **Buy DB Instance**.
- 4. On the displayed page, select a billing mode, configure instance specifications, and click **Next**.

The following parameters are for reference only. Select proper specifications as needed. **Table 4-15** lists details about the parameters.

Figure 3-18 Billing mode and basic information

Billing Mode	Pay-per-use					
Region		~				
	Regions are geographic a	areas isolated from each	n other. For low network	latency and quick resource	access, select the neare	st region.
DB Instance Name	geminidb-dd51					
Compatible API	Redis	Cassandra	HBase	InfluxDB	MongoDB	
Storage Type	Classic	Cloud native				
	The traditional architectur	re is stable and reliable.				
DB Instance Type	Cluster (performance	e-enhanced)	Cluster	Single node		
	If a single DB instance (in	ncluding read replicas) is	s deployed on a single s	erver, the SLA cannot be g	uaranteed. You are advise	to only use a single DB instance for testing and function verification
	You can buy 10 more Infl	uxDB instances that are	compatible with the Infl	luxDB database. Increase of	juotas	
DB Engine Version	1.8					

Parameter	Example Value	Description	
Billing Mode	Pay-per-use	 Billing mode of an instance Yearly/Monthly: A prepaid billing mode in which you pay for resources before using it. Bills are settled based on the subscription period. The longer the subscription term, the bigger the discount. This mode is a good option for long-term stable services. 	
		• Pay-per-use : A postpaid billing mode. Pay as you go and just pay for what you use. The DB instance usage is calculated by the second but billed every hour. This mode allows you to adjust resource usage easily. You neither need to prepare for resources in advance, nor end up with excessive or insufficient preset resources.	
Region	Select CN- Hong Kong . The region where the tenant is loc It can be changed in the upper left corner.		
		NOTICE To reduce network latency, select a region nearest from which you will access the instance. Instances deployed in different regions cannot communicate with each other over a private network. After you buy an instance, you cannot change its region.	
DB Instance	User-defined	The instance name:	
Name		 Can be the same as an existing instance name. 	
		 Can contain 4 to 64 characters and must start with a letter. It is case- sensitive and allows only letters, digits, hyphens (-), and underscores (_). 	
Compatible API	InfluxDB	GeminiDB is compatible with mainstream NoSQL APIs, including Redis, DynamoDB, Cassandra, HBase, MongoDB, and InfluxDB. You can select GeminiDB APIs by following How Do I Select an API?	

Parameter	Example Value	Description	
Storage Type	Classic	Classic: classic architecture with decoupled storage and compute	
		• Cloud native : more flexible, new-gen version with support for more AZs	
		NOTE	
		 Cloud native storage is only available for cluster (performance-enhanced) instances. 	
		• The way you use instances with classic or cloud native storage is similar. Cloud native storage supports more AZs. If both classic and cloud native are supported, you can select any of them.	
DB Instance Type	Single node	A single-node instance cannot ensure the SLA. You are advised to use it only for testing and function verification.	
DB Engine Version	1.8	1.8	
AZ	AZ 1, AZ 2, and AZ 3	Availability zone where the instance is created. An AZ is a part of a region with its own independent power supplies and networks. AZs are physically isolated bu can communicate with each other over a private network.	
		A single-node instance can be deployed in one AZ.	

Figure 3-19 Specifications and storage

Instance Specifications v CPU Memory • 4 vCPUs 5 GB •							
• • • • • • • • • • • • • • •	Instance Specifications	vCPU Memory					
		4 vCPUs 8 GB					
16 vCPUs 12 28 22 vCPUs 16 46 Currenty selected 4 vCPUs 18 06 Rodes 10 08 10 08 10 08 10 08 10 08 10 08 10 08 10 08 10 09		O 8 vCPUs 16 GB					
100 B		O 16 vCPUs 32 GB					
Currently selected: 4 vCPUs 8 GB Nodes - 1 ++ Storage Space 100 GB 100 200 100 200 200 400 600 1000 Purchase Cold Storage does not tack up cold data, to the data is not restored when the instance is restored.		32 vCPUs 64 GB					
Nodes - 1 + Storage Space 100 GB - - 100 + 0B 100 200 400 600 800 1,000 - 0B Purchase Cold Storage Vis No - 100 + 0B		Currently selected 4 vCPUs 8 GB					
Storage Space 100 GB	Nodes	- 1 +					
Purchase Cold Storage Visi No - 100 - 06 Purchase Cold Storage Visi No - 100 + 06	Storage Space	100 GB					
100 200 400 600 800 1,000 Purchase Cold Storage Ves No						- 100	+ GB
Purchase Cold Storage Vis No A Enabling cold storage does not back up cold data, so the data is not restored when the instance is restored.		100 200	400	600	800	1,000	
Linka can compe	Durchase Cold Storage	Vac					
A Enabling cold storage does not back up cold data, so the data is not restored when the instance is restored.	Fulciase Colu Storage	Tes NO					
		Enabling cold storage does not back up	cold data, so the data is no	t restored when the instanc	ce is restored.		
Cold data can be automatically separated from hot data. Cold storage is appropriate for large volumes of data that is not frequently accessed it is less expensive than hot storage, but you can still read the data at any time.		Cold data can be automatically separated from t	ot data. Cold storage is ap	propriate for large volumes	of data that is not freque	tly accessed. It is less expensive	a than hot storage, but you can still read the data at any time.

Parameter	Example Value	Description	
Instance Specifications	2U8GB	Data nodes provide read and write capabilities for time series databases. The specifications depend on configurations of the DFV shared resource pool and memory. Select specifications based on service requirements.	
		For details about supported specifications, see Instance Specifications.	
Nodes	1	A single-node instance can have only one node.	
Storage Space	100 GB	The minimum storage space is 100 GB and must be an integer. You can add at least 1 GB each time you scale up storage space.	
Purchase Cold Storage	No	Do not purchase cold storage. If you disable cold storage when creating an instance, you can enable it later based on service requirements. For details, see Enabling Cold Storage . NOTE Cold storage cannot be disabled after being enabled.	

Figure 3-20 Network and database configurations

VPC	✓ Ø Wee VPC
	Alter a General Stratustica is source, E. N.Y. Leter The Influence resides cannot be sharinget. Exercise cadion when seeded per VPC. If the Owenes Be Influence resets is connected with your CCS is a photoe retwork, you as adviced to seed the VPC when the ECS is deployed, or configure a VPC period connection around VPC and the VPC retwork on the ECS is a photoe retwork on the VPC and the VPC retwork on the ECS is a photoe retwork on the VPC period content of the VPC period content o
Subnet	C Vers falset
Security Group	6/bal (Risal/7-14-1-365-343-7148/73L_ >>) C Vers Social Orag
Administrator	NAK
Administrator Password	Keep your password secure. The system cannot retrieve your password.
Confirm Password	0
Parameter Template	Defa44rhz0555rgie-13 V C Vexe Parameter Template
Enterprise Project	Sens- V C Ver Nijed Management (0
551.	
	A To encrypt Paraminism, enable SSL
Tags	R in incommended fried you see TMS's providence lage lands for and the same large to different direct resources. View providenced lage: C
Tags	En incommended that you are 1957 by produced by decision is address steps to different dated researces. View probabilitating C There is no two

Parameter	Example Value	Description
VPC	default_vpc	Virtual private network where your instances are located. A VPC isolates networks for different services. You can select an existing VPC or create a VPC. NOTE • After a GeminiDB Influx instance is created, the VPC where the instance is
		 deployed cannot be changed. To connect a GeminiDB Influx instance to an ECS over a private network, ensure they are in the same VPC. If they are not, create a VPC peering connection between them.
Subnet	default_subnet	A subnet provides dedicated network resources that are logically isolated from other networks for security purposes.
Security group	default	A security group controls access between GeminiDB Influx instances and other services. Ensure that the security group you selected allows your client to access the instance.
		If no security group is available, the system creates one for you.

Parameter	Example Value	Description
Administrator Password	Configured based on the password policy	Password of the administrator account. The password:
		Can include 8 to 32 characters.
		• Can include uppercase letters, lowercase letters, digits, and any of the following special characters: ~!@#%^*=+?
		• For security reasons, set a strong password. The system will verify the password strength.
		Keep your password secure. The system cannot retrieve it if it is lost.
Parameter Template	Default-InfluxDB-1.8	A template of parameters for creating an instance. The template contains API configuration values that are applied to one or more instances.
		After an instance is created, you can modify its parameters to better meet your service requirements. For details, see Modifying Parameters of GeminiDB Influx Instances .
Enterprise Project	default	This parameter is provided for enterprise users.
		An enterprise project groups cloud resources, so you can manage resources and members by project. The default project is default .
		Select an enterprise project from the drop-down list. For more information about enterprise projects, see <i>Enterprise Management User</i> <i>Guide</i> .

Retain the default values for other parameters.

5. On the displayed page, confirm instance details. To modify the configurations, click **Previous**.

ing Mode Operation

Pay-per-lise Login Change

If you do not need to modify the settings, read and agree to the service agreement and click **Submit**.

- 6. Click **Back to Instance Management** to go to the instance list.
- 7. On the **Instances** page, view and manage the created instance.
 - Creating an instance takes about 5 to 9 minutes. During the process, the instance status displayed in the instance list is **Creating**.

4 vCPUs 1 node

- After the instance is created, its status becomes **Available**.

influid@1.8 Classic Available

Figure 3-21 Available instance

Step	2:	Connecting	to	an	Instance	Through DA	S
JULP	∠.	Connecting	ιU	an	mounce		

1. Log in to the Huawei Cloud console.

Name10 () DB Instance Type ()

- 2. In the service list, choose **Databases** > **GeminiDB**.
- 3. In the instance list, locate a target instance and click **Log In** in the **Operation** column.

Figure 3-22 Connecting to a GeminiDB Influx Instance

 ■ March 0
 100 March M
 March 0
 March 0
 March 0
 Last March 100 March

Alternatively, click the instance name to go to the **Basic Information** page. Click **Log In** in the upper right corner of the page.

Figure 3-23 Connecting to a GeminiDB Influx Instance

<	- O Analada			Feedback Login	Resat C
Basic Information					
Backups & Restantions	DB Instance Topology				
Stee Query Logs					
Parameters					
Tep		Noto 2 Stanspe Pool	 Note N		

4. Enter a password for logging in to the instance.

Figure 3-24 Logging in to the GeminiDB Influx instance

Log In to InfluxDB Instance

DB Instance Nar	ne	
Password	Enter your password.	Ø
	Log In	

If you need to log in again after the password is reset, click **Re-login** in the upper right corner and use the new password.

Figure 3-25 Re-login

DB Instance Name gembildb	Re-login	Save to Executed Comman	nds 🖲 💽
Lister a controlio Lister (F1) Serv (My Connanda) Clair (F10)			
1			_
Executed Commands Messages Results			

5. Manage relevant databases.

Figure 3-26 Instance homepage

DB Instance Name:					
Execute (F8) Save My Commands Clear (F10)					
Executed Commands Messages Results					

- Save commands to the execution record.

This function is enabled by default to save the recently executed commands for your later query.

Then you can click the **Executed Commands** tab on the lower page to view historical commands.

NOTE

Commands with passwords are not displayed on the **Executed Commands** tab page.

Figure 3-27 Executed commands

Executed commands Messages Nesula			
Executed	Command	Time Required	Result
Jan 02, 2824 14.47.14 GMT+06.00	show databases	2mi	Succeeded
Jan 02, 2024 14:47.06 GMT+06:00	show users	25ms	Succeeded

If this function is disabled, the commands executed subsequently are not displayed. You can click
 next to **Save Executed SQL Statements** in the upper right corner to disable this function.

– Execute a command.

Enter a command in the command window and click **Execute** or **F8**.

Figure 3-28 Executing a command

Execute (F8)	Ave My Co	mmands Clear (F10)	
1 show databas	ses		
Executed Commands	Messages	Results	
name: databases			
name			
internal			

After a command is executed, you can view the execution result on the **Results** page.

– Save a command.

You can save a command to all instances or the current instance. Then you can view details in **My Commands**.

NOTE

Commands with passwords cannot be saved to **My Commands**.

Figure 3-29 Saving a command



– View my commands.

Common commands are displayed the **My Commands** page.

You can set a filter to narrow the scope of commands. If you select **All**, all commands saved in the current account are displayed.

Figure 3-30 Filtering commands

My Commands	5					
Create Comman	d			All 🔺	Enter a title or command.	Q
No.	Title	Application S	Command	All	Operation	
1	showdb	Current instance	show databases	All instances Current instance	Edit Delete Copy to Comma	and Wind

Alternatively, you can enter a command title or statement in the search box to search for the corresponding command.

Figure 3-31 Searching for a command

Create Com	imand			All	▼ sho	w		X Q
No.	Title	Application S	Command				Operation	
1	showdb	Current instance	show databases				Edit Delete Cop	y to Command Wind

On the **My Commands** page, you can also create, edit, and delete a command or copy it to the command window.

Figure 3-32 Managing a command

Create Comman	t			All	▼ show	X Q
No.	Title	Application S	Command			Operation
1	showdb	Current instance	show databases			Edit Delete Copy to Command Winde

Clear a command.

My Commands

My Commands

You can also press F10 to clear the command in the command window.

FAQs

Question: What should I do if the DAS console cannot be redirected after I click **Log In** in the **Operation** column in the instance list or click **Log In** on the **Basic Information** page?

Solution: Set your browser to allow pop-ups and try again.

3.4 Getting Started with Common Practices

After purchasing and connecting to a GeminiDB Influx DB instance, you can view common practices to better use GeminiDB Redis.

Practice		Description
Usa ge rule s	Usage Specifications and Suggestions	Describes rules and suggestions for using GeminiDB Influx instances in the aspects of naming, TAG, FIELD, and query to solve common problems such as incorrect usage, low efficiency, and difficult maintenance.

Table 3-3 Common practice

Pract	ice	Description
lnst anc e	Changing a GeminiDB Influx Instance Name	Describes how to change the name of a GeminiDB Influx instance to help you identify different instances.
mod ifica tion s	Changing the Administrator Password of a GeminiDB Influx Database	Describes how to change your administrator password. For security reasons, change it periodically.
	Changing vCPUs and Memory	Describes how to change the CPU or memory of your instance to suit your service requirements.
Dat a bac kup	Managing Automated Backups	This practice describes how GeminiDB Influx API automatically creates backups for an instance during a backup window and saves the backups based on the configured retention period.
	Managing Manual Backups	Describes how to create manual backups for a DB instance. These backups can be used to restore data for improved reliability.
Dat a rest orati on	Restoring Data to a New Instance	Describes how to restore an existing automated or manual backup to a new instance. The restored data is the same as the backup data.

4 Working with GeminiDB Influx API

4.1 Using IAM to Grant Access to GeminiDB Influx API

4.1.1 Creating a User Group and Assigning Permissions

This section describes how to use **IAM** to control fine-grained permissions for your GeminiDB resources. With IAM, you can:

- Create IAM users for employees based on your enterprise's organizational structure. Each IAM user will have their own security credentials for accessing GeminiDB resources.
- Grant only the permissions required for users to perform a specific task.
- Entrust a Huawei Cloud account or cloud service to perform efficient O&M on your GeminiDB resources.

If your Huawei Cloud account does not require individual IAM users, skip this section.

The following describes the procedure for granting permissions (see Figure 4-1).

Prerequisites

Learn about the permissions supported by GeminiDB and choose policies or roles based on your requirements. For details about the permissions, see **Permissions Management**. For system policies of other services, see **System Permissions**.

Process Flow



Figure 4-1 Process of granting GeminiDB permissions

1. Create a user group and assign permissions to it.

Create a user group on the IAM console and attach the **GeminiDB FullAccess** policy to the group.

2. Create an IAM user and add it to a user group.

Create a user on the IAM console and add the user to the group created in 1.

3. Log in and verify permissions.

Log in to the management console using the created user, and verify that the user only has read permissions.

Choose **Service List** > **GeminiDB** and click **Buy DB Instance**. If you can buy an instance, the required permission policy has taken effect.

4.1.2 Custom Policies

Custom policies can be created to supplement the system-defined policies of GeminiDB. For the actions supported for custom policies, see **Permissions Policies and Supported Actions**.

You can create custom policies in either of the following ways:

- Visual editor: Select cloud services, actions, resources, and request conditions. This does not require knowledge of policy syntax.
- JSON: Edit JSON policies from scratch or based on an existing policy.

For details, **Creating a Custom Policy**. The following describes examples of common GeminiDB custom policies.

Example Custom Policy

• Example 1: Allowing users to create GeminiDB instances

```
{
    "Version": "1.1",
    "Statement": [
        {
            "Effect": "Allow",
            "Action": [
            "nosql:instance:create"
        ]
        }
]
```

• Example 2: Deny users the permission to delete GeminiDB instances.

A policy with only "Deny" permissions must be used in conjunction with other policies to take effect. If the policies assigned to a user contain both Allow and Deny actions, the Deny actions take precedence over the Allow actions.

The following method can be used if you need to assign permissions of the **GeminiDB FullAccess** policy to a user but you want to prevent the user from deleting GeminiDB instances. Create a custom policy for denying instance deletion, and attach both policies to the group to which the user belongs. Then, the user can perform all operations on GeminiDB instances except deleting GeminiDB instances. The following is an example of the deny policy:

```
Version": "1.1",
"Statement": [
    {
        "Effect": "Deny"
        "Action": [
            "nosql:instance:delete"
        ],
        }
]
```

{

{

}

• Example 3: Defining permissions for multiple services in a policy

A custom policy can contain the actions of multiple services that are of the global or project-level type. The following is an example policy containing actions of multiple services:

4.2 Buying a GeminiDB Influx Instance

4.2.1 (Recommended) Buying a GeminiDB Influx Cluster (Performance-Enhanced) Instance

This section describes how to buy a GeminiDB Influx instance on the GeminiDB console.

Each tenant can create a maximum of 50 GeminiDB Influx instances by default. To request a higher quota, choose **Service Tickets > Create Service Ticket** in the upper right corner of the console and contact the customer service.

Prerequisites

• You have created a Huawei Cloud account.

Procedure

- **Step 1** Log in to the Huawei Cloud console.
- Step 2 Choose Databases > GeminiDB from the service list.
- Step 3 On the Instances page, click Buy DB Instance.
- **Step 4** On the displayed page, select a billing mode, select instance specifications and click **Next**.

Figure 4-2 Billing mode and basic information

Billing Mode	Yearly/Monthly	Pay-per-use			
Region	•	×			
	Regions are geographic a	areas isolated from ea	ch other. For low netw	ork latency and quick resour	ce access, select the nearest reg
DB Instance Name	geminidb-3944				
Compatible API	Redis	Cassandra	HBase	InfluxDB	MongoDB
Storage Type	Classic	Cloud native			
	The traditional architectur	re is stable and reliabl	8.		
DB Instance Type	Cluster (performance	e-enhanced)	Cluster	Single node	
	You can buy 10 more Infl	uxDB instances that a	re compatible with the	InfluxDB database. Increase	e quotas
DB Engine Version	1.8				

Parameter	Description
Billing Mode	 Yearly/Monthly Specify Required Duration. The system deducts fees from your account based on the service price. If you do not need such an instance any longer after it expires, change the billing mode to pay-per-use. For details, see Yearly/Monthly to Pay-per-Use. NOTE
	Yearly/Monthly instances cannot be deleted directly. If such an instance is no longer required, unsubscribe from it. For details, see How Do I Unsubscribe from a Yearly/ Monthly Instance?.
	 Yearly/Monthly instances with cloud native storage are now in OBT. To use such an instance, choose Service Tickets > Create Service Ticket in the upper right corner of the console and contact the customer service.
	Pay-per-use
	 If you select this billing mode, you are billed based on how much time the instance is in use.
	 To use an instance for a long time, change its billing mode to yearly/monthly to reduce costs. For details, see Changing a Pay-per-Use Instance to Yearly/ Monthly.

Table 4-1	Billina Mode
	Ditting Mode

Table 4-2 Basic	information
-----------------	-------------

Parameter	Description
Region	Region where a tenant is located. It can be changed in the upper left corner.
	NOTE
	 To reduce network latency, select a region nearest from which you will access the instance. Instances deployed in different regions cannot communicate with each other through a private network. After you buy an instance, you cannot change its region.
	 Cluster (performance-enhanced) instances are available only in the following region:
	AP-Bangkok

Parameter	Description				
DB Instance Name	 The instance name: Can be the same as an existing instance name. Can contain 4 to 64 characters and must start with a letter. It 				
	is case-sensitive and allows only letters, digits, hyphens (-), and underscores (_).				
	You can change the name of an instance after it is created. For details, see Changing a GeminiDB Influx Instance Name .				
Compatible	InfluxDB				
АРІ	GeminiDB is compatible with mainstream NoSQL APIs, including Redis, DynamoDB, Cassandra, HBase, MongoDB, and InfluxDB. You can select GeminiDB APIs by following How Do I Select an API?				
Storage Type	 Classic: classic architecture with decoupled storage and compute 				
	• Cloud native : more flexible, new-gen version with support for more AZs				
	 NOTE Cloud native storage is only available for cluster (performance- enhanced) instances. 				
	 The way you use instances with classic or cloud native storage is similar. Cloud native storage supports more AZs. If both classic and cloud native are supported, you can select any of them. 				
DB Instance	Cluster (performance-enhanced)				
Туре	Compared with cluster instances, instances in a performance- enhanced cluster support a larger scale and higher read/write performance.				
Version	• If Storage Type is set to Classic , the version is fixed at 1.8 .				
	 If Storage Type is set to Cloud native, the version is fixed at 1.7. 				
AZ	Availability zone where the instance is created. An AZ is a part of a region with its own independent power supplies and networks. AZs are physically isolated but can communicate with each other over a private network.				
	Instances can be deployed in a single AZ or three AZs.				
	• To deploy instances in a single AZ, select one AZ.				
	• To deploy instances across AZs for disaster recovery, select three AZs, where the instance nodes will be evenly distributed.				

Data Node Specifications		vCPU Memory								
		2 vCPUs 8 GB								
		O 4 vCPUs 16 GB								
		O 8 VCPUs 32 GB								
		🔵 16 vC	PUs 64 GB							
		32 vCPUs 128 GB								
		Currently sele	ected 2 vCPL	Js 8 GB						
Data Nodes		- 3 If you select 3	+ T 3 AZs, set the	The quantity rai	nges from 3 to es to a multiple	12. e of 3 to balan	ice the load	between A	Zs.	
Storage Space	100 GB	16.000	32.000	48.000	64.000	80.000	96.000	- 100	+ G	в
Purchase Cold Storage	Yes	No								
	Cold data can be automatically	oes not back up cold data, separated from hot data. C	so the data is not restored old storage is appropriate	when the instance is restor for large volumes of data th	red. at is not frequently accessed	d.It is less expensive tha	n hot storage, but you	i can still read the da	ita at any tim	ne.

Figure 4-3 Specifications and storage

Table 4-3 Specifications and storage

Parameter	Description		
Data Node Specifications	Data nodes provide read and write capabilities for time series databases. The specifications depend on configurations of the DFV shared resource pool and memory. Select specifications based on service requirements.		
	For details about supported specifications, see Instance Specifications.		
Data Nodes	Select the number of data nodes based on service requirements. After an instance is created, you can add nodes. For details, see Adding Instance Nodes .		
Storage Space	The storage is an integer, and the minimum storage is 100 GB. You can add at least 1 GB each time.		
Auto Scale	You can determine whether to enable it based on the site requirements. This function is now in OBT. To use it, choose Service Tickets > Create Service Ticket in the upper right corner of the console and contact the customer service.		
	• Trigger If Available Storage Drops To : When the available storage drops to or below the specified threshold, autoscaling will be triggered. The value can be 10% , 15% , and 20% .		
	• Increase By : percentage that your instance storage will be scaled up at. The value can be 10% , 15% , or 20% .		
	• Storage Limit : limit of storage that can be automatically scaled up to		

Parameter	Description				
Purchase Cold Storage	Cold storage stores historical data that is not frequently queried. When purchasing a GeminiDB Influx instance, you can purchase cold storage and configure the retention policy to specify the retention period of hot data. In this way, hot data will be automatically archived in cold storage after the retention period expires, reducing storage costs. The value can be:				
	• Yes Set the cold storage capacity to suit your service requirements.				
	• No				
	You do not want to purchase cold storage.				
	For more information about cold and hot data separation, see Cold and Hot Data Separation .				
	If you do not enable cold storage when creating an instance, you can enable it later based on service requirements. For details, see Enabling Cold Storage .				
	NOTE Cold storage cannot be disabled after being enabled.				
Cold Storage	The cold storage space is an integer from 500 GB to 1,024,00 GB. You can add at least a multiple of 10 GB each time.				
	After an instance is created, you can scale up its cold storage. For details, see Scaling Up Cold Storage .				
Disk Encryption	You need to set this parameter if Storage Type is set to Cloud native .				
	Disable: Data is not encrypted.				
	• Enable : Your data will be encrypted on disks and stored in ciphertext after you create an instance. Key Name : Select an existing key or create one.				
	NOTE				
	 This function is now in OBT. To use it, choose Service Tickets > Create Service Ticket in the upper right corner of the console and contact the customer service. 				
	 This parameter is only available for instances with cloud native storage. 				
	 After an instance is created, the disk encryption status and key cannot be changed. 				
	 The key cannot be disabled, deleted, or frozen when used, or the database becomes unavailable. 				
	 For details about how to create a key, see "Creating a Key" in Data Encryption Workshop User Guide. 				

Figure 4-4 Network and database configurations

WPC	Consecutively definition of land V (Reg Ver WC) After identifiable instance, instance, but VC waves the factor is defined and the designed. Designed and wave instances the VPC (In the description instances with gas (EC) is a planet moder, type are identifiable source in the CCD is applied with
Subnet	sative Solid(12 NE 1000) V Gravitation
Security Group	6444/884671445-04463516662
Administrator	Nuk
Administrator Password	Theory year passived second, The system cannot notive a year passived.
Canfirm Password	0
Enterprise Project	388- v) C vive Paper Management ©
99.	C Coloriza
Taus	Is a consensation that you and XM2 providente log because to all the same log to different conditioners, two problems log pr
	Enter stag tay Etter s has noted

Table 4-4 Network

Parameter	Description		
VPC	Virtual private network where your instances are located. A VPC isolates networks for different services. You can select an existing VPC or create a VPC.		
	For details about how to create a VPC, see "Creating a VPC" in <i>Virtual Private Cloud User Guide</i> .		
	If there are no VPCs available, the system allocates resources to you by default.		
	NOTE		
	 After a GeminiDB Influx instance is created, the VPC where the instance is deployed cannot be changed. 		
	 To connect a GeminiDB Influx instance to an ECS over a private network, ensure they are in the same VPC. If they are not, create a VPC peering connection between them. 		
Subnet	A subnet where your instance is created. The subnet provides dedicated and isolated networks, improving network security.		
	NOTE An IPv6 subnet cannot be associated with your instance. Select an IPv4 subnet.		
Security Group	A security group controls access between GeminiDB Influx instances and other services. When you select a security group, you must ensure that it allows your client to access your instances.		
	If there are no security groups available, the system allocates resources to you by default.		

Table 4-5 Database configuration

Parameter	Description
Administrator	The default administrator account is rwuser .

Parameter	Description			
Administrator	Password of the administrator account. The password:			
Password	• Must be 8 to 32 characters long.			
	 The password must contain uppercase letters, lowercase letters, digits, and any of the following special characters: ~! @#%^*=+? 			
	• For security reasons, set a strong password. The system wil verify the password strength.			
	Keep your password secure. The system cannot retrieve it if it is lost.			
Confirm Password	Enter the administrator password again.			
Enterprise	This parameter is provided for enterprise users.			
Project	An enterprise project groups cloud resources, so you can manage resources and members by project. The default project is default .			
	Select an enterprise project from the drop-down list. For more information about enterprise projects, see <i>Enterprise Management User Guide</i> .			

Table 4-6 Tags

Parameter	Description
Tag	Tags a GeminiDB Influx instance. This parameter is optional. Adding tags helps you better identify and manage your instances. A maximum of 20 tags can be added for each instance.
	A tag consists of a tag key and a tag value.
	 A tag key is mandatory if the instance is going to be tagged.
	Each tag key is unique for each instance. It can contain 1 to 128 characters, cannot start with _sys_ , and cannot start or end with a space. Only letters, digits, spaces, and the following special characters are allowed:@.:/+=
	• A tag value is optional if the instance is going to be tagged. The value can be empty.
	The value can contain a maximum of 255 characters. Only letters, digits, spaces, and the following special characters are allowed::+=@/
	After a DB instance is created, you can view its tag details on the Tags tab. In addition, you can add, modify, and delete tags of an existing instance. For details, see Managing Tags .

Parameter	Description
Required duration	The length of your subscription if you select Yearly/Monthly billing. Subscription lengths range from one month to three years.
Auto-renewing an Instance	 By default, this option is not selected. If you select this option, the auto-renew cycle is determined by the selected required duration.

Step 5 On the displayed page, confirm the instance details.

- Yearly/Monthly
 - To modify the configurations, click **Previous**.
 - If no modification is required, read and agree to the service agreement, click **Pay Now**, and complete the payment.
- Pay-per-use
 - To modify the configurations, click **Previous**.
 - If no modification is required, read and agree to the service agreement and click **Submit**.

Step 6 Click Back to Instance Management to go to the instance list.

Step 7 On the **Instances** page, view and manage your instances.

- Creating an instance takes about 5 to 9 minutes. During the process, the instance status becomes **Creating**.
- After the instance is created, its status becomes **Available**.

You can click C in the upper right corner to refresh the instance status.

- An automated backup policy is enabled by default during instance creation. A full backup is automatically triggered after a DB instance is created.
- The default database port of the instance is **8635** and cannot be changed.

Figure 4-5 Available instance

lig: InfluedDe 18 Classic Available - default Log In: Rane Stel2522b1

----End

4.2.2 Buying a GeminiDB Influx Cluster Instance

This section describes how to buy a GeminiDB Influx cluster instance on the GeminiDB console.

Each tenant can create a maximum of 50 GeminiDB Influx instances by default. To request a higher quota, choose **Service Tickets > Create Service Ticket** in the upper right corner of the console and contact the customer service.

Prerequisites

• You have created a Huawei Cloud account.

Procedure

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- Step 3 On the Instances page, click Buy DB Instance.
- **Step 4** On the displayed page, specify a billing mode and instance specifications and click **Next**.

Figure 4-6 Billing mode and basic information

Billing Mode	Yearly/Monthly	Pay-per-use				
Region	0	~				
	Regions are geographic a	reas isolated from eac	h other. For low networ	k latency and quick resource	e access, select the neare	st region.
DB Instance Name	geminidb-dd51					
Compatible API	Redis	Cassandra	HBase	InfluxDB	MongoDB	
Storage Type	Classic	Cloud native				
ololage type	The traditional architecture	is stable and reliable				
DB Instance Type	Cluster (performance-	enhanced)	Cluster	Single node		
	You can buy 10 more Influ	xDB instances that are	e compatible with the Ir	nfluxDB database. Increase of	quotas	
DB Engine Version	1.8					

Parameter	Description	
Billing Mode	Select Yearly/Monthly or Pay-per-use.	
	Yearly/Monthly	
	 Specify Required Duration. The system deducts fees from your account based on the service price. 	
	 If you do not need such an instance any longer after it expires, change the billing mode to pay-per-use. For details, see Yearly/Monthly to Pay-per-Use. 	
	NOTE Yearly/Monthly instances cannot be deleted directly. If such an instance is no longer required, unsubscribe from it. For details, see How Do I Unsubscribe from a Yearly/Monthly Instance?.	
	Pay-per-use	
	 If you select this billing mode, you are billed based on how much time the instance is in use. 	
	 To use an instance for a long time, change its billing mode to yearly/monthly to reduce costs. For details, see Changing a Pay-per-Use Instance to Yearly/ Monthly. 	

Table 4-8 Billing mode

Table 4-9 Basic information

Parameter	Description
Region	The region where the tenant is located. It can be changed in the upper left corner. NOTICE To reduce network latency, select a region nearest from which you will access the instance. Instances deployed in different regions cannot communicate with each other over a private network. After you buy an instance, you cannot change its region.
DB Instance	The instance name:
Name	• Can be the same as an existing instance name.
	• Can contain 4 to 64 characters and must start with a letter. It is case-sensitive and allows only letters, digits, hyphens (-), and underscores (_).
	You can change the name of an instance after it is created. For details, see Changing a GeminiDB Influx Instance Name .
Compatible	InfluxDB
API	GeminiDB is compatible with mainstream NoSQL APIs, including Redis, DynamoDB, Cassandra, HBase, MongoDB, and InfluxDB. You can select GeminiDB APIs by following How Do I Select an API?

Parameter	Description	
Storage Type	Classic: classic architecture with decoupled storage and compute	
	• Cloud native : more flexible, new-gen version with support for more AZs	
	NOTE	
	 Cloud native storage is only available for cluster (performance- enhanced) instances. 	
	 The way you use instances with classic or cloud native storage is similar. Cloud native storage supports more AZs. If both classic and cloud native are supported, you can select any of them. 	
DB Instance	Cluster	
Туре	One cluster consists of at least three nodes. Nodes can be added to a cluster, which is unsuitable to cope with the ever growing data volume.	
DB Engine Version	1.8	
AZ	Availability zone where the instance is created. An AZ is a part of a region with its own independent power supplies and networks. AZs are physically isolated but can communicate with each other over a private network.	
	Instances can be deployed in a single AZ or three AZs.	
	• To deploy instances in a single AZ, select one AZ.	
	• If you want to deploy your instance across AZs for disaster recovery, select three AZs. Nodes of the instance are evenly distributed across the three AZs.	

Figure 4-7 Specifications and storage

Data Node Spe	ecifications	vCP	U Memory			
		2 vC	PUs 8 GB			
		○ 4 vC	PUs 16 GB			
		🔿 8 vC	PUs 32 GB			
		🔿 16 v	CPUs 64 GB			
		🔿 32 v	CPUs 128 GE	3		
		Currently se	lected 2 vCP	Us 8 GB		
Data Nodes		If you select	3 +	The quantity rar	nges from 3 to 16 es to a multiple o	I 3 to balance the load between AZs.
Storage Space	100 GB	2,400	4,800	7,200	9,600	12,000 + 08
Purchase Cold Storage	Yes	No	cold data so the data is	not restored when the inst	ance is restored	
	Cold data can be autor	matically separated from	hot data. Cold storage is	appropriate for large volum	ies of data that is not frequen	thy accessed it is less expensive than hot storage, but you can still read the data at any time.

Parameter	Description
Data Node Specifications	Data nodes provide read and write capabilities for time series databases. The specifications depend on configurations of the DFV shared resource pool and memory. Select specifications based on service requirements.
	For details about supported specifications, see Instance Specifications .
Data Nodes	Select the number of data nodes based on service requirements. After an instance is created, you can add nodes. For details, see Adding Instance Nodes .
	Currently, a maximum of 12 nodes are supported. To add more, choose Service Tickets > Create Service Ticket in the upper right corner of the console and contact the customer service.
Storage Space	The storage is an integer and the minimum storage is 100 GB. You can add a minimum of 1 GB at a time.
Purchase Cold Storage	Cold storage is used to store historical data that is not frequently queried. When purchasing a GeminiDB Influx instance, you can purchase cold storage and configure the retention policy to specify the retention period of hot data. In this way, hot data will be automatically archived in cold storage after the retention period expires, reducing storage costs. The value can be:
	 Yes Set the cold storage capacity to suit your service requirements.
	• No Do not purchase cold storage.
	For more information about cold and hot data separation, see Cold and Hot Data Separation .
	If you do not enable cold storage when creating an instance, you can enable it later based on service requirements. For details, see Enabling Cold Storage . NOTE
	Cold storage cannot be disabled after being enabled.
Cold Storage	The cold storage is an integer from 500 GB to 100,000 GB. You can add a minimum of 1 GB each time you scale up storage space.
	After an instance is created, you can scale up its cold storage. For details, see Scaling Up Cold Storage .

Table 4-10 Specifications and storage

Figure 4-8 Network and database configurations



Table 4-11 Ne	etwork co	nfigurations
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Parameter	Description		
VPC	Virtual private network where your instances are located. A VPC isolates networks for different services. You can select an existing VPC or create one.		
	For details about how to create a VPC, see "Creating a VPC" in <i>Virtual Private Cloud User Guide</i> .		
	With VPC sharing, you can also use a VPC and subnet shared by another account.		
	VPC owners can share the subnets in a VPC with one or multiple accounts through Resource Access Manager (RAM). This allows for more efficient use of network resources and reduces O&M costs.		
	For more information about VPC subnet sharing, see VPC Sharing in <i>Virtual Private Cloud User Guide</i> .		
	If there are no VPCs available, the system automatically allocates a VPC to you.		
	NOTE		
	 After a GeminiDB Influx instance is created, the VPC where the instance is deployed cannot be changed. 		
	 To connect a GeminiDB Influx instance to an ECS over a private network, ensure they are in the same VPC. If they are not, create a VPC peering connection between them. 		
Subnet	A subnet where your instance is created. The subnet provides dedicated and isolated networks, improving network security.		
	NOTE An IPv6 subnet cannot be associated with your instance. Select an IPv4 subnet.		

Parameter	Description
Security Group	A security group controls access between GeminiDB Influx instances and other services. Ensure that the security group you selected allows your client to access the instance.
	If no security group is available, the system creates one for you.

Table 4-12 Database configurations

Parameter Description		
Administrator	Username of the administrator account. The default value is rwuser .	
Administrator Password	 Password of the administrator account. The password: Can contain 8 to 32 characters. Can include uppercase letters, lowercase letters, digits, and any of the following special characters: ~!@#%^*=+? For security reasons, set a strong password. The system will verify the password strength. Keep your password secure. The system cannot retrieve it if it is lost. 	
Confirm Password	This password must be consistent with the administrator password.	
Parameter Template	A template of parameters for creating an instance. The template contains API configuration values that are applied to one or more instances. After an instance is created, you can modify its parameters to better meet your service requirements. For details, see Modifying Parameters of GeminiDB Influx Instances .	
Enterprise Project	This parameter is provided for enterprise users. An enterprise project groups cloud resources, so you can manage resources and members by project. The default project is default . Select an enterprise project from the drop-down list. For more information about enterprise projects, see <i>Enterprise</i> <i>Management User Guide</i> .	

Parameter	Description		
SSL	A security protocol. Secure Sockets Layer (SSL) certificates set up encrypted connections between clients and servers, preventing data from being tampered with or stolen during transmission.		
	You can enable SSL to improve data security. After an instance is created, you can connect to it using SSL.		
	Figure 4-9 Enabling SSL		
	SSL Default certificate CCM PCA		
	Certificate -Select- > C		
	After SSL is enabled, you can select the default certificate or the certificate issued by the CCM service.		
	NOTE		
	 If SSL is not enabled when you create an instance, you can enable SSL after the instance is created. For details, see Encrypting Data over SSL for a GeminiDB Influx Instance. 		
	 For details about how to disable SSL, see Encrypting Data over SSL for a GeminiDB Influx Instance. 		

Parameter	Description
Tags	The setting is optional. Adding tags helps you better identify and manage your instances. A maximum of 20 tags can be added for each instance.
	If your organization has configured a tag policy for a GeminiDB Influx instance, you need to add a tag to the instance based on the tag policy. If the tag does not comply with the tag policy, the instance may fail to be created. Contact the organization administrator to learn details about the tag policy.
	A tag consists of a tag key and a tag value.
	 A tag key is mandatory if the instance is going to be tagged. Each tag key is unique for each instance. It can contain 1 to 128 characters, cannot start with _sys_, and cannot start or end with a space. Only letters, digits, spaces, and the following special characters are allowed:@.:/+=
	 A tag value is optional if the instance is going to be tagged. The value can be empty.
	The value can contain a maximum of 255 characters. Only letters, digits, spaces, and the following special characters are allowed::+=@/
	After an instance is created, you can view its tag details on the Tags tab. In addition, you can add, modify, and delete tags of an existing instance. For details, see Managing Tags.

Table 4-13 Tags

Г

Table 4-14 Required duration

Parameter	Description	
Required Duration	The length of your subscription if you select Yearly/Monthly billing. Subscription lengths range from one month to three years.	
Auto-renew	This option is not selected by default.If you select this option, the renew cycle is the same as the selected duration.	

Step 5 On the displayed page, confirm instance details.

- Yearly/Monthly
 - To modify the configurations, click **Previous**.
 - If no modification is required, read and agree to the service agreement, click **Pay Now**, and complete the payment.
- Pay-per-use

- To modify the configurations, click **Previous**.
- If no modification is required, read and agree to the service agreement and click **Submit**.

Step 6 Click Back to Instance Management to go to the instance list.

Step 7 On the **Instances** page, view and manage the created instance.

- Creating an instance takes about 5 to 9 minutes. During the process, the instance status displayed in the DB instance list is **Creating**.
- After the instance is created, its status becomes **Available**.

You can click C in the upper right corner of the page to refresh the instance status.

- An automated backup policy is enabled by default during instance creation. A full backup is automatically triggered after an instance is created.
- The default database port of the instance is **8635** and cannot be changed.

Figure 4-10 Available instance

	Name1D 🖯	DB Instance Type	Compatible API	Storag	Status 🖯	Specifications	Storage Space		Load balancer	Enterprise Proj	Billing Mode	Operation
		Cluster	InfluxDB 1.8	Classic	 Available 	4 vCPUs 3 nodes	0.01%	0.01/100GB	-	default	Pay-per-Use Created on Aug	Leg In: Change to Yearly/Monthly: More ~

----End

4.2.3 Buying a Single-Node GeminiDB Influx Instance

This section describes how to buy a single-node GeminiDB Influx instance on the GeminiDB console.

Each tenant can create a maximum of 50 GeminiDB Influx instances by default. To request a higher quota, choose **Service Tickets > Create Service Ticket** in the upper right corner of the console and contact the customer service.

Prerequisites

• You have created a Huawei Cloud account.

Procedure

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- Step 3 On the Instances page, click Buy DB Instance.
- **Step 4** On the displayed page, select a billing mode, select instance specifications and click **Next**.



Figure 4-11 Billing mode and basic information

Table 4-15 Billing mode

Parameter	Description					
Billing Mode	Select Yearly/Monthly or Pay-per-use. Yearly/Monthly 					
	 Specify Required Duration. The system deducts fees from your account based on the service price. 					
	 If you do not need such an instance any longer after it expires, change the billing mode to pay-per-use. For details, see Yearly/Monthly to Pay-per-Use. 					
	NOTE Yearly/Monthly instances cannot be deleted directly. If such an instance is no longer required, unsubscribe from it. For details, see How Do I Unsubscribe from a Yearly/Monthly Instance?.					
	Pay-per-use					
	 If you select this billing mode, you are billed based on how much time the instance is in use. 					
	 To use an instance for a long time, change its billing mode to yearly/monthly to reduce costs. For details, see Changing a Pay-per-Use Instance to Yearly/ Monthly. 					

Table 4-16 Basic information

Parameter	Description
Region	The region where the tenant is located. It can be changed in the upper left corner.
	NOTICE To reduce network latency, select a region nearest from which you will access the instance. Instances deployed in different regions cannot communicate with each other through a private network. After you buy an instance, you cannot change its region.
Parameter	Description
----------------------	--
DB Instance Name	 The instance name: Can be the same as an existing instance name. Can contain 4 to 64 characters and must start with a letter. It is case-sensitive and allows only letters, digits, hyphens (-), and underscores (_). You can change the name of an instance after it is created. For details, see Changing a GeminiDB Influx Instance Name
Compatible API	InfluxDB GeminiDB is compatible with mainstream NoSQL APIs, including Redis, DynamoDB, Cassandra, HBase, MongoDB, and InfluxDB. You can select GeminiDB APIs by following How Do I Select an API?
Storage Type	 Classic: classic architecture with decoupled storage and compute Cloud native: more flexible, new-gen version with support for more AZs NOTE Cloud native storage is only available for cluster (performance-enhanced) instances. The way you use instances with classic or cloud native storage is similar. Cloud native storage supports more AZs. If both classic and cloud native are supported, you can select any of them.
DB Instance Type	Single node A single-node instance cannot ensure the SLA. You are advised to use it only for tests and function verification.
DB Engine Version	1.8
AZ	Availability zone where the instance is created. An AZ is a part of a region with its own independent power supplies and networks. AZs are physically isolated but can communicate with each other over a private network.

Figure 4-12 Specifications and storage

Instance Specifications	vCPU Memory						
	• 4 vCPUs 8 GB						
	🔵 8 vCPUs 16 GE	1					
	0 16 vCPUs 32 G	B					
	32 vCPUs 64 G	B					
	Currently selected 4 v0	PUs 8 GB					
Nodes	- -1 +						
Storage Space	100 GB						
							- 100 + GB
	100	200	400	600	800	1,000	
Purchase Cold Storage	Yes	No					
	A Enabling cold storage does not back up cold data so the data is not restored when the instance is restored						
	Children to a strength and the first of the strength of the st						
	own own on a centre outermankery opportune or the outer of expression of the province of and title to first industrial decession. It is less expensive international provide a centre of a centre of the provide a centre of t						

Parameter	Description
Instance Specifications	The specifications depend on configurations of the DFV shared resource pool and memory. Select specifications based on service requirements.
	For details about supported specifications, see Instance Specifications .
Nodes	A single-node instance can have only one node.
Storage Space	The storage is an integer and the minimum storage is 100 GB. You can add a minimum of 1 GB at a time.

Table 4-17 Specifications and storage

Figure 4-13 Network and database configurations



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Parameter	Description			
VPC	Virtual private network where your instances are located. A VPC isolates networks for different services. You can select an existing VPC or create one.			
	For details about how to create a VPC, see "Creating a VPC" in <i>Virtual Private Cloud User Guide</i> .			
	With VPC sharing, you can also use a VPC and subnet shared by another account.			
	VPC owners can share the subnets in a VPC with one or multiple accounts through Resource Access Manager (RAM). This allows for more efficient use of network resources and reduces Q&M costs			
	For more information about VPC subnet sharing, see VPC Sharing in <i>Virtual Private Cloud User Guide</i> .			
	If there are no VPCs available, the system automatically allocates a VPC to you.			
	NOTE			
	• After a GeminiDB Influx instance is created, the VPC where the instance is deployed cannot be changed.			
	• To connect a GeminiDB Influx instance to an ECS over a private network, ensure they are in the same VPC. If they are not, create a VPC peering connection between them.			
Subnet	A subnet where your instance is created. The subnet provides dedicated and isolated networks, improving network security.			
	subnet.			
Security group	A security group controls access between GeminiDB Influx instances and other services. Ensure that the security group you selected allows your client to access the instance.			
	If no security group is available, the system creates one for you.			

Table 4-18 Networ	k configurations
-------------------	------------------

Table	4-19	Database	configurations
			3

Parameter	Description
Administrator	Username of the administrator account. The default value is rwuser .

Parameter	Description	
Administrator	Password of the administrator account. The password:	
Password	Can include 8 to 32 characters.	
	• Can include uppercase letters, lowercase letters, digits, and any of the following special characters: ~!@#%^*=+?	
	• For security reasons, set a strong password. The system will verify the password strength.	
	Keep your password secure. The system cannot retrieve it if it is lost.	
Confirm Password	This password must be consistent with the administrator password.	
Parameter Template	A template of parameters for creating an instance. The template contains API configuration values that are applied to one or more instances.	
	After an instance is created, you can modify its parameters to better meet your service requirements. For details, see Modifying Parameters of GeminiDB Influx Instances .	
Enterprise	This parameter is provided for enterprise users.	
Project	An enterprise project groups cloud resources, so you can manage resources and members by project. The default project is default .	
	Select an enterprise project from the drop-down list. For more application information about enterprise projects, see <i>Enterprise Management User Guide</i> .	

Table 4-20 Tags

Parameter	Description		
Tags	The setting is optional. Adding tags helps you better identify and manage your GeminiDB Influx instances. A maximum of 20 tags can be added for each instance.		
	If your organization has configured a tag policy for a GeminiDB Influx instance, you need to add a tag to the instance based on the tag policy. If the tag does not comply with the tag policy, the instance may fail to be created. Contact the organization administrator to learn details about the tag policy.		
	A tag consists of a tag key and a tag value.		
	 A tag key is mandatory if the instance is going to be tagged. Each tag key is unique for each instance. It can contain 1 to 128 characters, cannot start with _sys_, and cannot start or end with a space. Only letters, digits, spaces, and the following special characters are allowed:@.:/+= 		
	• A tag value is optional if the instance is going to be tagged. The value can be empty.		
	The value can contain a maximum of 255 characters. Only letters, digits, spaces, and the following special characters are allowed::+=@/		
	After an instance is created, you can view its tag details on the Tags tab. In addition, you can add, modify, and delete tags of an existing instance. For details, see Managing Tags .		

Table 4-21 Required duration

Parameter	Description	
Required Duration	The length of your subscription if you select Yearly/Monthly billing. Subscription lengths range from one month to three years.	
Auto-renew	This option is not selected by default.If you select this option, the renew cycle is the same as the selected duration.	

Step 5 On the displayed page, confirm instance details.

- Yearly/Monthly
 - To modify the configurations, click **Previous**.
 - If no modification is required, read and agree to the service agreement, click **Pay Now**, and complete the payment.
- Pay-per-use

- To modify the configurations, click **Previous**.
- If you do not need to modify the settings, read and agree to the service agreement and click **Submit**.

Step 6 Click Back to Instance Management to go to the instance list.

Step 7 On the **Instances** page, view and manage the created instance.

- Creating an instance takes about 5 to 9 minutes. During the process, the instance status displayed in the instance list is **Creating**.
- After the instance is created, its status becomes **Available**.

You can click C in the upper right corner of the page to refresh the instance status.

- An automated backup policy is enabled by default during instance creation. A full backup is automatically triggered after an instance is created.
- The default database port of the instance is **8635** and cannot be changed.

Figure 4-14 Available instance



----End

4.3 Instance Connection and Management

4.3.1 Connecting to a GeminiDB Influx Instance

You can connect to a GeminiDB Influx instance over a private network, public network, load balancer IP address, or program code.

Figure 4-15 shows the process of connecting to a GeminiDB Influx instance.

Figure 4-15 Connection Methods



A GeminiDB Influx instance is connected over a private network (An ECS and a GeminiDB Influx instance are in the same security group).

2 A GeminiDB Influx instance is connected over a private network (An ECS and a GeminiDB Influx instance are in different security groups).

Table 4-22	Connection	methods
-------------------	------------	---------

Met hod	Scenario	Def aul t Por t	Description
DAS	You can connect to a GeminiDB Influx instance on a web-based console.	-	 Easy to use, secure, advanced, and intelligent By default, you have the permission of remote login. DAS is secure and convenient for connecting to instances.

Met hod	Scenario	Def aul t Por t	Description
Priva te netw ork	Connect to a GeminiDB Influx instance using a private IP address or load balancer address. This method is suitable when your application is deployed on an ECS that is in the same region and VPC as your instance.	863 5	 To improve connection reliability and eliminate the impact of a single point of failure, the load balancer address is recommended. High security and performance If the ECS and GeminiDB Influx instance are in the same security group, they can communicate with each other by default. No security group rule needs to be configured. If they are in different security groups, configure security group rules for them, separately. Configure inbound rules of a security group for GeminiDB Influx instances by following Setting Security Group Rules for a GeminiDB Influx instances by following Setting Security Group Rules for a GeminiDB Influx Instance. The default security group rule allows all outbound data packets, so you do not need to configure a security rule for the ECS. If not all access from the ECS is allowed, you need to configure an outbound rule for the ECS.

Met hod	Scenario	Def aul t Por t	Description
Publi c netw ork	You can connect to a GeminiDB Influx instance through an EIP. This method is suitable when DB instances cannot be accessed over a private network. You can bind an EIP to an ECS (or a server on the public network) to access the instance.	863 5	 Low security For faster transmission and improved security, migrate your applications to an ECS that is in the same subnet as your instance and use a private IP address to access the instance. For EIP pricing details, see EIP billing details.
Prog ram code	Connect to a GeminiDB Influx instance using Go , Java, or Python.	863 5	-

4.3.2 Connecting to a GeminiDB Influx Instance on the DAS Console

This section describes how to connect to a GeminiDB Influx instance on the console.

Prerequisites

A GeminiDB Influx instance has been created and is running properly.

Usage Notes

- SELECT query commands are supported.
- INSERT commands for writing data are supported.
- Commands for database operations (including creating, deleting, and displaying databases) are supported.
- Commands for user operations (including creating, deleting, displaying, and authorizing users, and changing user passwords) are supported.
- Commands of retention policies (including creating, deleting, displaying, and modifying retention policies) are supported.
- CONTINUOUS QUERY commands (including CREATE CONTINUOUS QUERY, DROP CONTINUOUS QUERY, and SHOW CONTINUOUS QUERY) are supported.

Procedure

Step 1 Log in to the Huawei Cloud console.

Step 2 In the service list, choose **Databases** > **GeminiDB**.

Step 3 In the instance list, locate a target instance and click **Log In** in the **Operation** column.

Figure 4-16 Connecting to a GeminiDB Influx Instance

1%MaalalaladiS10266425ml Qualer Hudd 11 Q Joshe 200% 607% 6070028 Pagerose Log Dasyn Vied Month (Mon +

Alternatively, click the instance name to go to the **Basic Information** page. Click **Log In** in the upper right corner of the page.

Figure 4-17 Connecting to a GeminiDB Influx Instance

<	- O Available				Feedback Login
Exsic Information					
Eaclups & Restantions	DB Instance Topology				
Slow Query Logs					
Parameters					
Tays					
		۲	۲	··· 💌	
		Node 1	Node 2	Node N	
		1	1	1	
			Storage Pool		

Step 4 Enter the password for logging in to the instance.

Figure 4-18 Logging in to the GeminiDB Influx instance

Log In to InfluxDB Instance

DB Instance Nan	ne	
Password	Enter your password.	8
	Log In	

If you need to log in again after the password is reset, click **Re-login** in the upper right corner and use the new password.

Figure 4-19 Re-login

D8 Instance Name geminide-	Re-login	Save to Executed Commands 🛞 🧲
Eiter a command.	·	
Execute (73) Save My Commands Claur (710)		
1		T
Executed Commands Messages Results		



Figure 4-20 Instance homepage

B Instanc	Instance Name						
Exec	cute (F8) Sav	/e My Con	mands Clea	ır (F10)			
1							
Execute	ed Commands	Messages	Results				
4							

• Save commands to executed commands.

This function is enabled by default to save the recently executed commands for your later query.

Then you can click the **Executed Commands** tab on the lower page to view historical commands.

NOTE

Commands with passwords are not displayed on the **Executed Commands** tab page.

Figure 4-21 Executed commands

Executed Commands Messages Results			
Executed	Command	Time Required	Result
Jan 02, 2824 14 47:14 GMT+08:00	show databases	2m	Succeeded
Jan 02, 2824 14:47:06 GMT+08:90	shew users	25mo	Succeeded

If this function is disabled, the commands executed subsequently are not displayed any longer. You can click
real next to Save Executed SQL
Statements in the upper right corner to disable this function.

• Execute a command.

You can enter a command in the command window and click **Execute** or **F8**.

Figure 4-22 Execute a command.

Execute (F8)	ave My Co	mmands	Clear (F10)
1 show databas	ses		
Executed Commands	Messages	Results	
name: databases			
name			
internal			

After a command is executed, you can view the execution result on the **Results** page.

• Save a command.

You can save a command to all instances or the current instance. Then you can view details in **My Commands**.

NOTE

Commands with passwords cannot be saved to My Commands.

Figure 4-23 Save a command.



• View my commands.

Common commands are displayed the **My Commands** page.

You can set a filter to narrow the scope of commands. If you select **All**, all commands saved in the current account are displayed.

Figure 4-24 Filtering commands

My Comma	nds						
Create Com	mand			All 🔺	Enter a title or com	mand.	Q
No.	Title	Application S	Command	All		Operation	
1	showdb	Current instance	show databases	All instances Current instance		Edit Delete Cop	y to Command Wind

Alternatively, you can enter a command title or statement in the search box to search for the corresponding command.

Figure 4-25 Searching for a command

Create Cor	mmand			All	٠	show		XQ
No.	Title	Application S	Command				Operation	
1	showdb	Current instance	show databases				Edit Delete Copy	to Command Wind

On the **My Commands** page, you can also create, edit, and delete a command or copy it to the command window.

Figure 4-26 Managing a command

Create Comman	d			All	Ŧ	show	×	< Q
No.	Title	Application S	Command				Operation	
1	showdb	Current instance	show databases				Edit Delete Copy to Comma	and Wind

• Clear commands.

My Commands

My Commands

You can also press **F10** to clear the command in the command window.

----End

FAQs

Question: What should I do if the DAS console cannot be redirected after I click **Log In** in the **Operation** column in the instance list or click **Log In** on the **Basic Information** page?

Solution: Set your browser to allow pop-ups and try again.

4.3.3 Connecting to a GeminiDB Influx Instance Using the InfluxDB CLI over a Private Network

Scenarios

This section uses Linux as an example to describe how to connect to a GeminiDB Influx instance using a load balancer address or the private IP address of an ECS.

Usage Notes

- The instance and ECS must be in the same VPC and subnet.
- The ECS must be allowed by the security group to access the instance.
 - If the instance is associated with the default security group, you do not need to set security group rules.
 - If the instance is not associated with the default security group, check whether the security group rules allow the ECS to access the instance. For details, see Setting Security Group Rules for a GeminiDB Influx Instance.

Prerequisites

- An ECS has been created. The following uses a Linux ECS as an example. For details, see **Purchasing an ECS** in *Getting Started with Elastic Cloud Server*.
- Download the **x86 client** or **Arm client** of InfluxDB. The following uses the Linux 64-bit client as an example.

Method 1: Using a Load Balancer Address over SSL Connections (Recommended)

- **Step 1** Log in to the ECS. For details, see **Logging In to an ECS** in *Getting Started with Elastic Cloud Server*.
- **Step 2** Upload the InfluxDB client installation package to the ECS using file transfer tools like XFTP.
- **Step 3** Decompress the client (for example, x86 client) tool package. tar -xzf influxdb-1.8.10_linux_amd64.tar.gz
- **Step 4** Connect to your instance in the directory where the InfluxDB client is located.
 - 1. Run the following command to go to the InfluxDB directory: cd influxdb-1.8.10-1/usr/bin
 - 2. Connect to the GeminiDB Influx instance. ./influx -ssl -unsafeSsl -username '<DB_USER>' -password '<DB_PWD>' -host <DB_HOST> -port <DB_PORT>

Example:

./influx -ssl -unsafeSsl -username 'rwuser' -password '<*DB_PWD*>' -host 192.xx.xx.xx -port 8635

Parameter	Description
<db_user></db_user>	Username of the administrator account. The default value is rwuser .
	On the Instances page, click the instance name. In the DB Information area on the Basic Information page, you can see the administrator username.
<db_pwd></db_pwd>	Administrator password

Table 4-23 Parameters

Parameter	Description
<db_host></db_host>	Load balancer address of the instance to be connected.
	Connecting to an instance using a load balancer address is now in OBT. To use it, choose Service Tickets > Create Service Ticket in the upper right corner of the console and contact the customer service.
	Scenario 1:
	If you have obtained a load balancer address before creating an instance, the load balancer address is selected by default on the instance creation page.
	After the instance is created, click its name to go to the Basic Information page and obtain the load balancer IP address in the Network Information area.
	Scenario 2:
	To use a load balancer address after the instance is created, choose Service Tickets > Create Service Ticket in the upper right corner of the console and contact the customer service.
	Then you can click the instance name to view the load balancer address in the Network Information area on the Basic Information page.
<db_port></db_port>	Instance port
	Click the instance name to go to the Basic Information page. In the Network Information area, you can see the instance port.

Step 5 Check the results. If information similar to the following is displayed, the connection is successful.

```
Connected to https://host:port version x.x.x
InfluxDB shell version 1.8.10
```

----End

Method 2: Using a Load Balancer Address over Non-SSL Connections

- **Step 1** Log in to the ECS. For details, see **Logging In to an ECS** in *Getting Started with Elastic Cloud Server*.
- **Step 2** Upload the InfluxDB client installation package to the ECS using file transfer tools like XFTP.
- Step 3 Decompress the client (for example, x86 client) tool package. tar -xzf influxdb-1.8.10_linux_amd64.tar.gz
- **Step 4** Connect to your instance in the directory where the InfluxDB client is located.
 - 1. Run the following command to go to the InfluxDB directory: cd influxdb-1.8.10-1/usr/bin

2. Connect to the GeminiDB Influx instance.

./influx -username '<DB_USER>' -password '<DB_PWD>' -host <DB_HOST> -port <DB_PORT>
Example:

./influx -username 'rwuser' -password '<*DB_PWD*>' -host 192.xx.xx.xx -port 8635

Table 4	-24	Paran	neters
---------	-----	-------	--------

Parameter	Description
<db_user></db_user>	Username of the administrator account. The default value is rwuser .
	On the Instances page, click the instance name. In the DB Information area on the Basic Information page, you can see the administrator username.
<db_pwd></db_pwd>	Administrator password
<db_host></db_host>	Load balancer address of the instance to be connected.
	Connecting to an instance using a load balancer address is now in OBT. To use it, choose Service Tickets > Create Service Ticket in the upper right corner of the console and contact the customer service.
	 If you have enabled the load balancer address before creating an instance, you can view that the load balancer address is selected by default on the instance creation page. After the instance is created, click the instance name to go to the Basic Information page and obtain the load balancer address in the Network Information area.
	 If you have already created an instance and enabled the load balancer address, you can click the instance name and view the address in the Network Information area on the Basic Information page.
<db_port></db_port>	Instance port Click the instance name to go to the Basic Information page. In the Network Information area, you can see the instance port.

Step 5 Check the results. If information similar to the following is displayed, the connection is successful. Connected to https://host:port version x.x.x InfluxDB shell version: 1.8.10

----End

>

Method 3: Using a Private IP Address over SSL Connections

Step 1 Log in to the ECS. For details, see **Logging In to an ECS** in *Getting Started with Elastic Cloud Server*.

- **Step 2** Upload the InfluxDB client installation package to the ECS using file transfer tools like XFTP.
- Step 3 Decompress the client (for example, x86 client) tool package. tar -xzf influxdb-1.8.10_linux_amd64.tar.gz
- **Step 4** Connect to your instance in the directory where the InfluxDB client is located.
 - 1. Run the following command to go to the InfluxDB directory: cd influxdb-1.8.10-1/usr/bin
 - 2. Connect to the GeminiDB Influx instance.
 - Use the default certificate.
 ./influx -ssl -unsafeSsl -host < DB_HOST> -port < DB_PORT>
 Example:
 ./influx -ssl -unsafeSsl -host 192.xx.xx.xx -port 8635

 Table 4-25
 Parameters

Parameter	Description
<db_host></db_host>	Private IP address of a node to be connected
	On the Instances page, click the target instance name. You can see the private IP address in the Private IP Address column in the Node Information area.
	If the instance you purchased has multiple nodes, select the private IP address of any node.
<db_port></db_port>	Port of an instance to be connected. The default port is 8635 and cannot be changed.
	Click the GeminiDB Influx instance to go to the Basic Information page. In the Network Information area, you can see the port.

3. Run the **auth** command to authenticate the user.

auth

Enter the username and password as prompted. username: <DB_USER> password: <DB_PWD>

Table 4-26 Parameters

Parameter	Description
<db_user></db_user>	Username of the administrator account. The default value is rwuser .
	On the Instances page, click the instance name. In the DB Information area on the Basic Information page, you can see the administrator username.
<db_pwd></db_pwd>	Administrator password

Step 5 After the authentication is successful, run the **show databases** command.

show databases

If the following information is displayed, the connection is successful.

name: databases name ----_internal

----End

Method 4: Using a Private IP Address over Non-SSL Connections

- **Step 1** Log in to the ECS. For details, see **Logging In to an ECS** in *Getting Started with Elastic Cloud Server*.
- **Step 2** Upload the InfluxDB client installation package to the ECS using file transfer tools like XFTP.
- Step 3 Decompress the client (for example, x86 client) tool package. tar -xzf influxdb-1.8.10_linux_amd64.tar.gz
- Step 4 Connect to your instance in the directory where the InfluxDB client is located.
 - 1. Run the following command to go to the InfluxDB directory: cd influxdb-1.8.10-1/usr/bin
 - Connect to the GeminiDB Influx instance. ./influx -host < DB_HOST> -port < DB_PORT>
 Example:

/influx -host 192.xx.xx.xx -port 8635

Table 4-27 P	Parameters
---------------------	------------

Parameter	Description
<db_host></db_host>	Private IP address of a node to be connected
	On the Instances page, click the target instance name. You can see the private IP address in the Private IP Address column in the Node Information area.
	If the instance you purchased has multiple nodes, select the private IP address of any node.
<db_port></db_port>	Port of an instance to be connected. The default port is 8635 and cannot be changed.
	Click the GeminiDB Influx instance to go to the Basic Information page. In the Network Information area, you can see the port.

3. Run the **auth** command to authenticate the user.

auth

Enter the username and password as prompted. username: <DB_USER> password: <DB_PWD>

Table 4-28 Parameters

Parameter	Description
<db_user></db_user>	Username of the administrator account. The default value is rwuser .
	On the Instances page, click the instance name. In the DB Information area on the Basic Information page, you can see the administrator username.
<db_pwd></db_pwd>	Administrator password

Step 5 After the authentication is successful, run the **show databases** command.

show databases

If the following information is displayed, the connection is successful.

name: databases name ----_internal

----End

4.3.4 Connecting to a GeminiDB Influx Instance Using the InfluxDB CLI over a Public Network

This section uses the Linux operating system as an example to describe how to connect an ECS to a GeminiDB Influx instance over a public network.

Prerequisites

- Bind an EIP to the GeminiDB Influx instance and configure security group rules to ensure that the instance is accessible from ECSs through the EIP. For details, see **Binding an EIP to a GeminiDB Influx Instance Node** and **Setting Security Group Rules for a GeminiDB Influx Instance**.
- An ECS has been created. The following uses a Linux ECS as an example. For details, see **Purchasing an ECS** in *Getting Started with Elastic Cloud Server*.
- Download the **x86 client** or **Arm client** of InfluxDB. The following uses the Linux 64-bit client as an example.

Procedure

- **Step 1** Log in to the ECS. For details, see **Logging In to an ECS** in *Getting Started with Elastic Cloud Server*.
- **Step 2** Upload the InfluxDB client installation package to the ECS using file transfer tools like XFTP.
- Step 3 Decompress the client (for example, x86 client) tool package. tar -xzf influxdb-1.8.10_linux_amd64.tar.gz
- **Step 4** Connect to your instance in the directory where the InfluxDB client is located.

- 1. Run the following command to go to the InfluxDB directory: cd influxdb-1.8.10-1/usr/bin
- 2. Connect to the GeminiDB Influx instance.
 - Use SSL to connect to a database.
 ./influx -ssl -unsafeSsl -host < DB_HOST> -port < DB_PORT>
 Example:
 ./influx -ssl -unsafeSsl -host 10.xx.xx.xx -port 8635
 - Use a non-SSL connection to access a database.
 ./influx -host < DB_HOST> -port < DB_PORT>
 Example:

./influx -host 10.xx.xx.xx -port 8635

Table 4-29 Parameters

Parameter	Description
<db_host></db_host>	EIP of the node to be connected
	On the Instances page, click the target instance name. You can see the EIP in the EIP column in the Node Information area.
	If the instance you purchased has multiple nodes, select the EIP of any node.
	If no EIP has been bound to the current node, bind an EIP to the instance by following Binding an EIP to a GeminiDB Influx Instance Node .
<db_port></db_port>	Port of an instance to be connected. The default port is 8635 and cannot be changed.
	Click the GeminiDB Influx instance to go to the Basic Information page. In the Network Information area, you can see the port.

3. Run the **auth** command to authenticate the user.

auth

Enter the username and password as prompted. **username**: *<DB_USER>* **password**: *<DB_PWD>*

Table 4-30 Parameters

Parameter	Description
<db_user></db_user>	Username of the administrator account. The default value is rwuser .
	On the Instances page, click the instance name. In the DB Information area on the Basic Information page, you can see the administrator username.
<db_pwd></db_pwd>	Administrator password

Step 5 After the authentication is successful, run the **show databases** command.

show database

If the following information is displayed, the connection is successful.

name: databases name ----_internal

----End

Follow-up Operations

After you log in to the instance, you can create databases or data retention policies. For details, see **Buying and Connecting to a GeminiDB Influx Instance**.

4.3.5 Connecting to a GeminiDB Influx Instance Using Programming Languages

4.3.5.1 Connecting to a GeminiDB Influx Instance Using Go

This section describes how to connect to a GeminiDB Influx instance using the Go programming language.

Prerequisites

You have downloaded the client code from the InfluxDB open-source project website.

Example Code for Accessing an Instance Using a Non-SSL Connection

```
package main
import (
   "fmt"
    "github.com/influxdata/influxdb1-client" // this is important because of the bug in go mod
  client "github.com/influxdata/influxdb1-client/v2"
  "os"
func main(){
  c, err := client.NewHTTPClient(client.HTTPConfig{
     Addr: "http://ip:port",
     // There will be security risks if the username and password used for authentication are directly
written into code. Store the username and password in ciphertext in the configuration file or environment
variables.
     // In this example, the username and password are stored in the environment variables. Before
running this example, set environment variables EXAMPLE_USERNAME_ENV and
EXAMPLE_PASSWORD_ENV as needed.
     username = os.Getenv("EXAMPLE USERNAME ENV"),
     password = os.Getenv("EXAMPLE_PASSWORD_ENV"),
     Username: username,
     Password: password,
  })
  if err != nil {
     fmt.Println("Error creating InfluxDB Client: ", err.Error())
  ļ
```

```
q := client.NewQuery("select * from cpu","db0","ns")
if response, err := c.Query(q); err == nil && response.Error() == nil {
    fmt.Println("the result is: ",response.Results)
}
```

4.3.5.2 Connecting to a GeminiDB Influx Instance Using Java

This section describes how to connect to a GeminiDB Influx instance using the Java programming language.

Dependencies on the pom File

}

```
<dependency>
```

<groupId>org.influxdb</groupId>

<artifactId>influxdb-java</artifactId>

<version>2.21</version>

</dependency>

Example Code for Connecting to an Instance Using SSL

package influxdb;

import java.security.SecureRandom; import java.security.cert.X509Certificate; import java.util.concurrent.TimeUnit; import javax.net.ssl.SSLContext;

import okhttp3.OkHttpClient; import org.influxdb.InfluxDB; import org.influxdb.InfluxDBFactory; import org.influxdb.dto.Point; import org.influxdb.dto.Query; import org.influxdb.dto.QueryResult;

import org.apache.http.ssl.SSLContexts; import javax.net.ssl.*;

public class demo {

public static void main(String[] args) {
 OkHttpClient.Builder client = new OkHttpClient.Builder()
 .connectTimeout(10, TimeUnit.SECONDS)
 .writeTimeout(10, TimeUnit.SECONDS)
 .readTimeout(10, TimeUnit.SECONDS)
 .retryOnConnectionFailure(true);

client.sslSocketFactory(defaultSslSocketFactory(), defaultTrustManager()); client.hostnameVerifier(noopHostnameVerifier());

// There will be security risks if the username and password used for authentication are directly written into code. Store the username and password in ciphertext in the configuration file or environment variables.

// In this example, the username and password are stored in the environment variables. Before running this example, set environment variables EXAMPLE_USERNAME_ENV and EXAMPLE_PASSWORD_ENV as needed.

String username = System.getenv("EXAMPLE_USERNAME_ENV"); String password = System.getenv("EXAMPLE_PASSWORD_ENV"); final String serverURL = "https://127.0.0.1:8086", username = username, password = password;

InfluxDB influxdb = InfluxDBFactory.connect(serverURL, username, password, client);

// Create a database...
String databaseName = "foo";
influxdb.query(new Query("CREATE DATABASE " + databaseName, databaseName));
influxdb.setDatabase(databaseName);

// Write points to influxdb.

```
influxdb.write(Point.measurement("bar")
         .time(System.currentTimeMillis(), TimeUnit.MILLISECONDS)
         .tag("location", "chengdu")
         .addField("temperature", 22)
         .build());
      // Query your data using InfluxQL.
      QueryResult queryResult = influxdb.query(new Query("SELECT * FROM bar", databaseName));
      // Close it if your application is terminating or you are not using it anymore.
      influxdb.close();
   }
   private static X509TrustManager defaultTrustManager() {
      return new X509TrustManager() {
        public X509Certificate[] getAcceptedIssuers() {
           return new X509Certificate[0];
        }
         public void checkClientTrusted(X509Certificate[] certs, String authType) {
         public void checkServerTrusted(X509Certificate[] certs, String authType) {
     };
   }
   private static SSLSocketFactory defaultSslSocketFactory() {
      try {
        SSLContext sslContext = SSLContexts.createDefault();
        sslContext.init(null, new TrustManager[] {
           defaultTrustManager()
        }, new SecureRandom());
        return sslContext.getSocketFactory();
      } catch (Exception e) {
        throw new RuntimeException(e);
      }
   }
   private static HostnameVerifier noopHostnameVerifier() {
      return new HostnameVerifier() {
        @Override
         public boolean verify(final String s, final SSLSession sslSession) {
           return true; //true indicates that SSL is enabled but the SSL certificate is not verified. This mode
is recommended.
        }
     };
   }
}
```

Example Java Code for Connecting to an Instance Using an Unencrypted Connection

package influxdb;

import okhttp3.OkHttpClient; import org.influxdb.InfluxDB; import org.influxdb.InfluxDBFactory; import org.influxdb.dto.Point; import org.influxdb.dto.Query; import org.influxdb.dto.QueryResult; import java.util.concurrent.TimeUnit; public class demoNoSSL {

```
public static void main(String[] args) {
    OkHttpClient.Builder client = new OkHttpClient.Builder()
```

```
.connectTimeout(10, TimeUnit.SECONDS)
          .writeTimeout(10, TimeUnit.SECONDS)
          .readTimeout(10, TimeUnit.SECONDS)
          .retryOnConnectionFailure(true);
     // There will be security risks if the username and password used for authentication are directly
written into code. Store the username and password in ciphertext in the configuration file or environment
variables.
     // In this example, the username and password are stored in the environment variables. Before
running this example, set environment variables EXAMPLE_USERNAME_ENV and
EXAMPLE_PASSWORD_ENV as needed.
     String username = System.getenv("EXAMPLE_USERNAME_ENV");
     String password = System.getenv("EXAMPLE PASSWORD ENV");
     final String serverURL = "http://127.0.0.1:8086", username = username, password = password;
     InfluxDB influxdb = InfluxDBFactory.connect(serverURL, username, password, client);
     // Create a database...
     String databaseName = "foo";
     influxdb.query(new Query("CREATE DATABASE " + databaseName, databaseName));
     influxdb.setDatabase(databaseName);
     // Write points to influxdb.
     influxdb.write(Point.measurement("bar")
          .time(System.currentTimeMillis(), TimeUnit.MILLISECONDS)
          .tag("location", "chengdu")
          .addField("temperature", 22)
          .build());
     // Query your data using InfluxQL.
     QueryResult queryResult = influxdb.query(new Query("SELECT * FROM bar", databaseName));
     // Close it if your application is terminating or you are not using it anymore.
     influxdb.close();
  }
}
```

Example Java Code for Connecting to an Instance Using the Connection Pool

package influxdb;

import okhttp3.ConnectionPool; import okhttp3.OkHttpClient; import org.influxdb.InfluxDB; import org.influxdb.InfluxDBFactory; import org.influxdb.dto.Point; import org.influxdb.dto.Query; import org.influxdb.dto.QueryResult;

import java.util.concurrent.TimeUnit;

public class demoConnectionPool {
 public static void main(String[] args) {

// The client connection pool is based on OkHttpClient.

OkHttpClient.Builder client = new OkHttpClient().newBuilder();

client.connectTimeout(10, TimeUnit.SECONDS);

- client.readTimeout(10, TimeUnit.SECONDS);
- client.writeTimeout(10, TimeUnit.SECONDS);

// Set this parameter to true to mask some connection errors so that the system automatically retries. client.retryOnConnectionFailure(true);

// Maximum number of idle connections in the connection pool. The default value is 5.

// The connection that stays idle longer than the threshold will be disabled by the connection pool. Then sockets enter into the TIME_WAIT status for the system to reclaim. Set parameter **new**

ConnectionPool based on the number of the idle connections.

client.connectionPool(new ConnectionPool(5, 30, TimeUnit.SECONDS));

// There will be security risks if the username and password used for authentication are directly written into code. Store the username and password in ciphertext in the configuration file or environment variables.

```
// In this example, the username and password are stored in the environment variables. Before
running this example, set environment variables EXAMPLE_USERNAME_ENV and
EXAMPLE_PASSWORD_ENV as needed.
     String username = System.getenv("EXAMPLE_USERNAME_ENV");
     String password = System.getenv("EXAMPLE_PASSWORD_ENV");
     final String serverURL = "http://127.0.0.1:8086", username = username, password = password;
     InfluxDB influxdb = InfluxDBFactory.connect(serverURL, username, password, client);
     // Create a database...
     String databaseName = "foo";
     influxdb.query(new Query("CREATE DATABASE " + databaseName, databaseName));
     influxdb.setDatabase(databaseName);
     // Write points to influxdb.
     influxdb.write(Point.measurement("bar")
          .time(System.currentTimeMillis(), TimeUnit.MILLISECONDS)
          .tag("location", "chengdu")
          .addField("temperature", 22)
          .build());
     // Query your data using InfluxQL.
     QueryResult queryResult = influxdb.query(new Query("SELECT * FROM bar", databaseName));
     // Close it if your application is terminating or you are not using it anymore.
     influxdb.close();
  }
```

Example Java Code for Connecting to an Instance Using a Short Connection

```
Scenarios:
      * * When the ELB connection is used, the client sends multiple query requests at a time.
      * If HTTP persistent connections are used, most query requests are sent to one InfluxDB node, causing
load imbalance.
      HTTP short connections (The value of Connection is close in the request header) can be used to
achieve load balancing among InfluxDB nodes.
      */
      In this mode, only part of the code is displayed.
OkHttpClient.Builder client = new OkHttpClient.Builder()
          .connectTimeout(10, TimeUnit.SECONDS)
           .writeTimeout(10, TimeUnit.SECONDS)
          .readTimeout(10, TimeUnit.SECONDS)
          .retryOnConnectionFailure(true)
           .addNetworkInterceptor(chain -> {
             Request newRequest = chain.request().newBuilder().header("Connection", "close").build();
             return chain.proceed(newRequest);
          });
```

4.3.5.3 Connecting to a GeminiDB Influx Instance Using Python

This section describes how to connect to a GeminiDB Influx instance using the Python programming language.

Prerequisites

The Python client of InfluxDB has been installed.

Example Code for Accessing an Instance Using a Non-SSL Connection

from influxdb import InfluxDBClient

There will be security risks if the username and password used for authentication are directly written into

code. Store the username and password in ciphertext in the configuration file or environment variables. # In this example, the username and password are stored in the environment variables. Before running this example, set environment variables EXAMPLE_USERNAME_ENV and EXAMPLE_PASSWORD_ENV as needed. username = os.getenv('EXAMPLE_USERNAME_ENV') password = os.getenv('EXAMPLE_PASSWORD_ENV') client = InfluxDBClient(host=IP, port=****, username=username, password=password, ssl=False) client.get_list_database()

D NOTE

Replace **host** and **port** with the actual values.

Example Code for Accessing an Instance Using an SSL Connection

from influxdb import InfluxDBClient

```
# There will be security risks if the username and password used for authentication are directly written into code. Store the username and password in ciphertext in the configuration file or environment variables.
# In this example, the username and password are stored in the environment variables. Before running this example, set environment variables EXAMPLE_USERNAME_ENV and EXAMPLE_PASSWORD_ENV as needed. username = os.getenv('EXAMPLE_USERNAME_ENV') password = os.getenv('EXAMPLE_PASSWORD_ENV') client = InfluxDBClient(host=IP, port=****, username=username, password=password, ssl=True) client.get_list_database()
```

NOTE

- Replace **host** and **port** with the actual values.
- The value of **ssl** must be **True**.
- If SSL is not set or is set to False, the following error information is displayed:

InfluxDBClientError: 400: Client sent an HTTP request to an HTTPS server.

4.3.6 Connection Information Management

4.3.6.1 Setting Security Group Rules for a GeminiDB Influx Instance

A security group is a collection of access control rules for ECS, , and GeminiDB Influx instances that have the same security protection requirements and are mutually trusted in a VPC.

To ensure database security and reliability, configure security group rules to allow specific IP addresses and ports to access the GeminiDB Influx instances.

This section describes how to configure security group rules for a GeminiDB Influx instance that is connected through a private or a public network.

Usage Notes

- By default, you can create up to 500 security group rules.
- Too many security group rules will increase the first packet latency, so a maximum of 50 rules for each security group is recommended.
- One security group can be associated with only one GeminiDB Influx instance.
- For details about security group rules, see Table 4-31.

Scenario	Description
Connecting to an instance over a private network	 Configure security group rules as follows: If the ECS and GeminiDB Influx instance are in the same security group, they can communicate with each other by default. No security group rule needs to be configured. If the ECS and GeminiDB Influx instance are in different security groups, configure security group rules for the ECS and instance, respectively. Configure inbound rules for the security group associated with the GeminiDB Influx instance. For details, see Procedure. The default security group rule of the ECS allows all outbound data packets, so you do not need to configure security rules for the ECS. If not all outbound traffic is allowed in the ECS.
Connecting to an instance over a public network	If you connect to a GeminiDB Influx instance through a public network, configure inbound rules for the security group associated with the GeminiDB Influx instance. For details, see Procedure .

Table 4-31 Parameter description

Procedure

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, click the instance.
- **Step 4** Configure security group rules.

In the **Network Information** area on the **Basic Information** page, click the name of the security group.

Figure 4-27 Security group

Network Information			
VPC	Security Group	d ip 🎤	
Subnet	Database Port	8635	
Time Series Insights Address Private Network Access https://	ð		

Step 5 Add an inbound rule.

1. Click the **Inbound Rules** tab.

Figure 4-28 Inbound rules

Summary Inbound Rules	Outbound Rules Associated Inst	tances	
Add Rule Fast-Add Rule	Delete Allow Common Ports	Inbound Rules: 3 Learn more about	security group configuration.
Protocol & Port 🖓 💮		Туре	Source ⑦
Au		1Pv4	0.0.0/0 🕤
		1Pv4	Sys-default 🕐
		IPv6	Sys-default 💿

2. Click Add Rule. The Add Inbound Rule dialog box is displayed.

Figure 4-29 Adding a rule

Add Inbour	nd Rule	Lea	arn more about security group	configuration.			
Inbound ru Some sec	ules allow in urity group r	coming ules wil	traffic to instances associated with the I not take effect for ECSs with certain s	security group. pecifications. Learn	more		
Security Group You can import m	ultiple rules i	in a bate	ch.				
Priority ?	Action	?	Protocol & Port (?)	Туре	Source ⑦	Description	Operation
1-100	Allow	•	Protocols/TCP (Custo • Example: 22 or 22-30	IPv4 ·	IP address		Replicate Del
				+ Add Rule			

OK Cancel

3. In the displayed dialog box, set required parameters.

Table 4-32 Inbound rule settings

Parame ter	Description	Example Value
Protoco l & Port	 The network protocol required for access. Currently, GeminiDB Influx instances can be accessed only over TCP. Port: The port (1 to 65535) for accessing the ECS. 	ТСР
Туре	IP address type. This parameter is available after IPv6 is enabled. - IPv4 - IPv6	IPv4
Source	 The IP address, IP address group, or security group that the rule applies to, which allows access from IP addresses or instances in other security group. Example: Single IP address: xxx.xxx.xxx/32 (IPv4) Subnet: xxx.xxx.0/24 All IP addresses: 0.0.0.0/0 sq-abc (security group) 	0.0.0.0/0

Parame ter	Description	Example Value
Descrip tion	(Optional) Provides supplementary information about the security group rule.	-
	The description can contain up to 255 characters and cannot contain angle brackets (<>).	

Step 6 Click OK.

----End

4.3.6.2 Binding an EIP to a GeminiDB Influx Instance Node

Scenarios

An EIP provides independent public IP addresses and bandwidth for Internet access. After you create a GeminiDB Influx instance, you can bind an EIP to its node to allow external access. If later you want to prohibit external access, you can also unbind the EIP.

Usage Notes

- Configure security group rules and enable specific IP addresses and ports to access the target DB instance. Before accessing a database, apply for an EIP on the VPC console. Then, add an inbound rule to allow the IP addresses or IP address ranges of ECSs. For details, see Setting Security Group Rules for a GeminiDB Influx Instance.
- To change the EIP that has been bound to a node, unbind it from the node first.

Binding an EIP

- **Step 1** Log in to the Huawei Cloud console.
- Step 2 In the service list, choose Databases > GeminiDB.
- **Step 3** On the **Instances** page, locate the instance to which you want to bind an EIP to and click its name.
- **Step 4** On the **Basic Information** page, in the **Node Information** area, locate the target node and click **Bind EIP** in the **Operation** column.

Figure 4-30 Binding an EIP

Node Information					
Data Nodes Analysis Node	s				
Add Node					
Q Select one or more filters from the	ne pop-up lists. If you enter a keyword withou	t a filter applied, the system will search for a	Il names matching this keyword.		
Name/ID	Status	AZ	Private IP Address	EIP	Operation
	📀 Available	az3	IPv4:	Unbound	View Metric Bind EIP
	Available	az3	IPv4:	Unbound	View Metric Bind EIP
	Available	az3	IPv4:	S Unbound	View Metric Bind EIP

Step 5 In the displayed dialog box, all available unbound EIPs are listed. Select the required EIP and click **Yes**. If no available EIPs are displayed, click **View EIP** and create an EIP on the VPC console.

Figure 4-31 Selecting an EIP					
Bind EIP			×		
 After you bind rules in its see the GeminiDB 	an EIP to your instance, connect to it throu urity group to secure your data. If you wan , instead of the EIP console.	igh SSL and configure strict inbound and o to unbind the EIP from your instance, do	outbound this on		
Node Information	Node Name	Status Available			
Select EIP Only EIPs	s that have not been bound to any cloud res	source are displayed.	C		
EIP	Status	Bandwidth			
۲	Sector Secto	5Mbit/s			
		ОК	Cancel		

Step 6 In the **EIP** column, view the EIP that is successfully bound.

To unbind the EIP from the DB instance, see **Unbinding an EIP**.

----End

Unbinding an EIP

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- Step 3 On the Instances page, click the instance from which you wish to unbind an EIP.
- **Step 4** On the **Basic Information** page, in the **Node Information** area, locate the target node and click **Unbind EIP** in the **Operation** column.

Figure 4-32 Unbinding an EIP

Node Information						
Data Nodes Analysis Nodes						
Add Node	Add Node					
Q. Select one or more filters from the	pop-up lists. If you enter a keyword without	a filter applied, the system will search for all	names matching this keyword.			
Name/ID	Status	AZ	Private IP Address	EIP	Operation	
	Available	az3	IPv4:	1 17	View Metric Unbind EIP	
	Available	az3	IPv4:	Unbound	View Metric Bind EIP	
	 Available 	az3	IPv4:	Unbound	View Metric Bind EIP	

Step 5 In the displayed dialog box, click **Yes**.

To bind an EIP to the DB instance again, see **Binding an EIP**.

----End

4.3.6.3 Changing the Security Group of a GeminiDB Influx Instance

Scenarios

You can change security groups of GeminiDB Influx instances.

Usage Notes

- If you are adding nodes to an instance, the security group cannot be changed.
- This function is now in OBT. To use it, choose **Service Tickets > Create Service Ticket** in the upper right corner of the console and contact the customer service.

Procedure

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, click the target DB instance.
- **Step 4** In the navigation pane on the left, choose **Connections**.
- **Step 5** In the **Security Group** area, click \swarrow beside the security group name and select the required security group.
 - To submit the change, click \checkmark . This process takes about 1 to 3 minutes.
 - To cancel the change, click \times .
- **Step 6** View the modification result.
 - ----End

4.3.6.4 Encrypting Data over SSL for a GeminiDB Influx Instance

After a GeminiDB Influx instance is created, you can enable or disable SSL.

Usage Notes

• After enabling or disabling SSL, restart the DB instance for the change to take effect.

Enabling SSL

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, click the instance. The **Basic Information** page is displayed.
- **Step 4** In the **DB Information** area, click **we** to enable SSL.

Figure 4-33	Enabling SSL		
DB Information			
Compatible API	InfluxDB 1.8	Data Node Specifications	2 vCPUs 8 GB Change
Administrator	rwuser Reset Password	SSL	Disabled 占 Update Certificate
Maintenance Window 📀) 10:00 - 14:00 Change		

----End

Disabling SSL

- Step 1 Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, click the instance. The **Basic Information** page is displayed.



----End

4.3.6.5 Accessing a GeminiDB Influx Instance Using a Load Balancer Address

Scenarios

You can access a GeminiDB Influx instance using a load balancer address.

Usage Notes

- A load balancer address does not support security groups. After an instance is created, configure IP address access control. If no whitelist is configured, all IP addresses that can communicate with the VPC can access the instance.
- To use the access control function, choose Service Tickets > Create Service Ticket in the upper right corner of the console and contact the customer service to grant required permissions.

Enabling a Blacklist/Whitelist for a Load Balancer IP Address

Step 1 Log in to the Huawei Cloud console.

Step 2 In the service list, choose **Databases** > **GeminiDB**.

Step 3 On the **Instances** page, click the target instance.

Step 4 In the **Network Information** area, click **D** next to **Access Control**.

Figure 4-35 Enabling access through a load balancer

Network Information			
VPC		Security Group	default 🥒
Subnet	subnet		
Load Balancer Address	Ō		
Access Control	Configure(No whitelist or blacklist configured)		
	The listener added to your load balancer does not support security g	group rules, so you need to co	onfigure access control for the listener. Disabling access control
	allows any IP address that can access the VPC of your instance to a	access your instance using the	e load balancer IP address.

Step 5 Select Blacklist or Whitelist and specify IP addresses in that list.

Figure 4-36 Configure	Configuring a	access control trol		~
Select ar New sett	n access policy. If yo ings are applied to b	u change the policy, this s both new and existing con	setting becomes invalid. nections.	
Access Policy	Whitelist	Blacklist n the blacklist are not allo	wed to access your instance.	
IP Address	Example: 192.16	i8.0.1 proxy	3	
			Yes	No

- **Blacklist**: The whitelist and blacklist cannot be configured at the same time. If you switch between lists, your previous settings will be lost. IP addresses in the blacklist cannot be accessed.
- Whitelist: The whitelist and blacklist cannot be configured at the same time. If you switch between lists, your previous settings will be lost. Only IP addresses in the whitelist are allowed to access the system.

----End

Disabling Access Through a Load Balancer

- Step 1 Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, click the target instance.
- **Step 4** In the **Network Information** area, click O next to **Access Control**. In the displayed dialog box, click **Yes** to disable access through a load balancer.

Figure 4-37 Disabling access through a load balancer

Network Information			
VPC		Security Group	default 🖋
Subnet	subnet-		
Load Balancer Address	Ō		
Access Control			
	The listener added to your load balancer does not support security	group rules, so you need to co	onfigure access control for the listener. Disabling access control
	allows any IB address that can access the VBC of your instance to	access your instance using th	a load balancer ID address

Step 5 Check whether the settings take effect.

----End

4.4 Migrating Data

InfluxDB Community Edition is a popular time series database that focuses on high-performance query and storage of time series data.

GeminiDB Influx API is a cloud-native NoSQL time-series database with a decoupled compute and storage architecture developed by Huawei and is compatible with InfluxDB. This high availability database is secure and scalable, can be deployed, backed up, or restored quickly, and offers monitoring and alarm management capabilities. You can also add storage or compute resources separately. GeminiDB Influx API has better query, write, and data compression performance than InfluxDB Community Edition.

This section describes how to migrate data from InfluxDB Community Edition to GeminiDB Influx API.

Migration Principles

Use open-source migration tool **data-migration-tools** to parse the tsm and wal files of the InfluxDB Community Edition and write the files to a line protocol file. Then, the line protocol file data is parsed and migrated to the destination.

The migration process is divided into two phases:

- Export: tsm files of InfluxDB Community Edition are concurrently parsed, and the parsed data is written into memory.
- Import: The read data is sent to the GeminiDB Influx cluster.

You can specify a migration period while the migration tool is running.

D NOTE

Download and decompress the release package of **data-migration-tools**.

Usage Notes

- Deploy the migration tool on the same server as InfluxDB Community Edition and prepare a configuration file.
- The migration tool needs to extract data from tsm to the local line protocol file, obtain data from the line protocol file, and send the data to the destination GeminiDB Influx database. This process may affect the performance of the source side. You are advised to run the migration tool during off-peak hours.
- The migration tool supports only InfluxDB 1.X Community Edition.

Prerequisites

- Ensure that the network connection between the source and destination is normal.
- The corresponding database has been created and the retention policy (RP) has been configured in the destination GeminiDB Influx.

Procedure

For details about how to migrate data from InfluxDB Community Edition to GeminiDB Influx API, see **Data Migration Tool Usage Guide**.

Migration Performance Reference

- Migration environment
 - Source: Deploy InfluxDB and the migration tool on an ECS with 4 vCPUs and 16 GB of memory.
 - Destination: three-node GeminiDB Influx instance with 4 vCPUs and 16 GB of memory
- Migration performance
 - The data migration rate of a single process on the source database is 1 GB/min.

4.5 Converting Data into a Parquet file and Exporting the Data to OBS

Scenarios

New data inserted by users on GeminiDB Influx instances in a performanceenhanced cluster can be converted into a Parquet file and automatically uploaded to a specified OBS bucket. You can access or download a Parquet file on OBS.

Usage Notes

• To export data, choose **Service Tickets** > **Create Service Ticket** in the upper right corner of the console and contact the customer service.

- Data can be converted into a Parquet file by table. By default, data in all tables is converted. To export data in a specified table, choose Service Tickets
 > Create Service Ticket in the upper right corner of the console and contact the customer service.
- This function is available only for GeminiDB Influx instances with classic storage in a performance-enhanced cluster.
- To use this function, you need to enable **Export Data**.
- OBS supports parallel file systems and standard buckets.
- You can specify a target folder, which must be created in advance.
- When you export data, a policy named data-dump-access is created on OBS. This policy provides only the PUT permission and applies only to the selected folder.
- You need to set the shard duration in the retention policy to one day.
- Conversion into a Parquet file is an asynchronous process. The duration depends on multiple factors such as the concurrency level and system load. The real-time performance cannot be guaranteed.
- The converted Parquet file is uploaded on the hour, for example, at 02:00, every two hours.
- Historical data cannot be converted into a Parquet file or exported to OBS.

Procedure

- **Step 1** Log in to the Huawei Cloud console.
- Step 2 In the service list, choose Databases > GeminiDB.
- **Step 3** On the **Instances** page, locate the target instance and choose **More** > **Export Data** in the **Operation** column.

Figure 4-38 Export Data



You can also click the target instance to go to the basic information page. Click **Export Data** next to **Bucket Configuration** in the **DB Information** area.

Figure 4-39 Export Data

DB Information			
Compatible API		Specifications	2 vCPUs 8 GB Change
Administrator	rvuser Reset Password	SSL	Disabled 🛓
Maintenance Window 🧿	10:00 - 14:00 Change	Bucket Configuration	Export Data

Step 4 On the **Export Data** page, enable **Export Data**.
Figure 4-40 Export Data

Export Data	
Export Data	
Resource Type	Parallel file system Bucket list
File System Name	View Parallel File System
	 You can only export data from one file system at a time. Export Data can be disabled only for the file system selected when Export Data was enabled.
Folder	Select Folder

- **Step 5** Select **Parallel file system** or **Bucket list** for **Resource Type** and select a file system name or an OBS bucket name.
- Step 6 Click Select Folder.

Figure 4-41 Select Folder

Expo	rt Data		
Exp	port Data		
Res	source Type	Parallel file system	Bucket list
File	System Name	1. You can only export data	 C View Parallel File System a from one file system at a time.
Fol	der	2. Export Data can be disat	blied only for the file system selected when Export Data was enabled.

----End

4.6 Instance Lifecycle Management

4.6.1 Restarting a GeminiDB Influx Instance

Scenarios

You may need to restart an instance for routine maintenance.

Usage Notes

- If the instance status is **Available**, **Abnormal**, or **Checking restoration**, you can restart the instance.
- Restarting an instance will interrupt services. Exercise caution when performing this operation.
- If you restart an instance, all nodes in the instance are also restarted.
- If you enable operation protection to improve the security of your account and cloud products, two-factor authentication is required for sensitive

operations. For details about how to enable operation protection, see *Identity and Access Management User Guide*.

Procedure

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- Step 3 On the Instances page, locate the instance you wat to restart and choose More > Restart in the Operation column.

Alternatively, click the name of the instance, and on the displayed **Basic Information** page, click **Restart** in the upper right corner.

- Step 4 If you have enabled operation protection, click Start Verification in the Restart DB Instance dialog box. On the displayed page, click Send Code, enter the verification code, and click Verify. The page is closed automatically.
- **Step 5** In the displayed dialog box, click **Yes**.

For a GeminiDB Influx cluster instance, you can restart nodes one by one or all at once.

Figure 4-42 Restarting a GeminiDB Influx cluster instance

Restart DB Instance		
Restart this instance?		
Restart all nodes at once Restart n	odes in sequence	
DB Instance Name	Status	
	Available	
Scheduled Time Immediate	During maintenance window	0
A This DB instance will not be available w	vhen it is being restarted.	
	Ye	s No

For a single-node GeminiDB Influx instance, click **Yes** or **Immediate**.

~

Figure 4-43 Restarting a single-node GeminiDB Influx instance

Restart DB Instance			~
Restart this instance?			
Restart all nodes at once	Restart nodes in sec	quence	
DB Instance Name	Statu	S	
	e 4	Available	
Scheduled Time	iate During n	naintenance window	0
▲ This DB instance will not be	e available when it is be	ing restarted.	
		Yes	s No

• Instance with classic storage

For a GeminiDB Influx cluster instance, you can restart nodes one by one or all at once.

Figure 4-44 Restarting a GeminiDB Influx cluster instance

Restart DB Instance		
Restart this instance?		
Restart all nodes at once Restart	nodes in sequence	
DB Instance Name	Status	
	Available	
Scheduled Time Immediate	During maintenance window	0
▲ This DB instance will not be available	when it is being restarted.	
	Ye	s No

 $\overline{}$

Restart DB Instance

Restart this instance?		
Restart all nodes at once Restart nodes	des in sequence	
DB Instance Name	Status	
	Available	
		<u>_</u>
Scheduled Time Immediate	During maintenance window	(?)
A This DB instance will not be available wh	en it is being restarted.	
	Ye	s No

For a single-node GeminiDB Influx instance, click **Yes** or **Immediate**.

Figure 4-45 Restarting a single-node GeminiDB Influx instance

Restart DB Inst	tance		,
Restart this instance?			
DB Instance Name		Status	
		Available	
Scheduled Time	Immediate	During maintenance window	0
A This DB instance	e will not be availabl	e when it is being restarted.	
			Yes No

Restart DB Ins	tance		^
Restart this instance?			
DB Instance Name		Status	
		Available	
Scheduled Time	Immediate	During maintenance window	0
A This DB instand	ce will not be available v	vhen it is being restarted.	
		(Y	ies No

 Instance with cloud native storage
 For a GeminiDB Influx instance with cloud native storage, click Yes or Immediate.

igure 4-46 Restarting an ins	stance	
Restart DB Instance		~
Restart this instance?		
DB Instance Name	Status	
	 Available 	
Scheduled Time Immediate	During maintenance window	0
A This DB instance will not be availa	able when it is being restarted.	
	Ye	No No

Figure 4-46 Restarting an instance

Restart DB Instance		
Restart this instance?		
DB Instance Name	Status	
	Available	
Scheduled Time	During maintenance window	0
▲ This DB instance will not b	e available when it is being restarted.	
		Yes No

----End

4.6.2 Exporting Instance Information

Scenarios

You can export information about all or selected instances to view and analyze instance information.

Exporting Information About All Instances

- Step 1 Log in to the Huawei Cloud console.
- Step 2 In the service list, choose Databases > GeminiDB.
- **Step 3** On the **Instances** page, click \Box in the upper right corner. By default, information about all instances are exported. In the displayed dialog box, you can select the items to be exported and click **Export**.
- Step 4 After the export task is complete, check an XLS file on your local PC.

----End

Exporting Information About Selected Instances

Step 1 On the Instances page, select the target instances or search for required instances

by project, compatible API, name, ID, or tag and click \Box in the upper right corner. In the displayed dialog box, select the items to be exported and click **Export**.

Step 2 After the export task is complete, check an XLS file on your local PC.

----End

4.6.3 Deleting a Pay-per-Use Instance

Scenarios

You can choose to delete a pay-per-use instance on the **Instances** page based on service requirements. To delete a yearly/monthly instance, unsubscribe from it. For details, see **How Do I Unsubscribe from a Yearly/Monthly Instance**?.

Precautions

- Instances that an operation is being performed on cannot be deleted. They can be deleted only after the operations are complete.
- If a pay-per-use instance is deleted, its automated backups will also be deleted and you will no longer be billed for them. Manual backups, however, will be retained and generate additional costs.
- After an instance is deleted, all its data and automated backups are automatically deleted as well and cannot be recovered. You are advised to create a backup before deleting an instance. For details, see **Creating a Manual Backup**.
- After you delete an instance, all of its nodes are deleted.

Procedure

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, locate the instance that you want to delete and in the **Operation** column choose **Delete** or **More** > **Delete**.
- Step 4 If you have enabled operation protection, click Start Verification in the Delete DB Instance dialog box. On the displayed page, click Send Code, enter the verification code, and click Verify. The page is closed automatically.

NOTE

If you enable operation protection, two-factor authentication is required for sensitive operations to secure your account and cloud products. For details about how to enable operation protection, see *Identity and Access Management User Guide*.

Step 5 In the displayed dialog box, click Yes.

Deleted instances are not displayed in the instance list.

----End

4.6.4 GeminiDB Influx Instance Recycle Bin

You can move unsubscribed yearly/monthly and deleted pay-per-use GeminiDB Influx instances to the recycle bin. You can also rebuild them if necessary.

Usage Notes

• The recycling bin is enabled by default and cannot be disabled. Instances in the recycle bin are retained for 7 days by default, and this will not incur any charges.

- You can put up to 100 instances into the recycle bin. If the maximum number of instances is reached, you cannot put instances into the recycle bin anymore.
- If you delete an instance running out of storage, it will not be moved to the recycle bin.
- Data of a single-node instance cannot be restored after it is moved to the recycle bin.
- After an instance is deleted, the most recent automated full backup (if no automated full backup is available one day ago, the latest one is retained) is retained and a full backup is performed. You can select any backup file to restore the instance data.

Modifying the Recycling Policy

NOTICE

You can modify the retention period, and the changes only apply to the instances deleted after the modification. Exercise caution when performing this operation.

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Recycling Bin** page, click **Modify Recycling Policy**. In the displayed dialog box, set the retention period from 1 day to 7 days. Then, click **OK**.

Figure 4-47 Modifying a recycling policy

 Modify Recycling Policy

 Retention Period

 4
 +
 days

 You can change the retention period to between 1 and 7 days. The changes only apply to the DB instances deleted after the changes.

 You can put up to 100 instances into the recycle bin. If the maximum number of instances is reached, you cannot put instances into the recycle bin anymore.

 OK
 Cancel

----End

Rebuilding an Instance

You can rebuild instances from the recycle bin within the retention period to restore data (Only cluster instances can be rebuilt.).

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.

Step 3 On the **Recycling Bin** page, locate the target instance and click **Rebuild** in the **Operation** column.



Step 4 On the displayed page, configure required parameters and submit the task.

----End

4.7 Instance Modifications

4.7.1 Upgrading a Minor Version

GeminiDB Influx can be upgraded by installing patches to improve performance, release new features, or fix bugs.

After a new patch version involving performance improvement, new functions, or problem rectification is released, you can upgrade your instance to the latest version at a proper time based on service requirements.

If a new patch is released, you can upgrade your instance by clicking the upgrade button in the **Compatible API** column on the **Instances** page.

Figure 4-49 Patch installation

□ NameID ⊖	DB Instance Type	Compatible API	Storage Type	Status 🖯	Specifications	Storage Space	Load balancer address	Enterprise Project	Billing Mode	Operation
	Cluster	InfluxDB 1.7 Upgrade Minor Version	Shared	Available	4 vCPUs 3 nodes	0.1% 0.1/100GB	-	default	Yearly/Monthly 10 days until	Log In Renew More ~

If the kernel version of your instance has potential risks or major defects, has expired, or has been brought offline, the system will notify you by SMS message or email and deliver an upgrade task during maintenance.

Precautions

- Upgrade your instance once there is a new patch released.
- If the database version is a risky version, the system prompts you to upgrade the database patch.
- Upgrading the minor version of an instance will restart each node of the instance in sequence. When a node is being restarted, its services will be taken over by another node. Each takeover will interrupt services for 5 to 10 seconds. So, perform an upgrade during off-peak hours and enable automatic reconnection so that each node can be reconnected immediately after being restarted.
- Upgrading basic components takes about 15 minutes. The duration of upgrading data components depends on the number of nodes. The upgrade of each node takes about 1 to 2 minutes.
- Services are unavailable during the parallel upgrade. You are advised to perform the parallel upgrade during off-peak hours. The parallel upgrade takes about 17 to 20 minutes, regardless of the number of nodes.

Procedure

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, locate the instance you want to upgrade and click **Upgrade Minor Version** in the **Compatible API** column.

Figure 4-50 Patch installation

NameID 🖯	DB Instance Type	Compatible API	Storage Type	Status 🖯	Specifications	Storage	Space	Load balancer address	Enterprise Project	Billing Mode	Operation	
	Cluster	InfluxDB 1.7 Upgrade Minor Version	Shared	Available	4 vCPUs 3 nodes	0.1%	0.1/100GB	-	default	Yearly/Monthly 10 days until	Log In Renev	/ More ~

Alternatively, click the instance name to go to the **Basic Information** page. In the **DB Information** area, click **Upgrade Minor Version** in the **Compatible API** field.

Figure 4-51 Patch installation

 Notes: ing the minor Ling the mi	An experiment of an increases with append status and a film increasing of a status of the status of
DB Instance Name	Status

Step 4 In the displayed dialog box, click **OK**.

- You can upgrade nodes one by one or all at once.
- You can select **Immediate** or **During maintenance window** for **Scheduled Time**. If **During maintenance window** is selected, the scheduled upgrade task will be executed in the next time window.

Figure 4-52 Confirming dialog box

 Notes: Upgrading the minor version of an instance will restart each node of the instance in sequence. When a node is being restarted, its services will be taken over by another node. Each takeover will interrupt services for 5 to 10 seconds. So, perform the upgrade during off-peak hours and enable automatic reconnection so that each node can be reconnected immediately after being restarted. Upgrading basic components takes about 15 minutes. Upgrading data components takes about 1 to 2 minutes. It depends on how many nodes there are. Upgrade in sequence Upgrade all nodes at once 	Upgrade Minor Version			×
Upgrade in sequence Upgrade all nodes at once DB Instance Name Status	 Notes: Upgrading the minor version of an instance is being restarted, its services will be taker to 10 seconds. So, perform the upgrade du each node can be reconnected immediatei Upgrading basic components takes about minutes. It depends on how many nodes the 	e will restart each node of the insta over by another node. Each taked uring off-peak hours and enable au ly after being restarted. 15 minutes. Upgrading data compo here are.	nce in sequence. When a node wer will interrupt services for 5 comatic reconnection so that ments takes about 1 to 2	
DB Instance Name Status	Upgrade in sequence Upgrade all nod	les at once		
	DB Instance Name	Status		
geminidb_17_influxdb_ SAvailable	geminidb_17_influxdb_	Available		
cheduled Time Immediate During maintenance window ⑦	Scheduled Time Immediate	During maintenance window	OK Cancel	

Step 5 View the upgrade result on the **Instances** page.

• When the upgrade is ongoing, the instance status is **Upgrading minor version**.

• After the upgrade is complete, the instance status changes **Available**.

----End

4.7.2 Changing a GeminiDB Influx Instance Name

Scenarios

This section describes how to change a GeminiDB Influx instance name to identify different instances.

Method 1

- **Step 1** Log in to the Huawei Cloud console.
- Step 2 In the service list, choose Databases > GeminiDB.
- **Step 3** On the **Instances** page, click \swarrow next to the target instance name and change it.
 - To submit the change, click **OK**.
 - To cancel the change, click **Cancel**.

D NOTE

The instance name:

- Can be the same as an existing instance name.
- Can include 4 to 64 bytes and must start with a letter. It is case-sensitive and allows only letters, digits, hyphens (-), and underscores (_).
- **Step 4** View the results on the **Instances** page.

----End

Method 2

- Step 1 Log in to the Huawei Cloud console.
- Step 2 In the service list, choose Databases > GeminiDB.
- **Step 3** On the **Instances** page, click the target instance. The **Basic Information** page is displayed.
- **Step 4** On the **Basic Information** page, click *next* to **DB Instance Name** and change the instance name.
 - To submit the change, click \checkmark
 - To cancel the change, click imes .

D NOTE

The instance name:

- Can be the same as an existing instance name.
- Can include 4 to 64 bytes and must start with a letter. It is case-sensitive and allows only letters, digits, hyphens (-), and underscores (_).

Step 5 View the results on the **Instances** page.

----End

4.7.3 Changing the Administrator Password of a GeminiDB Influx Database

Scenarios

For security reasons, regularly change your administrator password.

Usage Notes

- You can reset the administrator password only when your instance is in the **Available**, **Backing up**, **Checking restoration**, or **Scaling up** state. You can also choose to reset the password if an instance node becomes abnormal.
- If you enable operation protection, two-factor authentication is required for sensitive operations to secure your account and cloud products. For details about how to enable operation protection, see *Identity and Access Management User Guide*.

You are advised to change the password during off-peak hours to avoid service interruption.

Method 1

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, locate the instance whose administrator password you want to reset and choose **More** > **Reset Password** in the **Operation** column.
- Step 4 Enter and confirm the new administrator password and click OK.

The password must be 8 to 32 characters in length and contain uppercase letters, lowercase letters, digits, and any of the following special characters: $\sim!@#\%^{*}-=+?$

Step 5 If you have enabled operation protection, click **Start Verification** in the displayed dialog box. On the displayed page, click **Send Code**, enter the verification code, and click **Verify**. The page is closed automatically.

----End

Method 2

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.

- **Step 3** On the **Instances** page, click the target instance. The **Basic Information** page is displayed.
- Step 4 In the DB Information area, click Reset Password in the Administrator field.
- Step 5 Enter and confirm the new administrator password and click OK.

The password must be 8 to 32 characters in length and contain uppercase letters, lowercase letters, digits, and any of the following special characters: $\sim!@#\%^{*}-=+?$

Step 6 If you have enabled operation protection, click **Start Verification** in the displayed dialog box. On the displayed page, click **Send Code**, enter the verification code, and click **Verify**. The page is closed automatically.

----End

4.7.4 Changing vCPUs and Memory

Scenarios

This section describes how to change instance specifications to suit your service requirements.

Usage Notes

- Instances can be scaled up or down by changing their specifications.
- If one instance has multiple nodes, the change will be performed on the nodes one by one. It takes about 5 to 10 minutes for each node, and the total time required depends on the number of the nodes.
- For a node whose specifications are being changed, its computing tasks are handed over to other nodes. Change specifications of nodes during off-peak hours to prevent the instance from overload.

Method 1

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, locate the instance whose specifications you want to change and click its name.
- **Step 4** In the **DB Information** area, click **Change** next to the data node specifications.

Figure 4-53 Changing specifications

DB Information		
Compatible API	InfluxDB 1.8	Data Node Specifications 2 vCPUs 8 GB Change
Administrator	rwuser Reset Password	Analysis Node Specifications 2 vCPUs 8 GB
SSL	Enabled 🗄 Update Certificate	Maintenance Window (?) 11:00 – 15:00 Change

Step 5 On the displayed page, select new specifications and click **Next**.

Figure 4-54 Changing specifications

Change Specification	S (1)							
Current Configuratio	n							
DB Instance Name	DB Instance Name geminidb-e326			geminido influxido large 4 2 vCPUs 8 GB				
DB Instance ID	e934a37480	764ea69ed24e88faf55eadin 13	Current Nodes	3				
Billing Mode	Pay-per-use		Storage	100 GB				
		Flavor Name		vCPU Memory				
		gerninidb influxdb xiarge 4		4 vCPUs 16 0B				
		geminida influeda 2xiarge 4		8 vCPUs 32 GB				
		gerninidb influxidb 4vlarge 4		16 vCPUs 64 GB				
New Specifications		geminida influeda 8-large 4		32 vCPUs 128 GB				
		geminidb influxidb, félvlarge, 4		64 vCPUs 256 GB				
		Currently selected geminidia influedo starge 4 4 xCPUs 16 GB						
		Services may be intempted multiple times, for several seconds each time. Noire sure that your client supports automatic reconnection, and change instance specifications during off-peak hours. The time required depends on the number of instance modes whose specifications are to be						
		changed. Each node takes about 5 to 10 minutes.						
		After the instance class is changed, some associated parameters for the new instance class are automatically changed to the	ie default values.					
Scheduled Time		Immodade During materiance window ①						

Step 6 On the displayed page, confirm the specifications.

- Yearly/Monthly
 - If you need to modify the settings, click **Previous**.
 - If you do not need to modify the settings, click **Submit**. If you are scaling up the instance specifications, go to the payment page, select a payment method, and complete the payment.
- Pay-per-use
 - If you need to modify the settings, click **Previous**.
 - If you do not need to modify the settings, click **Submit**.
- **Step 7** View the change results.

In the **DB Information** area on the **Basic Information** page, you can see the new specifications.

----End

Method 2

- **Step 1** Log in to the Huawei Cloud console.
- Step 2 In the service list, choose Databases > GeminiDB.
- **Step 3** On the **Instances** page, locate the instance whose specifications you want to change and choose **More** > **Change Specifications** in the **Operation** column.

Figure 4-55 Changing specifications

□ NameID ⊕	DB Instance Type	Compatible API	Storage Type	Status 🖯	Specifications	Storage Space	Load balancer address	Enterprise Project	Billing Mode	Operation	
0	Cluster	InfluxDB 1.8	Shared	Available	2 vCPUs 1 node	0% 0/1003B	**	default	Pay-per-Use Created on J	Log in Chan	ge to Yearly/Monthly More ~
											Create Backup
											Scale Storage Space
											Add Node
											Restart
											Reset Password
											Delete

Step 4 On the displayed page, select new specifications and click **Next**.

Figure 4-56 Changing specifications

Change Specification	15 1						
Current Configuration							
DB Instance Name	ne geminida-e326 Node Specificatio			geminidb.influxdb.large.4 2 vCPUs 8 GB			
DB Instance ID	6934837480	764ee69e824e88faf95eedin13	Current Nodes	3			
Billing Mode	Pay-per-use		Storage	100 GB			
		Havor Name		VCPU Memory			
		 geminidb influedb starge 4 		4 vCPUs 16 GB			
		geminidb influxdb 2/darge 4		8 vQPUs 32 GB			
		geminido influxido 4/darge 4		16 vCPUs 64 GB			
New Specifications		geminidb influxidb 8xlarge 4		32 vCPUs 128 GB			
		gernindb.influxdb.16xlarge.4		64 vCPUs 256 GB			
		Ormettir valenter energisch influents stares 4.1.4 vCPI (s.1.16.00)					
		Services may be interacted multiple times for several senseries each time. Make sure that your client summer's automatic a	econnection, and channe in:	dance specifications during off-neak bours. The time required depends on the number of instance podes where specifications are in be			
		rhannari. Fairh norte talass about 5 in 10 minutas					
		energies. Each noise among access one to increase.	LEXC TODE SHEST COLD IN TU MITURES.				
	лия на поляте сво о слидно, кота возолној разливато за ја на пака полато сво на колтанскај слидно д 78 ОНЈИ 1804.						
Scheduled Time	Itomediate During maintenance window ①						

Step 5 On the displayed page, confirm the specifications.

- Yearly/Monthly
 - If you need to modify the settings, click **Previous**.
 - If you do not need to modify the settings, click **Submit**. If you are scaling up the instance specifications, go to the payment page, select a payment method, and complete the payment.
- Pay-per-use
 - If you need to modify the settings, click **Previous**.
 - If you do not need to modify the settings, click **Submit**.

Step 6 View the change results.

In the **DB Information** area on the **Basic Information** page, you can see the new specifications.

----End

4.7.5 Setting a Maintenance Window

The default maintenance window is 10:00–14:00 (GMT+08:00) but you can change it if needed. To prevent service interruption, set the maintenance window to off-peak hours. Before calling this API:

Usage Notes

- You can configure a maintenance window only for restarting a DB instance, changing an instance class, or upgrading the minor version of a DB instance.
- The specification change and patch upgrade that have been performed during the maintenance period cannot be performed immediately. The instance can be restarted immediately.
- You can cancel a task to be executed.

х

- Changing the maintenance window will not affect the timing that has already been scheduled.
- The maintenance window cannot overlap the time window configured for backups. Otherwise, scheduled tasks may fail.
- During the maintenance window, the scheduled task is scanned and executed every 10 minutes. If the task is delivered near the end of the maintenance period, the task may fail to be scanned and the execution is canceled.

Setting a Maintenance Window

- **Step 1** Log in to the Huawei Cloud console.
- Step 2 In the service list, choose Databases > GeminiDB.
- **Step 3** On the **Instances** page, click the target instance. The **Basic Information** page is displayed.
- Step 4 On the Basic Information page, locate Maintenance Window and click Change.

Figure 4-57 Change

DB Information			
Compatible API	InfluxDB 1.8	Data Node Specifications	2 vCPUs 8 GB Change
Administrator	rwuser Reset Password	SSL	Disabled 占 Update Certificate
Maintenance Window 🧿	10:00 - 14:00 Change		

Step 5 On the **Change Maintainable Window** page, select the maintenance time period as needed, and then click **OK**.

Supported time periods: 02:00-06:00, 06:00-10:00, 10:00-14:00, 14:00-18:00, 18:00-22:00, and 22:00-02:00

Figure 4-58 Changing a maintenance window

Change Maintenance Window					
Time Zone	GMT+08:00				
Maintenance Window	10:00 - 14:00	~			
	A Changing the maintenar execution of scheduled task	ice window will not affect the s in the original maintenance window.			
		OK Cancel			

Step 6 Check the result.

On the **Basic Information** page, you can view the changed maintenance window.

----End

Querying an Executed Task

- Step 1 Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- Step 3 On the Task Center page, click the Instant Tasks or Scheduled Tasks tab to view a task.

Figure 4-59 Querying a task

Task Center				
Instant Tasks Scheduled Tasks				
Last 7 days	\checkmark) \bigcirc . Select one or more filters from the pop-up lists. If you enter a keyword without a fil	ter applied, the system will search for all task name	s matching this keyword.	
Task Name/Task ID	Status	DB Instance Name/ID	Created	Completed
CreateInstance	C Running (11% complete)	geminidb 3557(b)49	Feb 25, 2025 10.01:55 GMT+08:00	Feb 25, 2025 10:01:55 GMT+08:00
CreateInstance	 Running (33% complete) 	geminidb 8b613e3i	Feb 25, 2025 09 56 35 GMT+08.00	Feb 25, 2025 09:56:36 GMT+08:00
Modify Part	O Completed	geminidb 80ed425:	Feb 25, 2025 09.47.52 GMT+06.00	Feb 25, 2025 09:48:59 GMT+08.00

----End

Canceling a Scheduled Task

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Task Center** page, locate a scheduled task, and click **Cancel** in the **Operation** column.

Figure 4-60 Canceling a task

Instant Tasks Scheduled Ta	isks					
Q Select one or more filters from the	ne pop-up lists. If you enter a keyword w	ithout a filter applied, the s	ystem will search for a	Il instance id matching this keyword.		
Task Name/Task ID	Status	DB Instance Name	Compatible API	Created	Execution Time Period (GMT+08:00)	Operation
	C To be executed		InfluxDB	Jul 03, 2024 15:49:29 GMT+08:00	Jul 04, 2024 10:00:00 - Jul 04, 2024 14:00:00	Cancel

Step 4 Check the result.

On the **Task Center** page, you can view the result. After the task is cancelled, its status changes to **Cancelled**.

Figure 4-61 Checking cancelled tasks

Instant Tasks	Scheduled Tasks					
Q Select one or r	ore filters from the pop-up lists. If you enter a	keyword without a filter applied, the s	ystem will search for all	I instance id matching this keyword.		
Task Name/Task I) Status	DB Instance Name	Compatible API	Created	Execution Time Period (GMT+08:00)	Operation
	Canceleo	đ	InfluxDB	Jul 03, 2024 15:49:29 GMT+08:00	Jul 04, 2024 10:00:00 - Jul 04, 2024 14:00:00	-

----End

4.7.6 Adding and Deleting Instance Nodes

4.7.6.1 Overview

After you purchase a GeminiDB Influx instance, resource requirements may change along with workload volumes. You can scale your instance nodes in the following ways.

Table 4-33 Scaling methods

Method	Supported Instance Type
Adding Instance Nodes	Cluster
	Cluster (performance-enhanced)
Deleting Instance Nodes	Cluster (performance-enhanced)

Adding Instance Nodes

For example, if three nodes have been deployed and two more nodes need to be added, there will be five nodes in total. For details, see **Adding Instance Nodes**.

Figure 4-62 Adding instance nodes



Deleting Instance Nodes

For example, if five nodes have been deployed and two of them need to be deleted, three nodes will be left. For details, see **Deleting Instance Nodes**.

Figure 4-63 Deleting instance shards



4.7.6.2 Adding Instance Nodes

Scenarios

This section describes how to add nodes to an instance to suit your service requirements. Nodes added for either a cluster or single-node instance cannot be deleted.

Usage Notes

- Adding nodes may lead to the decrease of OPS. Perform this operation during off-peak hours.
- You can only add nodes when the instance status is **Available** or **Checking restoration**.
- An instance cannot be deleted when one or more nodes are being added.
- Currently, this function is only available for cluster and cluster (performanceenhanced) instances.
- Currently, a maximum of 12 nodes are supported. To add more, choose Service Tickets > Create Service Ticket in the upper right corner of the console and contact the customer service.

Method 1

- **Step 1** Log in to the Huawei Cloud console.
- Step 2 In the service list, choose Databases > GeminiDB.
- **Step 3** On the **Instances** page, locate the instance that you want to add nodes to and click its name.
- **Step 4** In the **Node Information** area on the **Basic Information** page, click **Add Node**.

Figure 4-64 Adding a node

	Node Information											
1	Data Nodes Analysis Nodes											
	Add Node											
	$\bigcirc \ $ Select one or more filters from the pop-up li	sts. If you enter a keyword without a filter applied,	the system will search for all names matching this	keyword.								
	Name/ID	Status	AZ	Private IP Address	EIP	Operation						
		 Available 	822		Unbound	View Metric Bind EIP						
		Available	az2		Unbound	View Metric Bind EIP						
		Available	az2		Unbound	View Metric Bind EIP						

Step 5 Specify Add Nodes and click Next.

Figure 4-65 Adding a node

Add	Node	0
-----	------	---

DB Instance Name	geminidb-e326
DB Instance ID	e934a37480764ea69e824e88faf95eadin13
Node Specifications	2 vCPUs 8 GB
Current Nodes	3
New Nodes	You can add 12 more nodes. The total quota is 13.
	Required IP addresses: 1 Available IP addresses in the current subnet 160/1
	Note Adding nodes temporarily decreases the number of operations per second. You are advised to add nodes during off-peak hours.
Total Nodes	4

By default, specifications of the new node are the same as the instance specifications and cannot be modified.

Step 6 On the displayed page, confirm the node configuration details.

- Yearly/Monthly
 - If you need to modify your settings, click **Previous**.
 - If you do not need to modify your settings, click **Next** and complete the payment.
- Pay-per-use
 - If you need to modify your settings, click **Previous**.
 - If you do not need to modify your settings, click **Submit**.
- **Step 7** View the result of adding nodes.
 - When new nodes are being added, the instance status is **Adding node**.
 - After the nodes are added, the DB instance status becomes **Available**.
 - Click the instance name. In the **Node Information** area on the **Basic Information** page, view the information about the new nodes.

----End

Method 2

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- Step 3 On the Instances page, locate the instance you want to add nodes for and choose More > Add Node in the Operation column.





Step 4 Specify Add Nodes and click Next.

Figure 4-67 Adding a node

Add Node 🧿	
DB Instance Name	geminidb-e326
DB Instance ID	e934a37480764ea69e824e88tat95eadin13
Node Specifications	2 vCPUs 8 GB
Current Nodes	3
New Nodes	- 1 + You can add 12 more nodes. The total quota is 13.
	Required IP addresses: 1 Available IP addresses in the current subnet: 16071
	Note Adding nodes temporarily decreases the number of operations per second. You are advised to add nodes during off-peak hours.
Total Nodes	4

Step 5 On the displayed page, confirm the node configuration details.

- Yearly/Monthly
 - If you need to modify your settings, click **Previous**.
 - If you do not need to modify your settings, click Next and complete the payment.
- Pay-per-use
 - If you need to modify your settings, click **Previous**.
 - If you do not need to modify your settings, click **Submit**.

Step 6 View the result of adding nodes.

- When new nodes are being added, the instance status is Adding node.
- After the nodes are added, the DB instance status becomes **Available**.
- Click the instance name. In the **Node Information** area on the **Basic Information** page, view the information about the new nodes.

----End

4.7.6.3 Deleting Instance Nodes

Scenarios

You can delete nodes that are no longer used to release resources.

Usage Notes

- Deleted nodes cannot be recovered. Exercise caution when performing this operation. Delete nodes during off-peak hours because OPS will decrease during the deletion.
- If you enable operation protection, two-factor authentication is required for sensitive operations to secure your account and cloud products. For details about how to enable operation protection, see *Identity and Access Management User Guide*.
- This function is available only to cluster (performance-enhanced) instances.

Procedure

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, click the instance from which you want to delete nodes and click its name.
- **Step 4** In the **Node Information** area on the **Basic Information** page, locate the target node and click **Delete**.
 - Yearly/Monthly
 - To delete a single node, click **Delete** in the **Operation** column.
 - To delete multiple nodes, select them and click **Delete Node**.

Figure 4-68 Node information

Node Information									
Analysis Nodes									
Objectes Node Add Node Or Solver one remore there from the non-sum links. If you retries a browned without is their another will search for all names matching this browned. Cold									
Name/ID	Statue	Δ7	Private ID Address	Operation					
U Rumono	Julua	n.	THATE I PARTESS	Operation					
geminidb-	 Available 	az3	IPv4:	View Metric Bind EIP Delete					
geminidb-	 Available 	az2	IPv4:	View Metric Bind EIP Delete					
geminidb-	 Available 	az4	IPv4:	View Metric Bind EIP Delete					

- Pay-per-use
 - To delete a single node, click **Delete** in the **Operation** column.
 - To delete multiple nodes, select them and click **Delete Node**.

Figure 4-69 Node information

Node Information										
Data Nodes	Data Nodes Analysis Nodes									
Delete Node	Add Node									
Q Select one	or more filters from the pop-up lists. If you enter	er a keyword without a filter applied, the syste	m will search for all names matching this keywor	d.		С				
Name/ID	Stat	tus	AZ	Private IP Address	Operation					
_ geminidb-		Available	az3	IPv4: 1	View Metric Bind EIP	Delete				
geminidb-(0	Available	az3	IPv4:	View Metric Bind EIP	Delete				
C geminidb-	0	Available	az3	IPv4:	View Metric Bind EIP	Delete				

- Step 5 If you have enabled operation protection, click Start Verification in the Delete Node dialog box. On the displayed page, click Send Code, enter the verification code, and click Verify. The page is closed automatically.
- **Step 6** In the displayed dialog box, click **Yes**.
 - When the node is being deleted, the instance status is **Deleting node**.
 - After the node is deleted, the instance status becomes **Available**.

----End

4.7.7 Scaling Storage Space

4.7.7.1 Overview

As more data is added, you may run out of storage. This section describes how to scale up storage of your instance. As data volumes decrease, you can scale down disk space to avoid low database node utilization and resource waste. **Table 4-34** lists the scaling methods supported by GeminiDB Influx instances.

Method	Supported Instance Type	Description		
Manually Scaling Up Storage Space of a GeminiDB Influx Instance	 Cluster (performan ce- enhanced) Cluster Single node 	You can specify how much storage space needs to be added. The added value must be a multiple of 1 (GB). The total storage space cannot exceed the upper limit defined by your instance specifications.		
Automatically Scaling Up Storage Space of a GeminiDB Influx Instance	Cluster (performance- enhanced)	When the available storage drops to or below the specified threshold, autoscaling will be triggered. The storage is scaled up by a percentage you specify. The added storage space is the current storage space multiplied by the scaling increment.		

Table 4-34 Scaling methods

Method	Supported Instance Type	Description
Manually Scaling Down Storage Space of a GeminiDB Influx Instance	Cluster (performance- enhanced) instance with classic storage	You can specify how much storage space needs to be reduced. The storage space to be reduced must be an integer multiple of 1 GB and greater than or equal to 125% of the used storage space. The value is rounded up.

Manually Scaling Up Storage Space

For example, if the storage space of a cluster instance is 100 GB and is increased by 50 GB, the storage space will become 150 GB.

Figure 4-70 Manually scaling up storage space



Automatically Scaling Up Storage Space

For example, the storage of a cluster (performance-enhanced) instance is 1250 GB, the storage usage threshold for triggering autoscaling is set to 10%, and the total storage needs to be automatically scaled up by 10%. If the available storage usage of an instance drops to or below 10%, the storage is automatically scaled up by 125 GB (1250 x 10%), which is rounded up to 130 GB. In this case, the total storage becomes 1380 GB (1250 + 130).





Manually Scaling Down Storage Space

For example, the storage of a cluster (performance-enhanced) instance is 200 GB. If the storage is scaled down by 10 GB, it becomes 190 GB.



Figure 4-72 Manually scaling down storage space

4.7.7.2 Manually Scaling Up Storage Space of a GeminiDB Influx Instance

Scenarios

This section describes how to scale up storage of an instance to suit your service requirements.

Storage scaling does not interrupt your services. After storage scaling is complete, you do not need to restart your instance.

Usage Notes

• Currently, cloud native storage of cluster, single-node, or performanceenhanced cluster instances can only be scaled up.

Setting an Instance Status to Read-Only

To ensure that the GeminiDB Influx instance can still run properly when the storage space is about to be used up, the database is set to read-only, and data cannot be modified. If this happens, you can scale up the storage to restore the database status to read/write.

Storage	Description
< 600 GB	 When the storage usage reaches 97%, the instance status is set to read-only.
	• When the storage usage decreases to 85%, the read- only status is automatically disabled for the instance.
≥ 600 GB	 If the remaining storage space is less than 18 GB, the instance status is set to read-only.
	• When the remaining storage space is greater than or equal to 90 GB, the read-only status is automatically disabled for the instance.

 Table 4-35
 Setting an instance status to read-only

The kernel uses an LSM architecture. When written or deleted data reaches a certain amount, it will be merged. New data and old data to be deleted are stored together, and the disk usage increases temporarily based on the amount of

merged data. In this case, the read-only status may be triggered. You are advised to reserve sufficient disk space to prevent the read-only status.

Method 1

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, locate the instance whose storage space you want to scale up and click its name.
- **Step 4** In the **Storage Space** area on the **Basic Information** page, click **Scale**.

Figure 4-73 Scaling up storage space

Storage Space	
	Scale
Used 0.06/100 GB	0.06%
Cold Storage	Create

Step 5 On the displayed page, specify new storage and click **Next**.

Step 6 On the displayed page, confirm the storage space.

- Yearly/Monthly
 - If you need to modify the settings, click **Previous**.
 - If you do not need to modify the settings, click Submit and complete the payment.
- Pay-per-use
 - If you need to modify the settings, click **Previous**.
 - If you do not need to modify the settings, click **Submit**.

Step 7 Check the results.

- When the scale-up task is ongoing, the instance status is **Scaling up**.
- After the scale-up task is complete, the instance status becomes **Available**.
- In the **Storage Space** area on the **Basic Information** page, check whether the scale-up is successful.

----End

Method 2

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, locate the instance whose storage you want to scale up and choose **More** > **Scale Storage Space** in the **Operation** column.

Figure 4-74 Scaling up storage space

Namei1D ⊖	DB Instance	Compatible	Stor	Status 😔	Specifications	Storage Sp	Nace	Load balan	Enterprise	Billing Mode	Operation	
	Cluster	InfluxDB 1.8	Shared	Available	2 vCPUs 1 node	0.06%	0.06/100GB		default	Pay-per-Use Created on J	Log In Chang	e to Yearly/Monthly More ~
												Create Backup
												Scale Storage Space
												Add Node
												Restart
												Reset Password
												Delete

Step 4 On the displayed page, specify new storage and click **Next**.

Figure 4-75 Scaling up storage space

Scale Storage Space 💿										
Current Configuratio	n									
DB Instance Name						Node Specifications	geminidb.influxdb.large.4 2 vCPUs 8 GB			
DB Instance ID						Current Nodes	3			
Billing Mode	Pay-per-use					Storage	100 GB			
Storage (CB)										
storage (GB)	101 GB									
							101 +			
	100	2,400	4,800	7,200	9,600	12,000				

Select at least 1 GB each time, and the value must be an integer.

Step 5 On the displayed page, confirm the storage space.

- Yearly/Monthly
 - If you need to modify the settings, click **Previous**.
 - If you do not need to modify the settings, click Submit and complete the payment.
- Pay-per-use
 - If you need to modify the settings, click **Previous**.
 - If you do not need to modify the settings, click **Submit**.

Step 6 Check the results.

- When the scale-up task is ongoing, the instance status is **Scaling up**.
- After the scale-up task is complete, the instance status becomes **Available**.
- In the **Storage Space** area on the **Basic Information** page, check whether the scale-up is successful.

----End

4.7.7.3 Automatically Scaling Up Storage Space of a GeminiDB Influx Instance

You can enable autoscaling for GeminiDB Influx instances. When storage usage reaches the limit, autoscaling is triggered.

You can enable storage autoscaling when or after creating an instance. For details, see **Buying a GeminiDB Influx Instance**.

This section describes how to configure storage autoscaling after an instance is created.

Configuring Permissions

{

If you are using an IAM user, perform the following operations to configure GeminiDB and IAM permissions before you enable storage autoscaling:

1. Configure fine-grained permissions for IAM and least permissions for GeminiDB.

For details about how to configure IAM permissions, see **Creating a Custom Policy**.

```
"Version":"1.1",
"Statement":[
{
    "Effect":"Allow",
    "Action":[
    "iam:permissions:listRolesForAgencyOnProject",
    "iam:permissions:grantRoleToGroupOnProject",
    "iam:agencies:createAgency",
    "iam:agencies:listAgencies",
    "iam:roles:listRoles",
    "iam:roles:createRole"
    ]
}
```

2. Create a user group and assign permissions to it.

You can create a user group on the IAM console and grant it custom permissions created in **1** and the security administrator role.

3. Add a user to a user group.

Log in to the IAM console using a Huawei Cloud account or an IAM account, locate the IAM user that the target instance belongs to, and add it to the user group created in 2. The IAM user will inherit permissions of the user group.

Usage Notes

- Auto Scale is available only when your account balance is sufficient.
- The instance is in the Available status.
- Once Auto Scale is enabled, an agency will be created and fees will be automatically deducted.
- Currently, only GeminiDB Influx instances in a performance-enhanced cluster support autoscaling.
- By default, when the storage is used up (the available storage space is less than or equal to 10% or the available storage is less than or equal to 10 GB), autoscaling is triggered.

Automatically Scaling Up Storage of a Single Instance

- Step 1 Log in to the Huawei Cloud console.
- Step 2 In the service list, choose Databases > GeminiDB.
- **Step 3** On the **Instances** page, click the target instance. The **Basic Information** page is displayed.
- **Step 4** In the **Storage Space** area, click **Auto Scale**.

Figure 4-76 Auto Scale

Storage Space	
	Scale Auto Scale
Used 0.00/130 GB	0%

Step 5 Toggle on **Auto Scale** and specify the trigger condition and increment.

Figure 4-77 Configuring autoscaling parameters

Auto Scale	×
 Additional stor 	age will be billed.
Auto Scale	Once enabled, an agency will be created.
Trigger If Available Storage Drops To	10 ~ %
Increase By	10 ~ %
Storage Limit	GB

If available storage drops to or below 10 GB or 10%, total storage will automatically be scaled up by 10%. If the increased storage is not a multiple of 10 GB, the system rounds it up to the nearest multiple of 10. The default minimum increment is 100 GB. If your account balance is insufficient, autoscaling will fail.

ок	Cancel	\supset
----	--------	-----------

Parameter	Description
Auto Scale	If you toggle on this switch, autoscaling is enabled.
Trigger If Available Storage Drops To	If the available storage usage drops to a specified threshold (10%, 15%, or 20%), autoscaling is triggered.
Increase By	Percentage of the current storage to be automatically scaled up at. The value can be 10% , 15% , or 20% . If the value is not a multiple of 10, it is rounded up. At least 100 GB is added each time.
Storage Limit	Limit of storage that can be automatically scaled up to

Step 6 Click OK.

----End

Automatically Scaling Up Storage of Multiple Instances In Batches

- Step 1 Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** In the instance list, select the target instances and click **Auto Scale**.

Figure 4-78 Auto Scale

Auto S	Scale Renew	Change to Yearly/Monthly	Change to Pay-per-Use Unsu	b
All proje	cts	✓ Q Instance name:	X Add filter	
	Name/ID ⇔	DB Instance T Compatible	API Stora Status 🔶	
		Cluster (perfor InfluxDB 1.8	Classic 🧿 Available	

Step 4 Toggle on **Auto Scale** and specify trigger conditions.

Figure 4-79 Configuring autoscaling parameters

Batch Auto S	cale			\times		
1 Additional sto	rage will be billed	l.				
Auto Scale	Once enabled, a	an agency w	ill be created.			
Trigger If Available Storage Drops To	10	~	%			
Increase By	10	\sim	%			
Storage Limit Maximum storage supported by the current instance specifications						
The upper limit for au specification.If availal If the increased stora minimum increment is	toscaling can onl ble storage drops ge is not a multip s 100 GB. If your	y be set to t to or below le of 10 GB, account bal	he maximum storage supported by the current instance 10 GB or 10%, total storage will automatically be scaled up by 10% the system rounds it up to the nearest multiple of 10. The default ance is insufficient, autoscaling will fail.	б.		

Table 4-37 Parameters

Parameter	Description
Auto Scale	If you toggle on this switch, autoscaling is enabled.
Trigger If Available Storage Drops To	If the available storage usage drops to a specified threshold (10%, 15%, or 20%), autoscaling is triggered.
Increase By	Percentage of the current storage to be automatically scaled up at. The value can be 10% , 15% , or 20% . If the value is not a multiple of 10, it is rounded up. At least 100 GB is added each time.
Storage Limit	Limit of storage that can be automatically scaled up to

ок

Cancel

Step 5 Click OK.

----End

4.7.7.4 Manually Scaling Down Storage Space of a GeminiDB Influx Instance

Scenarios

As data volumes decrease, you can scale down storage space to avoid low database node utilization and resource waste.

Usage Notes

- To scale down storage, ensure the new storage space is at least 1.25 times more than the used space and rounded up.
- Storage scaling does not interrupt your services. After storage space is scaled, you do not need to restart your instance.
- You can only scale down classic storage of instances in a performanceenhanced cluster.

Setting an Instance Status to Read-only

To ensure that the GeminiDB Influx instance can still run properly when the storage space is about to be used up, the database is set to read-only, and data cannot be modified. If this happens, you can scale up the storage to restore the database status to read/write.

Storage	Description
< 600 GB	• When the storage usage reaches 97%, the instance is read-only.
	• When the storage usage decreases to 85%, the read- only status is automatically disabled for the instance.
≥ 600 GB	• When the remaining storage space is less than 18 GB, the instance is read-only.
	• When the remaining storage space is greater than or equal to 90 GB, the read-only status is automatically disabled for the instance.

Table 4-38 Setting an Instance Status to Read-only

Method 1

- Step 1 Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, locate the target instance and choose **More** > **Scale Storage Space** in the **Operation** column.

Figure 4-80 Scaling storage space

NameID 0	DB Instance T	Compatible API	Stora	Status Θ	Specifications	Storage Space	,	Load balancer	Enterprise Pro	Billing Mode	Operation	
geminkb bascesore	Cluster (perfor	InflaDB 1.8	Classic	Available	4 vCPUs 2 nodes	0.01%	0.01/130GB	-	default	Pay-per-use	Log in Change	to Yearly Monthly More A
												Create Backup Scale Storage Space Add Node
												Restart
												Reset Password
												Delete
												Export Data

Step 4 On the displayed page, specify the new storage space and click **Next**.

Figure 4-81 Scaling storage space

Scale Storage Space	0								
Current Configurati	ion								
DB Instance Name	geminidb-							Node Specifications	geminidb.influxdb.sqlstore.xlarge.4 4 vCPUs 16 GB
DB Instance ID	b80c8626							Current Nodes	2
Billing Mode	Pay-per-use							Storage	130 GB
Storage (GB)									
	131 GB								
								131 +	
	100	16,000	32,000	48,000	64,000	80,000	96,000		

Select at least 1 GB each time, and the value must be an integer.

Step 5 On the displayed page, confirm the storage space.

- Yearly/Monthly
 - To modify your settings, click **Previous**.
 - If you do not need to modify your settings, click Next and complete the payment.
- Pay-per-Use
 - To modify your settings, click **Previous**.
 - If you do not need to modify your settings, click **Submit**.

Step 6 Check the results.

- During the scale-down process, the instance status becomes **Scaling storage space**.
- After the scaling task is complete, the instance status becomes **Available**.
- Click the instance name. In the **Storage Space** area on the **Basic Information** page, check the new storage space.

----End

Method 2

- Step 1 Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, click the target instance.
- Step 4 In the Specification Information area on the Basic Information page, click Scale .

Figure 4-82 Scaling storage space

Storage Space	
	Scale
Used 0.01/823 GB	0%

Step 5 On the displayed page, specify the new storage space and click **Next**.

Figure 4-83 Scaling storage space

Scale Storage Spac	e								
Current Configurat	tion								
DB Instance Name	geminidb-							Node Specifications	geminidb.influxdb.sqlstore.xlarge.4 4 vCPUs 16 GB
DB Instance ID	b80c8626							Current Nodes	2
Billing Mode	Pay-per-use							Storage	130 GB
00000									
storage (GB)	124.00								
	131 GB								
	100	16.000	22,000	49.000	64.000	80.000	95.000	131 +	
	100	10,000	32,000	40,000	04,000	00,000	20,000		

Select at least 1 GB each time, and the value must be an integer.

Step 6 On the displayed page, confirm the storage space.

- Yearly/Monthly
 - To modify your settings, click **Previous**.
 - If you do not need to modify your settings, click Next and complete the payment.
- Pay-per-Use
 - To modify your settings, click **Previous**.
 - If you do not need to modify your settings, click **Submit**.

Step 7 Check the results.

- During the scale-down process, the instance status becomes **Scaling storage space**.
- After the scaling task is complete, the instance status becomes **Available**.
- Click the instance name. In the **Storage Space** area on the **Basic Information** page, check the new storage space.

----End

4.8 Database Commands

4.8.1 Supported Commands

The following table lists the commands supported by GeminiDB Influx API.

NOTE

For GeminiDB Influx common commands, basic syntax, and examples, see **Buying and Connecting to a GeminiDB Influx Instance**.

Usage Notes

DROP MEASUREMENT can be used only for instances in a performance-enhanced cluster.

User Management

Command	Supported In Read/ Write Mode	Supported In Read- Only Mode
create user	\checkmark	\checkmark
show user	\checkmark	\checkmark
drop user	\checkmark	\checkmark
set password	\checkmark	\checkmark
grant	\checkmark	\checkmark
show grants	\checkmark	\checkmark
revoke	\checkmark	\checkmark

Table 4-39 Commands supported by user management

CLI Commands Used on an InfluxDB Client

Table 4-40 CLI commands used on an InfluxDB client

Command	Supported In Read/ Write Mode	Supported In Read- Only Mode
connect	\checkmark	\checkmark
auth	\checkmark	\checkmark
pretty	\checkmark	\checkmark
chunked	\checkmark	\checkmark
chunk size	\checkmark	\checkmark
use	\checkmark	\checkmark
format	\checkmark	\checkmark
precision	\checkmark	\checkmark
consistency	\checkmark	\checkmark
history	\checkmark	\checkmark
settings	\checkmark	\checkmark
clear	\checkmark	\checkmark
exit/quit/ctrl+d	\checkmark	\checkmark

Metadata Management

Command	Supported In Read/ Write Mode	Supported In Read- Only Mode
create database	\checkmark	\checkmark
show databases	\checkmark	\checkmark
drop database	\checkmark	\checkmark
show measurements	\checkmark	\checkmark
show measurement cardinality	\checkmark	\checkmark
show measurement exact cardinality	\checkmark	\checkmark
drop measurement	\checkmark	\checkmark
create retention policy	\checkmark	\checkmark
alter retention policy	\checkmark	\checkmark
drop retention policy	\checkmark	\checkmark
show retention policies	\checkmark	\checkmark
create continuous query	\checkmark	\checkmark
show continuous queries	\checkmark	\checkmark
drop continuous query	\checkmark	\checkmark
show series	\checkmark	\checkmark
show series cardinality	\checkmark	\checkmark
show series exact cardinality	\checkmark	\checkmark
drop series	×	×
show tag keys	\checkmark	\checkmark
show tag key cardinality	\checkmark	\checkmark
show tag key exact cardinality	\checkmark	\checkmark
show tag values	\checkmark	\checkmark
show tag values cardinality	\checkmark	\checkmark
show tag values exact cardinality	\checkmark	\checkmark

 Table 4-41 Commands supported by metadata management
Command	Supported In Read/ Write Mode	Supported In Read- Only Mode
show field keys	\checkmark	\checkmark
show field key cardinality	\checkmark	\checkmark
show field key exact cardinality	\checkmark	\checkmark
show shards	\checkmark	\checkmark
show shard groups	\checkmark	\checkmark
drop shard	\checkmark	\checkmark

Monitoring and Management of Queries

Table 4-42 Commands for monitoring and management of queries

Command	Supported In Read/ Write Mode	Supported In Read- Only Mode
kill query	\checkmark	\checkmark
show queries	\checkmark	\checkmark

Querying, Writing, and Deleting Data Points

 Table 4-43 Commands supported by data points

Command	Supported In Read/ Write Mode	Supported In Read- Only Mode
select	\checkmark	\checkmark
select xxx into	\checkmark	\checkmark
insert into	\checkmark	×
insert	\checkmark	×
limit	\checkmark	\checkmark
offset	\checkmark	\checkmark
delete	×	×
explain	\checkmark	\checkmark
explain analyze	\checkmark	\checkmark

Aggregate Functions

Command	Supported In Read/ Write Mode	Supported In Read- Only Mode
count	\checkmark	\checkmark
distinct	\checkmark	\checkmark
integral	\checkmark	\checkmark
mean	\checkmark	\checkmark
median	\checkmark	\checkmark
mode	\checkmark	\checkmark
spread	\checkmark	\checkmark
stddev	√	√
sum	\checkmark	\checkmark

 Table 4-44 Commands supported by aggregate functions

SELECT Function

 Table 4-45 Commands supported by the SELECT function

Command	Supported In Read/ Write Mode	Supported In Read- Only Mode
bottom	\checkmark	\checkmark
top	\checkmark	\checkmark
first	\checkmark	\checkmark
last	\checkmark	\checkmark
max	\checkmark	\checkmark
min	\checkmark	\checkmark
percentile	\checkmark	\checkmark
sample	\checkmark	\checkmark

Conversion Function

Command	Supported In Read/ Write Mode	Supported In Read- Only Mode
abs	\checkmark	\checkmark
acos	\checkmark	\checkmark
asin	\checkmark	\checkmark
atan	\checkmark	\checkmark
atan2	\checkmark	\checkmark
ceil	\checkmark	\checkmark
cos	\checkmark	\checkmark
sin	\checkmark	\checkmark
tan	\checkmark	\checkmark
sqrt	\checkmark	\checkmark
round	\checkmark	\checkmark
floor	\checkmark	\checkmark
ехр	\checkmark	\checkmark
ln	\checkmark	\checkmark
log2	\checkmark	\checkmark
log10	\checkmark	\checkmark
log	\checkmark	\checkmark
pow	\checkmark	\checkmark
cumulative_sum	\checkmark	\checkmark
difference	\checkmark	\checkmark
non_negative_difference	\checkmark	\checkmark
derivative	\checkmark	\checkmark
non_negative_derivative	\checkmark	\checkmark
elapsed	\checkmark	\checkmark
moving_average	\checkmark	\checkmark

 Table 4-46 Commands supported by the conversion function

D NOTE

 \checkmark indicates that an item is supported, and \times indicates that an item is not supported.

4.9 Cold and Hot Data Separation

4.9.1 Enabling Cold Storage

Cold storage is mainly used to store historical data with low query frequency. As the amount of historical data increases, the need to reduce storage costs becomes necessary. GeminiDB Influx provides cold storage to help you store cold data at low costs in just a few clicks.

In addition, GeminiDB Influx can separate cold data from hot data based on the retention policy. If you need to separate cold data from hot data, create cold storage and set the **time boundary between hot and cold data**. In this way, hot data will be automatically archived in cold storage after the retention period expires.

Both new and existing instances support cold storage. This section describes how to create cold storage.

Usage Notes

- Cold data cannot be written.
- Cold storage is supported only when the kernel version of an existing instance is 1.7.4.6 or later. If the kernel version is earlier than 1.7.4.6, upgrade it by following **Upgrading a Minor Version**.
- Cold data of GeminiDB Influx instances will not be backed up.
- Cold storage cannot be disabled after being enabled.
- Instances with cloud native in a performance-enhanced cluster do not support this feature.
- For instances with classic storage in a performance-enhanced cluster and cluster instances, this function is now in OBT. You can choose Service Tickets
 > Create Service Ticket in the upper right corner of the console and contact the customer service.

Creating Cold Storage for a New Instance

You can specify **Purchase Cold Storage** on the page for purchasing an instance. For details, see **Buying a GeminiDB Influx Instance**.

Creating Cold Storage for an Existing Instance

If you select **No** for **Purchase Cold Storage** on the page for purchasing an instance. To create cold storage, you can perform the following steps:

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.

- **Step 3** On the **Instances** page, locate the instance that you want to create cold storage for and click its name.
- **Step 4** In the **Cold Storage** area on the **Basic Information** page, click **Create**.

Figure 4-84 Creating cold storage

Storage Space

	Scale
Used 0 /100 GB	0%
Cold Storage	Create

Step 5 On the displayed page, specify the amount of cold storage and click **Next**.

Figure 4-85 Specifying cold storage

Create ③						
Current Configuration	on					
DB Instance Name					Node Specifications	geminidb.influxdb.large.4 2 vCPUs 8 GB
DB Instance ID					Current Nodes	4
Billing Mode	Pay-per-use					
Storage (GB)	500 GB					- 500 +
	500	204,800	409,600	614,400	819,200	1,024,000

The cold storage is an integer from 500 GB to 1,024,000 GB. You can add a minimum of 1 GB each time you scale up storage space.

Step 6 On the displayed page, confirm the cold storage space.

- Yearly/Monthly
 - If you need to modify your settings, click **Previous**.
 - If you do not need to modify your settings, click Next and complete the payment.
- Pay-per-use
 - If you need to modify your settings, click **Previous**.
 - If you do not need to modify the settings, click **Submit**.

Step 7 Check the results.

- When the cold storage is being created, the instance status is **Creating cold storage**.
- After the cold storage is created, the instance status becomes **Available**.

• Click the instance name. In the **Cold Storage** area on the **Basic Information** page, you can view the cold storage capacity after the cold storage is created.

----End

4.9.2 Cold and Hot Data Separation

GeminiDB Influx allows you to separate cold and hot data based on the retention policy (RP). You can configure data retention duration and number of backups, and then the system automatically archives hot data that meets the conditions to cold storage.

Background

In big data scenarios, cold data and hot data is distinguished. Historical timeseries data is less likely to be queried and analyzed as time goes by. In addition, the historical data will take up space that may increase storage costs. Therefore, it is necessary for enterprises to reduce cold data storage costs. GeminiDB Influx provides cold and hot data separation and uses low-cost media to store cold data. It can help you greatly reduce storage costs in just a few clicks.

Cold and hot data separation is based on the RP. You need to set a time boundary between cold and hot data in the RP, and the system will automatically archives cold data to cold storage. When you query data, the system will automatically retrieve it from hot or cold data storage based on the time range you specify.

Principles

You can configure the retention period of hot data. When data is written, it is stored in the hot storage first. GeminiDB Influx determines whether the data is hot or cold based on the data timestamp. If the data timestamp is within the hot data storage duration, the data is still hot. Otherwise, the hot data will be automatically archived in cold storage.



Figure 4-86 Diagram

Basic Usage

1. Set the cold and hot time boundary.

Specify **WARM DURATION** in the RP. Data generated before the value of **WARM DURATION** is cold data.

To set **WARM DURATION**, perform the following steps:

//Create an RP named **myrp** for database named **mydb**. The value of **WARM DURATION** is **6d**, indicating that data generated six days ago is cold data. create retention policy myrp on mydb duration 30d replication 1 warm duration 6d shard

duration 3d //Create an RP named **myrp** for database **mydb**. If **WARM DURATION** is not specified, no

cold data exists. create retention policy myrp on mydb duration 30d replication 1 shard duration 3d //Create a database named **mydb** with an RP named **myrp**. The value of **WARM DURATION** is **3d**, indicating that data generated three days ago is cold data.

create database mydb with duration 6d warm duration 3d name myrp

//Change the value of **WARM DURATION** to **7d**, indicating that data generated seven days ago is cold data.

alter retention policy myrp on mydb warm duration 7d

2. Write data to the storage.

Hot and cold data is written in the same way. Data is first stored in the hot storage when being written. As time goes by, if the timestamp of the data in the hot storage exceeds the value of **WARM DURATION**, the system automatically archives the data to the cold storage. This process is completely transparent to the user.

3. Query data.

The methods for querying hot and cold data are the same. During data query, the system automatically queries hot or cold storage based on the TimeRange condition in the query statement. This process is completely transparent to the user. The response to a cold data query is longer than that to a hot data query.

4. Check the status of hot and cold data.

> show shards name: _internal id database retention_poli	cy shard_group start_time end_time	
expiry_time owners t	ier	
1 _internal monitor 2021-07-07T00:00:00Z 4	1 2021-06-29T00:00Z 2021-06-30T00:00Z warm	
2 _internal monitor 2021-07-07T00:00:00Z 5	1 2021-06-29T00:00Z 2021-06-30T00:00Z warm	
3 _internal monitor 2021-07-07T00:00:00Z 7	1 2021-06-29T00:00Z 2021-06-30T00:00Z warm	
4 _internal monitor 2021-07-07T00:00:00Z 6	1 2021-06-29T00:002 2021-06-30T00:002 warm	
name: hsdb id database retention_polic expiry_time owners t	y shard_group start_time end_time ier	
5 hsdb myrp 2 2019-08-19T00:00:00Z 4	2019-08-12T00:00:00Z 2019-08-19T00:00:00Z cold	
6 hsdb myrp 2	2019-08-12T00:00:00Z 2019-08-19T00:00:00Z	
2019-08-19100:002 5 7 hsdb myrp 2 2019-08-19T00:00:00Z 6	moving 2019-08-12T00:00:00Z 2019-08-19T00:00:00Z warm	
8 hsdb myrp 2 2019-08-19T00:00:00Z 7	2019-08-12T00:00:00Z 2019-08-19T00:00:00Z cold	

- If the **tier** value is **cold**, the current shard stores cold data.
- If the tier value is warm, the current shard store hot data.
- If the **tier** value is **moving**, the current shard is being changed from hot data to cold data.
- The process of changing hot data to cold data involves only the transfer of TSM files from hot storage to cold storage. Other files of the shard are still stored in hot storage and do not need to be moved.

4.9.3 Scaling Up Cold Storage

Scenarios

If the existing cold storage cannot meet your service requirements, scale up it.

Usage Notes

- Cold storage scaling does not interrupt your services. After the scaling is complete, you do not need to restart your instance.
- Cold storage can only be scaled up and cannot be scaled down.

Procedure

- **Step 1** Log in to the Huawei Cloud console.
- Step 2 In the service list, choose Databases > GeminiDB.
- **Step 3** On the **Instances** page, click the instance whose cold storage you want to scale up and click its name.
- **Step 4** In the **Cold Storage** area on the **Basic Information** page, click **Scale** for an instance.

Figure 4-87 Scaling up cold storage of cluster and single-node instances

Storage Space Used 0.01/100 GB 0.01% Cold Storage Used 0.00/500 GB 0% Figure 4-88 Scaling up cold storage of cluster (performance-enhanced) instances



Step 5 On the displayed page, specify desired cold storage space and click **Next**.

Figure 4-89 Scaling up cold storage of cluster and single-node instances $_{\text{scale Storage Space}}$ $_{\odot}$

Current Configuratio	on					
DB Instance Name					Node Specifications	geminidb.influxdb.large.4 2 vCPUs 8 GE
DB Instance ID					Current Nodes	4
Billing Mode	Pay-per-use				Storage	500 GB
Storage (GB)						
	501 GB					
						- 501 +
	500	204 800	409 600	614.400	810 200	1 024 000

Figure 4-90 Scaling up cold storage of cluster (performance-enhanced) instances

Change Cold Storag	e Capacity 💿								
Current Configurati	ion								
DB Instance Name	geminidb							Node Specifications	geminidb.influxdb.sqlstore.large.4 2 vCPUs 8 GB
DB Instance ID								Current Nodes	2
Billing Mode	Pay-per-use							Storage	1,000 GB
Planae (CB)									
atorage (GB)	1,001 GB								
							1.001		
	500	204,800	409,600	614,400	819,200	1,024,000	1,001		

Select at least 1 GB each time, and the value must be an integer.

Step 6 On the displayed page, confirm the cold storage space.

- For yearly/monthly instances
 - If you need to modify your settings, click **Previous**.
 - If you do not need to modify your settings, click Next and complete the payment.
- For pay-per-use instances
 - If you need to modify your settings, click **Previous**.
 - If you do not need to modify your settings, click **Submit**.

Step 7 Check the scale-up result.

- During the scale-up, the instance status becomes **Scaling up Cold storage** or **Changing cold storage capacity**.
- After the scale-up is complete, the instance status becomes **Available**.
- Click the instance name. In the **Cold Storage** area on the **Basic Information** page, you can view the new cold storage.

----End

4.9.4 Scaling Down Cold Storage

Scenarios

Cold storage of GeminiDB Influx cluster (performance-enhanced) instances can be scaled down when the requested cold storage space needs to be released.

Usage Notes

- Scaling down cold storage does not interrupt your services, and you do not need to restart your instances.
- Currently, only cluster (performance-enhanced) instances support this function.

Procedure

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, click the target instance name.
- **Step 4** In the **Cold Storage** area on the **Basic Information** page, click **Scale**.

Figure 4-91 Changing the cold storage capacity

Storage Space					
	Scale				
Used 0.00/100 GB	0%				
Cold Storage					
	Scale				
Used 0.00/1,000 GB	0%				



Figure 4-92 Scaling down cold storage

Change Cold Stora	ge Capacity 💿								
Current Configura	tion								
DB Instance Name	geminidb-							Node Specifications	geminids influeds sqistore.large.4 2 vCPUs 8 GB
DB Instance ID								Current Nodes	2
Billing Mode	Pay-per-use							Storage	1,000 GB
Storage (CB)									
atorage (on)	100108								
	1,001 05								
	500	204.800	409.600	614.400	819.200	1.024.000	1,001 +		

- **Step 6** On the displayed page, confirm the cold storage space.
 - Yearly/Monthly
 - To modify your settings, click **Previous**.
 - If you do not need to modify your settings, click **Submit**.
 - Pay-per-use
 - To modify your settings, click **Previous**.
 - If you do not need to modify your settings, click **Submit**.
- **Step 7** Check the scale-down result.
 - During the scale-down, the instance status becomes **Changing cold storage capacity**.
 - After the scale-down is complete, the instance status becomes **Available**.
 - Click the instance name. In the **Cold Storage** area on the **Basic Information** page, you can view the new cold storage.

----End

4.10 Certificate Management

4.10.1 Downloading the Default SSL Certificate

Scenarios

Secure Sockets Layer (SSL) certificates set up encrypted connections between clients and servers, preventing data from being tampered with or stolen during transmission.

To improve data security, GeminiDB Influx provides a default SSL certificate. When creating an instance, you can enable SSL to encrypt connections to the instance.

This section describes how to obtain the default SSL security certificate provided by GeminiDB Influx.

Procedure

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, click the instance whose SSL certificate you want to download and click the instance name.

Step 4 In the **DB Information** area, click th in the **SSL** field.

Figure 4-93 Downloading the SSL certificate

DB Information			
Compatible API	InfluxDB 1.8	Data Node Specifications	2 vCPUs 8 GB Change
Administrator	rwuser Reset Password	SSL	Enabled 🛃 Update Certificat
Maintenance Window 🕐	10:00 - 14:00 Change		

----End

4.10.2 Configuring a CCM Private Certificate

Scenarios

GeminiDB Influx allows you to use the certificate issued by Cloud Certificate Management Service (CCM) to connect to your DB instance. You can select a CCM certificate when you create an instance or update its certificate after the instance is created.

This section describes how to apply for a CCM private certificate to a DB instance in either of the following ways:

- 1. Select a certificate when you create an instance.
- 2. Update the certificate after the instance is created.

Precautions

The instance status is **Available**.

Prerequisites

You have created a CCM private certificate. If there are no CCM private certificates, you can apply for a private certificate by referring to **Applying for a Private Certificate** in the *Cloud Certificate Manager User Guide*.

NOTICE

- When you apply for a private certificate, specify the IP address of the instance that you want to access for **Configure Certificate AltName**. If this parameter is not specified, the database connection will fail.
 - If you choose to enable SSL when you create an instance, you can only add an EIP in the **Configure Certificate AltName** area. This is because the instance has not been created, the system has not generated a private IP address for it.
 - When you update the certificate after an instance is created, you can add private IP addresses or EIPs of all the instance nodes at the **Configure Certificate AltName** area.

Common Name	
dvanced Configuration	~
key Algorithm	Select a key algorithm.
ignature Algorithm	Select a signature algorithm.
Key Usage	Select a key usage.
Customized Extension Field	Enter a customized extension field.
Configure Certificate AltNam	ne
Туре	Value
1 ID address =	

• For details about how to set other parameters, see **Applying for a Private Certificate** in the *Cloud Certificate Manager User Guide*.

Scenario 1: Configuring a Private Certificate When Creating an Instance

Figure 4-94 Creating a CCM private certificate

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- Step 3 On the Instances page, click Buy DB Instance.
- **Step 4** On the displayed page, specify required parameters and click **Next**.
 - Enable SSL and select an existing CCM private certificate. If there are no certificates available, apply for a certificate by referring to Prerequisites.

Figure 4-95 Selecting a certificate

SSL	•			
	Default certificate	CCM certificate		
	Certificate	Select	View Certificat	e

- Configure other parameters by following **Buying a GeminiDB Influx Cluster Instance**.
- **Step 5** After the instance is created, click its name to go to the **Basic Information** page. In the **DB Information** area, check whether the certificate status is **Available**.

Figure 4-96 Viewing the certificate status

DB Information			
Compatible API	InfluxDB 1.7	Instance Class	4 vCPUs 16 GB Change
Administrator	rwuser Reset Password	Certificate	-0911 (Status : Avai Update Certificate Dow

Step 6 Download the certificate.

Click **Download** in the **Certificate** field. On the displayed page, click the **Nginx** tab and click **Download Certificate**.

Figure 4-97 Downloading the certificate

Tomcat	Nginx		Apache	IIS	Others
Certificate Name	RWT344	143			
Download Cer	tificate				

----End

Scenario 2: Updating a Certificate After an Instance Is Created

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, locate the instance whose certificate you want to update.
- Step 4 In the DB Information area, click Update Certificate in the SSL field.

Figure 4-98 Updating the certificate

DB Information			
Compatible API	InfluxDB 1.8	Data Node Specifications	2 vCPUs 8 GB Change
Administrator	rwuser Reset Password	SSL	Enabled 🛃 Update Certificate
Maintenance Window 🗿	10:00 – 14:00 Change		

Step 5 In the Update Certificate dialog box, select the required certificate and click OK.

Figure 4-99 Selecting a certificate

Update C	ertificate		>
A Replac Exercis	ing the certificate will cause se caution when performing	e the instance to restart. g this operation.	
Certificate	Select	✓ View Certificate	
			OK Cancel

NOTE

- The new certificate takes effect only after the instance is restarted. Perform this operation during off-peak hours to minimize impacts on your services.
- The certificate cannot be changed to the default SSL certificate.
- **Step 6** After the certificate is updated, check whether the certificate status is **Available** on the **Basic Information** page.

Figure 4-100 Viewing the certificate status

DB Information			
Compatible API	InfluxDB 1.7	Instance Class	4 vCPUs 16 GB Change
Administrator	rwuser Reset Password	Certificate	-0911 (Status : Avai Update Certificate Dow

Step 7 Download the certificate.

Click **Download** in the **Certificate** field. On the displayed page, click the **Nginx** tab and click **Download Certificate**.

Figure 4-101 Downloading the certificate

Tomcat	Nginx		Apache	IIS	Others
Certificate Name	RWT344	143			
Download Cer	tificate				

----End

4.11 Data Backup

4.11.1 Overview

You can back up GeminiDB Influx instances to protect your data. After an instance is deleted, the manual backup data is retained. Automated backup data is released together with instances. Backup data cannot be downloaded or exported.

Usage Notes

This function of instances in a performance-enhanced cluster is now in OBT. To use it, choose **Service Tickets > Create Service Ticket** in the upper right corner of the console and contact the customer service.

Backup Methods

GeminiDB Influx instances support both automatic and manual backups.

• Automated backup

You can **modify a backup policy** on the GeminiDB console, and the system will automatically back up your instance data based on the time window and backup cycle you configured in the backup policy and will store the data for a length of time you specified.

Automated backups cannot be manually deleted. You can adjust their retention period by referring to **Modifying an Automated Backup Policy**, and backups that expire will be automatically deleted.

• Manual backup

A manual backup is a full backup of a DB instance and can be retained until you manually delete it. You can create a manual backup for your instance at any time to meet service requirements.

Regularly backing up your database is recommended. If your database becomes faulty or data is corrupted, you can restore it from backup.

Method	Scenario
Automated backup	After you configure a backup policy, the system automatically backs up your database based on the policy. You can also modify the policy based on service requirements.
Manual backup	You can manually create full backups for your instance based on service requirements.

Backup process

As shown in **Figure 4-102**, there are three nodes in the GeminiDB Influx cluster for backing up data. Data snapshots are taken in seconds, and the generated backup files are compressed and stored in OBS, without occupying extra storage space of the GeminiDB Influx instance. The CPU usage may increase 5% to 15% because uploading backups consumes CPU resources.



Figure 4-102 Backup process

Backup Storage

Backups are stored in OBS buckets to provide disaster recovery and save storage space.

After you purchase an instance, GeminiDB Influx will provide additional backup storage of the same size as what you purchased. For example, if you purchase an instance with 100 GB of storage, you will get another 100 GB of storage free of charge. If the backup data does not exceed 100 GB, it is stored on OBS free of charge. If there is more than 100 GB of data, you will be billed at standard OBS rates.

4.11.2 Managing Automated Backups

GeminiDB Influx creates automated backups to ensure data reliability. If a database or table is deleted, maliciously or accidentally, backups can help recover your data.

NOTE

GeminiDB Influx does not back up cold storage data.

Configuring an Automated Backup Policy

Automated backups are generated according to a backup policy and saved as packages in OBS buckets to ensure data confidentiality and durability. You are advised to regularly back up your database, in case it becomes faulty or damaged. Backing up data affects the database read and write performance so you are advised to set the automated backup time window to off-peak hours.

When you create an instance, automated backup is enabled by default.

Modify Backup Policy ×								
Automated Backup								
Incremental Backup Interval	15 V minutes							
Retention Period	- 7 + days Enter an integer from 1 to 3660.							
Time Zone	GMT+08:00							
Time Window	01:00-02:00 🗸							
Backup Cycle	II All							
	🕑 Monday 🕑 Tuesday 🔽 Wednesday							
	🗸 Thursday 🗹 Friday 🗹 Saturday							
	Sunday							
	A minimum of one day must be selected.							
	OK Cancel)						

Figure 4-103 Enabling the automated backup policy

- **Retention Period**: Automated backup files are saved for seven days by default. The retention period ranges from 1 to 3660 days. Full backups are retained till the retention period expires. However, even if the retention period has expired, the most recent backup will be retained.
 - Extending the retention period improves data reliability. You can extend the retention period as needed.
 - If you shorten the retention period, the new backup policy takes effect for existing backups. Any automated backups (including full and incremental backups) that have expired will be automatically deleted. Manual backups will not be automatically deleted but you can delete them manually.

NOTE

- If the retention period is less than seven days, the system automatically backs up data daily.
- The system checks existing automated backups and deletes any backups that exceed the backup retention period you configured.
- **Time Window**: A one-hour period the backup will be scheduled for, such as 12:00-13:00. The backup time is in GMT format. After the DST or standard time is switched, the backup time segment changes with the time zone.

If **Retention Period** is set to **2**, full and incremental backups that have been stored for more than two days will be automatically deleted. For instance, a backup generated on Monday will be deleted on Wednesday; or a backup generated on Tuesday will be deleted on Thursday.

Policy for automatically deleting full backups:

To ensure data integrity, even after the retention period expires, the most recent backup will be retained, for example,

If **Backup Cycle** was set to **Monday** and **Tuesday** and the **Retention Period** was set to **2**:

- The full backup generated on Monday will be automatically deleted on Thursday. The reasons are as follows:

The backup generated on Monday expires on Wednesday, but it is the last backup, so it will be retained until a new backup expires. The next backup will be generated on Tuesday and will expire on Thursday. So the full backup generated on Monday will not be automatically deleted until Thursday.

- A full backup generated on Tuesday will be automatically deleted on the following Wednesday. The reasons are as follows:

The backup generated on Tuesday will expire on Thursday, but as it is the last backup, so it will be retained until a new backup expires. The next backup will be generated on the following Monday and will expire on the following Wednesday. So the full backup generated on Tuesday will not be automatically deleted until the following Wednesday.

- **Backup Cycle**: All options are selected by default.
 - **All**: Each day of the week is selected. The system automatically backs up data every day.
 - You can select one or more days in a week. The system automatically backs up data at the specified time.

NOTE

A full backup starts within one hour of the time you specify. The amount of time required for the backup depends on the amount of data to be backed up. The more data has to be backed up, the longer it will take.

- Incremental Backup Interval: Incremental backups are generated every 15 minutes. The incremental backup interval can be set to 5 minutes, 10 minutes, or 15 minutes. This function is now in OBT. To use it, choose Service Tickets > Create Service Ticket in the upper right corner of the console and contact the customer service.
- After the DB instance is created, you can modify the automated backup policy as needed. You can change the time window after the DB instance is created. The system backs up data based on an automated backup policy you configure.
- If **Automated Backup** is disabled, any automated backups in progress stop immediately.

Modifying an Automated Backup Policy

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- Step 3 On the Instances page, click the instance you want to back up.
- **Step 4** Choose **Backups & Restorations** in the navigation pane one the left, and click **Modify Backup Policy**. In the displayed dialog box, configure the backup policy. Click **OK**.

For details about how to set a backup policy, see **Configuring an Automated Backup Policy**.

Figure 4-104	Modifying	the	backup	policy
--------------	-----------	-----	--------	--------

Modify Backup Policy							
Automated Backup							
Incremental Backup Interval	15 V minutes						
Retention Period	- 7 + days Enter an integer from 1 to 3660.						
Time Zone	GMT+08:00						
Time Window	01:00-02:00 ~						
Backup Cycle							
	🕑 Monday 🕑 Tuesday 🕑 Wednesday						
	🗸 Thursday 🖌 Friday 🗸 Saturday						
	Sunday						
	A minimum of one day must be selected.						
	OK Cancel)					

Step 5 Check or manage the generated backups on the Backups or Backups & Restorations page.

----End

Disabling Automated Backup

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, click the instance you want to back up.
- **Step 4** Choose **Backups & Restorations** in the navigation pane one the left, and click **Modify Backup Policy**.
- **Step 5** In the displayed dialog box, click **C** to disable automatic backup and click **OK**.

Figure 4-105 Disabling backup policies

Modify Backu	up Policy							
Automated Backup	Once the automated backup policy is disabled, automated backups are no longer created and all incremental backups are deleted immediately. Operations related to the incremental backups, such as point-in-time recovery may fail.							
	Delete automated backups							
Retention Period	- 7 + days							
	Enter an integer from 1 to 3660.							
Time Zone	GMT+08:00							
Time Window	01:00-02:00							
Backup Cycle	II All							
	🕑 Monday 🕑 Tuesday 🕑 Wednesday 🕑 Thursday							
	Saturday Sunday							
	OK Cancel)						

When your disable automated backup, specify whether to delete the automated backups:

- If you select **Delete automated backups**, all backup files within the retention period will be deleted. There are no automated backups displayed until you enable automated backup again.
- If you do not select **Delete automated backups**, backup files within the retention period will be retained, but you can still manually delete them later if needed. For details, see **Deleting an Automated Backup**.

If **Automated Backup** is disabled, any automated backups in progress stop immediately.

----End

Deleting an Automated Backup

If automated backup is disabled, you can delete stored automated backups to free up storage space.

If automated backup is enabled, the system will delete automated backups when they expire. You cannot delete them manually.

NOTICE

Deleted backups cannot be recovered. Exercise caution when performing this operation.

• Method 1

- a. Log in to the Huawei Cloud console.
- b. In the service list, choose **Databases** > **GeminiDB**.
- c. On the **Instances** page, click the instance whose automatic backups you want to delete.
- d. Choose **Backups & Restorations** in the navigation pane on the left, locate the backup you want to delete, and click **Delete** in the **Operation** column.
- e. In the displayed dialog box, confirm the backup details and click **Yes**.
- Method 2
 - a. Log in to the Huawei Cloud console.
 - b. In the service list, choose **Databases** > **GeminiDB**.
 - c. On the **Backups** page, locate the backup that you want to delete and click **Delete**.
 - d. In the displayed dialog box, confirm the backup details and click **Yes**.

4.11.3 Managing Manual Backups

To ensure data reliability, GeminiDB Influx allows you to manually back up instances whose status is **Available**. If a database or table is deleted, maliciously or accidentally, backups can help recover your data.

Precautions

- Manual backups are full backups.
- GeminiDB Influx does not back up cold storage data.
- Manual backups are charged for instances with cloud native storage during OBT.

Creating a Manual Backup

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** Create a manual backup.

Method 1

On the **Instances** page, locate the instance you want to back up and choose **More** > **Create Backup** in the **Operation** column.

Method 2

- 1. On the **Instances** page, click the instance that you want to create a backup for.
- 2. Choose **Backups & Restorations** in the navigation pane on the left, and click **Create Backup**.

Method 3

In the navigation pane on the left, choose **Backups**. On the displayed page, click **Create Backup**.

Step 4 In the displayed dialog box, specify a backup name and description and click **OK**.

Create Backup			×
DB Instance Name			
★ Backup Name	backup-22d5	?	
Description		?	
	0/050 /		
	0/256 %		
	ОКС	ancel)

Figure 4-106 Creating a manual backup

 Table 4-48 Parameter description

Parameter	Description
DB Instance Name	Must be the name of the DB instance to be backed up and cannot be modified.
Backup Name	Must be 4 to 64 characters long and start with a letter. It is case- insensitive and contains only letters, digits, hyphens (-), and underscores (_).
Description	Can include a maximum of 256 characters and cannot include line breaks or special characters >!<"&'=

Step 5 View the backup status.

- When the backup is being created, query the backup status on the **Backups** or **Backups & Restorations** page. The backup status is **Backing up**.
- After the backup is created, the backup status changes to **Completed**.
- ----End

Deleting a Manual Backup

If you do not need a manual backup any longer, you can delete it on the **Backups** or **Backups & Restorations** page.

Deleted backups are not displayed in the backup list.

NOTICE

Deleted backups cannot be recovered. Exercise caution when performing this operation.

Method 1

- 1. Log in to the Huawei Cloud console.
- 2. In the service list, choose **Databases** > **GeminiDB**.
- 3. On the **Instances** page, locate the instance whose backup you want to delete and click its name.
- 4. Choose **Backups & Restorations** in the navigation pane on the left, locate the backup you want to delete, and click **Delete** in the **Operation** column.
- 5. In the displayed dialog box, confirm the backup details and click **Yes**.

Method 2

- 1. Log in to the Huawei Cloud console.
- 2. In the service list, choose **Databases** > **GeminiDB**.
- 3. On the **Backups** page, locate the backup that you want to delete and click **Delete**.
- 4. In the displayed dialog box, confirm the backup details and click **Yes**.

4.12 Data Restoration

4.12.1 Restoration Methods

GeminiDB Influx supports multiple forms of data restoration. You can select one based on service requirements.

Usage Notes

This function of instances in a performance-enhanced cluster is now in OBT. To use it, choose **Service Tickets > Create Service Ticket** in the upper right corner of the console and contact the customer service.

Restoration Methods

Table 4-49 Restoration methods

Method	Scenario		
Rebuilding an Instance	If an instance is deleted by mistake, you can rebuild it within a retention period in the recycle bin.		
Restoring Data to a New Instance	You can restore an existing backup to a new instance.		

4.12.2 Restoring Data to a New Instance

Scenarios

GeminiDB Influx allows you to use an existing automated or manual backup to restore data to a new instance. The restored instance will have the same data as before.

A full backup will be downloaded from OBS for restoration. The time required depends on the amount of data to be restored.

Precautions

- The new instances must have at least as many nodes as the original instance.
- The new instance must have at least as much storage as the original instance.
- Incremental backup and PITR are not supported.
- Restoration to the current instance is not supported.
- You can scale in the memory, but the memory decrease cannot become less than the actual memory used during the backup.
- The restored instance uses the same parameter group as the original instance.
- For single-node instances, you can restore an automated backup to a new instance.

Procedure

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** Restore an instance from the backup.

Method 1

- 1. On the **Instances** page, locate the instance whose backup you want to restore and click its name.
- 2. Choose **Backups & Restorations** in the navigation pane on the left, locate the backup that you want to restore, and click **Restore** in the **Operation** column.

Figure 4-107 Restoration

Batch Delete Create Backup Modify Backup Policy Restore to Point in Time							
Backup Name/ID ⇔	Backup Type	Backup Time \ominus	Status \ominus	Size	Description	Operation	
	Automated	Jul 03, 2024 13:43:02 - Jul 03, 2024 13:45:00	Completed	0.49 MB	-	Restore	

Method 2

On the **Backups** page, locate the backup that you want to restore and click **Restore** in the **Operation** column.

Figure 4-108 Restoration

Backups ③						
Same-Region Backups Cross-Region Backups						
Instance-level Backups Table-level Backups						
Batch Delete						
	Add filter					
□ Backup Name/ID 😔 □ DB Instance Name/ID 🔤	Compatible API	Backup Type \ominus	Backup Time \ominus	Status \ominus	Size Description	Operation
	InfluxDB 1.8	Automated	Jul 03, 2024 13:43:	Completed	0.49 MB	Restore

Step 4 In the displayed dialog box, confirm the current instance details and restoration method and click **OK**.

Figure 4-109 Restoring data to a new instance Restore DB Instance ×								
Restore DB In	stance			×				
DB Instance	Backup Name	DB Instance Name						
Restoration Method	Create New Instance							
			ОК	Cancel				

- The default API type and DB engine version are the same as those of the original instance and cannot be changed.
- GeminiDB automatically calculates the minimum storage space required for restoration based on the size of the selected backup file. The storage capacity depends on the instance specifications, and must be an integer.
- You need to set a new administrator password.
- To modify other parameters, see **Buying a GeminiDB Influx Cluster Instance**.
- **Step 5** View the restoration results.

A new instance is created using the backup data. The instance status changes from Creating to Available.

A full backup is triggered after the new DB instance is created.

The new DB instance is independent from the original one.

----End

_.

4.13 Parameter Management

4.13.1 Modifying Parameters of GeminiDB Influx Instances

You can modify parameters in a custom parameter template so that your instance can deliver spectacular performance.

Note that parameter values in default parameter templates cannot be changed.

- Exercise caution when modifying parameter values to prevent exceptions.
- Though parameter values in a default template cannot be changed, you can view details about a default parameter template. If a custom parameter template is set incorrectly, the database startup may fail. You can re-configure the custom parameter template according to the configurations of the default parameter template.

Usage Notes

Currently, parameters of GeminiDB Influx instances only on a single node or in a cluster can be modified.

Modifying a Custom Parameter Template and Applying It to an Instance

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- Step 3 In the navigation pane on the left, choose Parameter Templates.
- **Step 4** Click the **Custom Templates** tab, locate the parameter template whose parameters you want to modify, and click its name.
- **Step 5** On the **Parameters** page, modify parameters. For details about the parameters, see **Modifying Parameters of GeminiDB Influx Instances** or **Table 4-51**.

Figure 4-110 Modifying parameters in the parameter template

Parameters					
Change History	Save Cancel Preview	Enter a parameter name. Q			
	Parameter Name	Effective upon Restart 🖯	Value	Allowed Values	Description
	max-concurrent-query-limit	No	delaut	2-32	Concurrent queries. The default value depends
	max-concurrent-write-limit	No	default	4-128	Concurrent write requests. The default value d
	max-connection-limit	No	default	250-4,010	Maximum connections. The default value depe
	query-timeout	Yes	0	0-60	Query command timeout (minutes).

- To save the modifications, click **Save**.
- To cancel the modifications, click **Cancel**.
- To preview the modifications, click **Preview**.

Table 4-50 Parameters of a GeminiDB Influx cluster instance

Parameter	Effect ive upon Resta rt	Def ault Valu e	Value Range	Description
max- concurrent- query-limit	Yes	4	4–32	Concurrent queries. If this parameter is set to default , the value varies with the CPU specifications.

Parameter	Effect ive upon Resta rt	Def ault Valu e	Value Range	Description
max- concurrent- write-limit	Yes	16	16-128	Concurrent writes. If this parameter is set to default , the value varies with the CPU specifications.
max- connection- limit	Yes	500	500- 4,000	Maximum connections. If this parameter is set to default , the value varies with the CPU specifications.
query- timeout	Yes	0	0–60	Query command timeout interval in minutes

 Table 4-51 Parameters of a single-node GeminiDB Influx instance

Parameter	Effect ive upon Resta rt	Def ault Valu e	Value Range	Description
max- concurrent- query-limit	No	2	2-16	Concurrent queries. If this parameter is set to default , the value varies with the CPU specifications.
max- concurrent- write-limit	No	4	4–64	Concurrent writes. If this parameter is set to default , the value varies with the CPU specifications.
max- connection- limit	No	250	250- 2,000	Maximum connections. If this parameter is set to default , the value varies with the CPU specifications.
query- timeout	Yes	0	0–60	Query command timeout interval in minutes

Figure 4-111 Preview Change

Preview Change			>
Parameter Name	Current	New	
max-concurrent-query-li	default	2	
			Close

Step 6 After parameters are modified, click **Change History** to view parameter modification details.

For details about how to view parameter modification details, see **Viewing Parameter Change History**.

NOTICE

- The modifications take effect only after you apply the parameter template to instances. For details, see **Applying a Parameter Template**.
- The change history page displays only the modifications of the last seven days.

----End

Modifying Parameters of an Instance

ers Chang

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** In the navigation pane on the left, choose **Instances**. In the instance list, locate the instance whose parameters you want to modify and click its name.
- **Step 4** In the navigation pane on the left, choose **Parameters**. On the displayed page, modify parameters as required.

Figure 4-112 Modifying parameters

Save Cancel Preview	Export Compare			Enter a parameter name. Q
Parameter Name	Effective upon Restart \varTheta	Value	Allowed Values	Description
max-concurrent-query-limit	No	6	2-32	Concurrent queries. The default value depends
max-concurrent-write-limit	No	4	4-128	Concurrent write requests. The default value d
max-connection-limit	No	250	250-4,000	Maximum connections. The default value depe
query-timeout	Yes	0	0-60	Query command timeout (minutes).

• To save the modifications, click **Save**.

- To cancel the modifications, click **Cancel**.
- To preview the modifications, click **Preview**.

Step 5 After parameters are modified, click Change History.

For details about how to view parameter modification details, see **Viewing Parameter Change History**.

NOTICE

After you modify instance parameters, the modifications immediately take effect for the instance.

Check the value in the Effective upon Restart column.

- If the value is **Yes** and the instance status on the **Instances** page is **Pending restart**, restart the instance for the modifications to take effect.
- If the value is **No**, the modifications take effect immediately.

----End

4.13.2 Creating a Parameter Template

You can use database parameter templates to manage DB API configurations. A database parameter template acts as a container for API configuration values that can be applied to one or more DB instances.

Each user can create up to 100 parameter templates. The parameter template quota is shared by all instances in a project.

Procedure

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- Step 3 In the navigation pane on the left, choose Parameter Templates.
- Step 4 On the Parameter Templates page, click Create Parameter Template.
- **Step 5** Select a compatible DB engine version, specify a parameter template name and description, and click **OK**.

Figure 4-113 Creating a parameter template

Х Create Parameter Template ★ Compatible API Cassandra MongoDB InfluxDB Redis Cluster ★ DB Instance Type Single node 1.8 ★ DB Engine Version \sim * Parameter Template Name paramsGroup-2d29 0 ? Description Enter a parameter template description. 0/256 // You can create 100 more parameter templates. The parameter template quota is shared by all DB instances in a project. OK Cancel

- **Compatible API**: Select the API type that is compatible with your DB engine parameter template.
- **DB Engine Version**: Select a DB engine version, for example, 1.7.
- **Parameter Template Name**: The template name can be up to 64 characters long. It can contain only uppercase letters, lowercase letters, digits, hyphens (-), underscores (_), and periods (.).
- **Description**: The description contains a maximum of 256 characters and cannot include line breaks or the following special characters >!<"&'=
- **Step 6** On the **Parameter Templates** page, view the created parameter template.

----End

4.13.3 Viewing Parameter Change History

Scenarios

You can view parameter change history of an instance or one of its custom parameter templates based on service requirements.

NOTE

In a newly exported or created parameter template, change history is left blank.

Viewing Change History of a Custom Parameter Template

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- Step 3 In the navigation pane on the left, choose Parameter Templates. On the Custom Templates page, click the parameter template whose change history you want to view.
- **Step 4** In the navigation pane on the left, choose **Change History**. Then, view the name, original value, new value, modification status, and modification time of the target parameter.

Figure 4-114 Viewing change history of a customer parameter template

Change History	The parameter change history of the last seven	days is displayed.			Enter a parameter name.
	Parameter Name 🖨	Original Value	New Value	Modification Status	Modification Time $ \Theta $
	max-concurrent-query-limit	default	2	Successful	Jul 04, 2024 09:14:50 GMT+08:00

You can apply the parameter template to instances by referring to **Applying a Parameter Template**.

----End

Viewing Parameter Change History of an Instance

- **Step 1** Log in to the Huawei Cloud console.
- Step 2 In the service list, choose Databases > GeminiDB.
- **Step 3** On the **Instances** page, locate the instance whose parameter change history you want to view and click its name.
- **Step 4** In the navigation pane on the left, choose **Parameters**. On the **Change History** page, view the name, original value, new value, modification status, and modification time of the target parameter.

Figure 4-115 Viewing parameter change history of an instance

Parameters Change	History					
The parameter change history	of the last seven days is displayed.					Enter a parameter name. O
Parameter Name	Original Value	New Value	Modification Status	Modification Time \ominus	Application Status	Application Time
max-concurrent-query-limit	2	3	Successful	Jul 04, 2024 09:33:03 GMT+08:00	Applied	Jul 04, 2024 09:33:03 GMT+08:00

----End

4.13.4 Exporting a Parameter Template

Scenarios

• You can export a parameter template of a DB instance for future use. To learn how to apply the exported parameter template to a DB instance, refer to section **Applying a Parameter Template**.

• You can export the parameter template details (parameter names, values, and descriptions) of a DB instance to a CSV file for review and analysis.

Procedure

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** In the navigation pane on the left, choose **Instances**. On the displayed page, locate the instance whose parameters you want to export and click its name.
- **Step 4** In the navigation pane on the left, choose **Parameters**> **Parameters** and click **Export** above the parameter list.

Figure 4-116 Exporting a parameter template

Export Parameters

Export To	Parameter Template	File	
★ New Parameter Template	paramsGroup-2864		0
Description	Enter a parameter template d	escription.	?
		0,055.4	
	(0/256 //)	
		ОК	Cancel

• **Parameter Template**: You can export parameters of the DB instance to a template for future use.

In the displayed dialog box, configure required details and click **OK**.

NOTE

- Parameter Template Name: The template name can be up to 64 characters long. It can contain only uppercase letters, lowercase letters, digits, hyphens (-), underscores (_), and periods (.).
- The template description consists of a maximum of 256 characters and cannot include line breaks or the following special characters: >!<"&'=

After the parameter template is exported, a new template is generated in the list on the **Parameter Templates** page.

 File: You can export the parameter template details (parameter names, values, and descriptions) of a DB instance to a CSV file for review and analysis.

In the displayed dialog box, enter the file name and click **OK**.

NOTE

The file name must start with a letter and consist of 4 to 81 characters. It can contain only letters, digits, hyphens (-), and underscores (_).

----End

4.13.5 Comparing Parameter Templates

Scenarios

This section describes how to compare two parameter templates of the same instance type and compatible API to learn about their configurations.

Comparing Parameter Templates

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- Step 3 In the navigation pane on the left, choose Parameter Templates.
- **Step 4** In the parameter template list, locate the parameter template that you created and click **Compare** in the **Operation** column.
- **Step 5** In the displayed dialog box, select a parameter template that is of the same instance type and compatible API as the selected template and click **OK**.

Figure 4-117 Comparing two parameter templates

Compare Para	meter Templates	~
Parameter Template	Default-InfluxDB-1.8	~
		OK Cancel

- If their parameters are different, the different parameter names and values are displayed.
- If their parameters are the same, no data is displayed.

----End

Comparing Parameter Templates of a Specific Instance

Step 1 Log in to the Huawei Cloud console.

Step 2 In the service list, choose **Databases** > **GeminiDB**.

Step 3 In the navigation pane on the left, choose **Instances**.

- **Step 4** On the **Instances** page, locate the instance whose parameter templates you want to compare and click its name.
- **Step 5** In the navigation pane on the left, choose **Parameters** and then click **Compare** above the parameter list.
- **Step 6** In the displayed dialog box, select a parameter template that is of the same instance type as the template of current instance and click **OK**.

Figure 4-118 Comparing the instance parameter template with another parameter template

Compare Para	meter Templates	×
Parameter Template	Default-InfluxDB-1.8	~
		OK Cancel

- If their parameters are different, the different parameter names and values are displayed.
- If their parameters are the same, no data is displayed.

----End

4.13.6 Replicating a Parameter Template

Scenarios

You can replicate a parameter template you have created. When you have already created a parameter template and want to include most of the custom parameters and values from that template in a new parameter template, you can replicate that parameter template. You can also export a parameter template of a DB instance for future use.

Default parameter templates cannot be replicated. You can create parameter templates based on the default ones.

Procedure

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- Step 3 In the navigation pane on the left, choose Parameter Templates.
- **Step 4** On the **Parameter Templates** page, click the **Custom Templates** tab. Locate the target parameter template and click **Replicate** in the **Operation** column.

Alternatively, click the target instance on the **Instances** page. On the **Parameters** page, click **Export**.

х

Step 5 In the displayed dialog box, enter a parameter template name and description and click **OK**.

Figure 4-119 Replicating a parameter template

Replicate Parameter Template

★ Source Parameter Template	paramsGroup-1ec9	
★ New Parameter Template	paramsGroup-dc22	?
Description	Enter a parameter template description.	?
You can replicate 99 more paramet instances in a project.	0/256 // er templates. The parameter template quota is shared by	/ all DB
	OK	ancel

- New Parameter Template: The template name can be up to 64 characters long. It can contain only uppercase letters, lowercase letters, digits, hyphens (-), underscores (_), and periods (.).
- **Description**: The description contains a maximum of 256 characters and cannot include line breaks or the following special characters >!<"&'=

After the parameter template is replicated, a new template is generated in the list on the **Parameter Templates** page.

----End

4.13.7 Resetting a Parameter Template

Scenarios

You can reset all parameters in a custom parameter template to their default settings.

Procedure

- **Step 1** Log in to the Huawei Cloud console.
- Step 2 In the service list, choose Databases > GeminiDB.
- Step 3 In the navigation pane on the left, choose Parameter Templates.
- **Step 4** On the **Parameter Templates** page, click the **Custom Templates** tab. Locate the target parameter template and choose **More** > **Reset** in the **Operation** column.
Step 5 Click **Yes** to reset the parameter template.

----End

4.13.8 Applying a Parameter Template

Scenarios

GeminiDB Influx allows you to apply a parameter template. Modifications to parameters in a custom parameter template take effect only after you have applied the template to the target instance.

Procedure

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- Step 3 In the navigation pane on the left, choose Parameter Templates.
- **Step 4** On the **Parameter Templates** page, perform the following operations based on the template type:
 - To apply a default template, click **Default Templates**, locate the template, and in the **Operation** column, click **Apply**.
 - To apply a custom template, click **Custom Templates**, locate the target parameter template, and choose **More** > **Apply** in the **Operation** column.

A parameter template can be applied to one or more instances.

Step 5 In the displayed dialog box, select one or more instances that the parameter template will be applied to and click **OK**.

After a parameter template is applied, you can view its application records.

----End

4.13.9 Viewing Application Records of a Parameter Template

Scenarios

GeminiDB Influx allows you to view application records of a parameter template.

Procedure

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- Step 3 In the navigation pane on the left, choose Parameter Templates.
- **Step 4** On the **Parameter Templates** page, perform the following operations based on the template type:
 - On the **Default Templates** page, locate the parameter template whose application records you want to view and click **View Application Records** in the **Operation** column.

• On the **Custom Templates** page, locate the target template and choose **More** > **Apply** in the **Operation** column.

You can view the name or ID of the instance that the parameter template applies to, as well as the application status, application time, and causes of any failures that have occurred.

----End

4.13.10 Modifying a Parameter Template Description

Scenarios

You can modify the description of a custom parameter template if needed.

Procedure

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- Step 3 In the navigation pane on the left, choose Parameter Templates.
- **Step 4** On the **Parameter Templates** page, click the **Custom Templates** tab. Locate the target parameter template and click in the **Description** column.
- **Step 5** Enter a new description. You can click \checkmark to submit or \times to cancel the modification.
 - After you submit the modification, you can view the new description in the **Description** column.
 - The description can include up to 256 characters but cannot contain the following special characters: >!<"&'=

----End

4.13.11 Deleting a Parameter Template

Scenarios

You can delete a custom parameter template that is no longer in use.

Precautions

- Deleted templates cannot be recovered. Exercise caution when performing this operation.
- Default parameter templates cannot be deleted.

Procedure

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.

- **Step 3** In the navigation pane on the left, choose **Parameter Templates**.
- **Step 4** On the **Parameter Templates** page, click **Custom Templates**. Locate the parameter template you want to delete and choose **More** > **Delete** in the **Operation** column.
- **Step 5** Click **Yes** to delete the parameter template.

----End

4.14 Logs and Audit

4.14.1 Slow Query Logs

You can view slow query logs of GeminiDB Influx databases. Any query that takes longer than an execution time threshold (in milliseconds) will be logged. With slow query logs, you can identify and optimize slow statements.

Usage Notes

- This function is only available for cluster and cluster (performance-enhanced) instances.
- To use this function, choose **Service Tickets** > **Create Service Ticket** in the upper right corner of the console and contact the customer service.

Viewing Log Details

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, click the target instance name.
- **Step 4** In the navigation pane, choose **Slow Query Logs**.
- **Step 5** On the **Slow Query Logs** page, set search criteria and click **Search** to view log information.

Figure 4-120 Viewing slow query logs

	5 records have been loaded	All nodes	All statements	×) [Dec 09, 2024 00:00:00 - Dec 10, 2024 14:45:2	6 🛗 (Advanced Search 🗸 C
Node Name	Execute Statement	Statement Type	Execution Time (ms)	Retention Policy	Database	Execution End Time
	SELECT * FROM cpu WH	SELECT	9.37	autogen	mydb	2024/12/10 14:26:52 GMT+08:00
	SHOW MEASUREMENTS	SHOW	1.2	autogen	mydb	2024/12/10 14:25:58 GMT+08:00
	SHOW DATABASES	SHOW	0.21			2024/12/10 14:23:00 GMT+08:00
	CREATE DATABASE mydb	CREATE	0.25			2024/12/10 14:22:34 GMT+08:00
	CREATE DATABASE mydb	CREATE	8.58			2024/12/10 14:22:05 GMT+08:00

• Select **All nodes** and view slow query logs of all nodes. Alternatively, select a specific node to view its slow query logs.

Figure 4-121 Selecting a node

All	nodes	^
Q	Search	
All	nodes	

- You can view slow SQL statements of the following types:
 - SELECT
 - DELETE
 - SHOW
 - DROP
 - CREATE
 - ALTER
- After expanding Advanced Search, you can filter logs by:
 - Keyword
 - Maximum execution time (ms)
 - Retention policy
 - Database

Figure 4-122 Advanced search



----End

4.14.2 Key Operations Supported by CTS

With CTS, you can record operations on GeminiDB Influx instances for later queries, audit, and backtracking.

Table 4-52 GeminiDB	5 Influx	key	operations
---------------------	----------	-----	------------

Operation	Resource Type	Trace Name
Creating an instance	instance	NoSQLCreateInstance
Deleting an instance	instance	NoSQLDeleteInstance
Adding nodes	instance	NoSQLEnlargeInstance
Deleting nodes	instance	NoSQLReduceInstance

Operation	Resource Type	Trace Name
Restarting an instance	instance	NoSQLRestartInstance
Restoring data to a new instance	instance	NoSQLRestoreNewInstance
Scaling up storage space	instance	NoSQLExtendInstanceVo- lume
Resetting the password of an instance	instance	NoSQLResetPassword
Modifying the name of an instance	instance	NoSQLRenameInstance
Changing specifications	instance	NoSQLResizeInstance
Binding an EIP	instance	NoSQLBindEIP
Unbinding an EIP	instance	NoSQLUnBindEIP
Freezing an instance	instance	NoSQLFreezeInstance
Unfreezing an instance	instance	NoSQLUnfreezeInstance
Creating a backup	backup	NoSQLCreateBackup
Deleting a backup	backup	NoSQLDeleteBackup
Modifying the backup policy of an instance	backup	NoSQLSetBackupPolicy
Adding an instance tag	tag	NoSQLAddTags
Modifying an instance tag	tag	NoSQLModifyInstanceTag
Deleting an instance tag	tag	NoSQLDeleteInstanceTag
Creating a parameter template	parameterGroup	NoSQLCreateConfigurations
Modifying a parameter template	parameterGroup	NoSQLUpdateConfigura- tions
Modifying instance parameters	parameterGroup	NoSQLUpdateInstanceConfi- gurations
Replicating a parameter template	parameterGroup	NoSQLCopyConfigurations
Resetting a parameter template	parameterGroup	NoSQLResetConfigurations
Applying a parameter template	parameterGroup	NoSQLApplyConfigurations
Deleting a parameter template	parameterGroup	NoSQLDeleteConfigurations

Operation	Resource Type	Trace Name
Deleting the node that fails to be added	instance	NoSQLDeleteEnlargeFail- Node
Enabling SSL	instance	NoSQLSwitchSSL
Changing the security group of an instance	instance	NoSQLModifySecurityGroup
Exporting parameter template information for an instance	instance	NoSQLSaveConfigurations
Modifying the recycling policy	instance	NoSQLModifyRecyclePolicy

4.14.3 Querying Traces

After CTS is enabled, CTS starts recording operations on cloud resources. The CTS console stores the last seven days of operation records.

This section describes how to query the last seven days of operation records on the CTS console.

Procedure

- **Step 1** Log in to the management console.
- **Step 2** Click ^(Q) in the upper left corner and select a region and project.
- Step 3 Click Service List. Under Management & Governance, click Cloud Trace Service.
- **Step 4** In the navigation pane on the left, click **Trace List**.
- **Step 5** Specify filter criteria to search for the required traces. The following four filter criteria are available:
 - Trace Source, Resource Type, and Search By

Select filters from the drop-down list.

When you select **Trace name** for **Search By**, you need to select a specific trace name.

When you select **Resource ID** for **Search By**, you also need to select or enter a specific resource ID.

When you select **Resource name** for **Search By**, you also need to select or enter a specific resource name.

- **Operator**: Select a specific operator (a user other than the tenant).
- Trace Status: Select All trace statuses, Normal, Warning, or Incident.
- Start Date and End Date: You can specify a time range to query traces.

Step 6 Locate the target trace and click \checkmark to view its details.

Step 7 Click **View Trace** in the **Operation** column. In the displayed dialog box, the trace structure details are displayed.

----End

4.15 Viewing Metrics and Configuring Alarms

4.15.1 Supported Metrics

Description

This section describes GeminiDB Influx metrics reported to Cloud Eye as well as their namespaces and dimensions. You can use APIs provided by Cloud Eye to query the metrics of the monitored object and alarms generated for GeminiDB Influx.

Namespace

SYS.NoSQL

Monitoring Metrics

NOTE

You can view metrics on instance nodes by referring to Viewing Metrics.

Metric ID	Metric Name	Descripti on	Value Range	Un it	Nu mb er Sys te m	Monitor ed Object	Monitori ng Period (Raw Data)
gemini00 1_cpu_us age	CPU Usage	CPU usage of the monitore d system	0–100	%	N/A	GeminiD B Influx instance node	1 minute
gemini00 2_mem_ usage	Memory Usage	Memory usage of the monitore d system	0–100	%	N/A	GeminiD B Influx instance node	1 minute
gemini00 3_bytes_ out	Network Output Through put	Outgoing traffic in bytes per second	≥ 0	Byt es/ s	102 4(IE C)	GeminiD B Influx instance nodes	1 minute

 Table 4-53 GeminiDB Influx API metrics

Metric ID	Metric Name	Descripti on	Value Range	Un it	Nu mb er Sys te m	Monitor ed Object	Monitori ng Period (Raw Data)
gemini00 4_bytes_i n	Network Input Through put	Incoming traffic in bytes per second	≥ 0	Byt es/ s	102 4(IE C)	GeminiD B Influx instance nodes	1 minute
nosql005 _disk_usa ge	Storage Space Usage	Storage usage of the current instance.	0–100	%	N/A	GeminiD B Influx instances	1 minute
nosql006 _disk_tot al_size	Total Storage Space	Total storage space of the current instance.	≥ 0	GB	102 4(IE C)	GeminiD B Influx instances	1 minute
nosql007 _disk_use d_size	Storage Space Usage	Storage space usage of the current instance.	≥ 0	GB	102 4(IE C)	GeminiD B Influx instances	1 minute
influxdb0 01_series _num	Time Series	Total number of time series	≥ 0	Co unt s	N/A	GeminiD B Influx instance nodes	1 minute
influxdb0 02_query _req_ps	Query Requests Per Second	Number of query requests per second	≥ 0	Co unt s/s	N/A	GeminiD B Influx instance nodes	1 minute
influxdb0 03_write_ req_ps	Write Requests Per Second	Number of write requests per second	≥ 0	Co unt s/s	N/A	GeminiD B Influx instance nodes	1 minute
influxdb0 04_write_ points_ps	Write Points	Number of write points per second	≥ 0	Co unt s/s	N/A	GeminiD B Influx instance nodes	1 minute

Metric ID	Metric Name	Descripti on	Value Range	Un it	Nu mb er Sys te m	Monitor ed Object	Monitori ng Period (Raw Data)
influxdb0 05_write_ concurre ncy	Concurre nt Write Requests	Number of concurre nt write requests	≥ 0	Co unt s	N/A	GeminiD B Influx instance nodes	1 minute
influxdb0 06_query _concurr ency	Concurre nt Queries	Number of concurre nt query requests	≥ 0	Co unt s	N/A	GeminiD B Influx instance nodes	1 minute
influxdb0 10_cold_ disk_usa ge	Cold Storage Space Usage	Cold storage usage of an instance	0-100	%	N/A	GeminiD B Influx instances	1 minute
influxdb0 11_cold_ disk_tota l_size	Total Cold Storage Space	Total cold storage of an instance	≥ 0	GB	102 4(IE C)	GeminiD B Influx instances	1 minute
influxdb0 12_cold_ disk_used _size	Cold Storage Space Usage	Used cold storage of an instance	≥ 0	GB	102 4(IE C)	GeminiD B Influx instances	1 minute

Dimensions

Кеу	Value
influxdb_cluster_id	Cluster ID of the GeminiDB Influx instance
influxdb_node_id	Node ID of the GeminiDB Influx instance

4.15.2 Configuring Alarm Rules

Scenarios

Setting alarm rules allows you to customize objects to be monitored and notification policies so that you can closely monitor your instances.

Alarm rules include the alarm rule name, instance, metric, threshold, monitoring interval and whether to send notifications. This section describes how to set alarm rules.

Procedure

- **Step 1** Log in to the management console.
- Step 2 Click Service List. Under Management & Governance, click Cloud Eye.
- **Step 3** In the navigation pane on the left, choose **Alarm Management** > **Alarm Rules**.
- Step 4 On the Alarm Rules page, click Create Alarm Rule.

Figure 4-123 Creating an alarm rule

Cloud Eye	Alarm Rules ③			Usage Guide + Create Alarm Rule
Overview				
Dashboard				
Resource Groups				
Alarm Management 🔺				
Alarm Rules				····
Alarm Records				
Alarm Templates				
One-Click Monitoring				
Server Monitoring 💌	1 Resource	Cloud Eye sends multiple tange of	Users locate the fault and partitle	4 Service
Cloud Service Monitoring	exceptions occur.	notifications.	them.	ensured.
Custom Monitoring		Create Alarm Rule		
Website Monitoring				

Step 5 Set alarm parameters.

1. Configure basic alarm information.

Figure 4-124 Configuring basic information for an alarm rule

* Name	alarm-cag2	
Description		
		0/256

 Table 4-54 Basic alarm rule information

Parameter	Description	Example Value
Name	Name of the rule. The system generates a random name and you can modify it.	alarm-cag2
Description	(Optional) Alarm rule description.	-

2. Select objects to be monitored and specify the monitoring scope.

Parameter	Description	Example Value
Alarm Type	Alarm type that the alarm rule is created for. The value can be Metric or Event .	Metric
Resource Type	Type of the resource the alarm rule is created for. Select GeminiDB .	-
Dimension	Metric dimension of the alarm rule. Select InfluxDB-InfluxDB Nodes.	-
Monitoring Scope	 Monitoring scope the alarm rule applies to. NOTE If you select All resources, an alarm notification will be sent when any instance meets an alarm policy, and existing alarm rules will be automatically applied for newly purchased resources. If you select Resource groups and any resource in the group meets the alarm policy, an alarm notification will be sent. To specify Specific resources, click Select Specified Resources, select one or more resources, and click OK. 	All Resources
Group	This parameter is mandatory when Monitoring Scope is set to Resource groups.	-

Table 4-55 Parameter description

3. Configure an alarm policy.

Figure 4-125 Configuring the alarm policy

* Method	Associate template	Use existing template	Configure manually		
* Alarm Policy					
	Metric Name	Alarm Policy			Alarm Severity Operation
	If Storage Space Us •	Raw data 💌 🖂	• 80 % 3 times (consecutively) •	r Then Every 10 minutes 👻	Major 👻 Delete
Or	If CPU Usage 💌	Raw data 💌 🖂	• 80 % 3 times (consecutively) •	r Then Every 10 minutes 💌	Major 👻 Delete
	If Memory Usage 🔹	Raw data 💌 🖂	• 80 % 3 times (consecutively) •	r Then Every 10 minutes v	Major 👻 Delete
⊕ Ad	d Alarm Policy You can add 47 more.				

Table 4-56 Parameter description

Parameter	Description	Example Value
Method	Select Associate template, Use existing template, or Configure manually. NOTE If you set Monitoring Scope to Specific resources, you can set Method to Use existing template.	Configure manually

Parameter	Description	Example Value
Template	Select the template to be used.	-
	This parameter is available only when you select Use existing template for Method .	
Alarm Policy	Policy for triggering an alarm. You can configure the threshold, consecutive periods, alarm interval, and alarm severity based on service requirements.	Take the CPU usage as an example. The alarm policy
	 Metric Name: specifies the metric that the alarm rule is created for. The following metrics are recommended: 	configured in Figure 4-125 indicates that
	Storage Space Usage,	a major alarm
	which is used to monitor the storage usage of GeminiDB Influx instances. If the storage usage is greater than 80%, scale up the storage in a timely manner by referring to Manually Scaling Up Storage Space of a GeminiDB Influx Instance.	notification will be sent to users every 10 minutes if the original CPU usage
	CPU Usage and Memory Usage,	reaches 80%
	which are used to monitor the compute resource usage of each GeminiDB Influx instance node. If the CPU usage or memory usage is greater than 80%, you can add nodes or upgrade node specifications in a timely manner.	three consecutive periods.
	For more metrics, see Supported Metrics .	
	 Alarm Severity: specifies the severity of the alarm. Valid values are Critical, Major, Minor, and Informational. 	
	NOTE A maximum of 50 alarm policies can be added to an alarm rule. If any one of these alarm policies is met, an alarm is triggered.	

4. Configure alarm notification information.

	Figure 4-126	Configuring	alarm	notification	information
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Alarm Notification	
* Notification Recipient	Notification group Topic subscription
* Notification Group	Select-
	If you create notification group, you must click refresh to make it available for selection. After you create the notification group, click Add Notification Object in the Operation column of the notification group list to add notification of
* Notification Window	Daily 00:00 - 23:59 GMT+06:00 ⑦
* Trigger Condition	🗹 Generated alarm 🛛 🗹 Cleared alarm

Parameter	Description	Example Value
Alarm Notification	Whether to notify users when alarms are triggered. Notifications can be sent by email, text message, or HTTP/ HTTPS message. Enabling alarm notification is recommended. When the metric data reaches the threshold set in the alarm rule, Cloud Eye immediately notifies you through SMN that an exception has occurred.	Enabled Alarm Notification.
Notification Recipient	Select Notification group or Topic subscription.	-
Notification Group	Notification group the alarm notification is to be sent to.	-
Notification Object	 Specifies the object that receives alarm notifications. You can select the account contact or a topic. Account contact is the mobile phone number and email address provided for registration. Topic is used to publish messages and subscribe to notifications. If the required topic is unavailable, create one first and add subscriptions to it. For details, see Creating a Topic and Adding Subscriptions 	-
Notification Window	Cloud Eye sends notifications only within the notification window specified in the alarm rule. For example, if Notification Window is set to 00:00-8:00 , Cloud Eye sends notifications only within 00:00-08:00.	-

Table 4-57 Parameter description

Parameter	Description	Example Value
Trigger Condition	Condition for triggering an alarm notification. You can select Generated alarm (when an alarm is generated), Cleared alarm (when an alarm is cleared), or both.	-

5. Configure advanced settings.

Figure 4-127 Advanced settings

Advanced Settings 🔺	Enterprise Project Tag
* Enterprise Project	default C Create Enterprise Project
	The enterprise project the alarm rule belongs to.
Tag	It is recommended that you use TMS's predefined tag function to add the same tag to different cloud resources. View predefined tags $$ C
	To add a tag, enter a tag key and a tag value below.
	Enter a tag key Enter a tag value Add
	20 tags available for addition.

Table 4-58 Parameter description

	Example Value	
Enterprise project that the alarm rule belongs to. Only users with the enterprise project permissions can view and manage the alarm rule. For details about how to create an enterprise project, see Creating an Enterprise Project .	default	
A tag is a key-value pair. Tags identify cloud resources so that you can easily categorize and search for your resources. You are advised to create predefined tags on TMS. For details about how to create predefined tags, see Creating Predefined Tags .	-	
 A key can contain a maximum of 128 characters, and a value can contain a maximum of 255 characters. A maximum of 20 tags can be added 		
	 Enterprise project that the alarm rule belongs to. Only users with the enterprise project permissions can view and manage the alarm rule. For details about how to create an enterprise project, see Creating an Enterprise Project. A tag is a key-value pair. Tags identify cloud resources so that you can easily categorize and search for your resources. You are advised to create predefined tags on TMS. For details about how to create predefined tags. A key can contain a maximum of 128 characters, and a value can contain a maximum of 255 characters. A maximum of 20 tags can be added. 	

Step 6 After the configuration is complete, click **Create**.

When the metric data reaches the threshold set in the alarm rule, Cloud Eye immediately notifies you through SMN that an exception has occurred.

NOTE

For more information about alarm rules, see **Cloud Eye User Guide**.

----End

4.15.3 Viewing Metrics

Scenarios

Cloud Eye monitors the GeminiDB Influx instance status. You can view metrics on the console.

Monitored data requires a period of time for transmission and display. The status of the monitored object displayed on the Cloud Eye page is the status obtained 5 to 10 minutes before. You can view the monitored data of a newly created DB instance 5 to 10 minutes later.

Usage Notes

• The DB instance is running properly.

Cloud Eye does not display the metrics of a faulty or deleted DB instance. You can view the monitoring information only after the instance is restarted or recovered.

• The DB instance has been properly running for at least 10 minutes. The monitoring data and graphics are available for a new DB instance after the instance runs for at least 10 minutes.

Procedure

- **Step 1** Log in to the Huawei Cloud console.
- Step 2 In the service list, choose Databases > GeminiDB.
- **Step 3** On the **Instance** page, click the instance whose metrics you want to view and click its name.
- **Step 4** In the **Node Information** area on the **Basic Information** page, click **View Metric** in the **Operation** column.

Figure 4-128 Viewing metrics

Name/ID	Status	AZ	Private IP Address	EIP	Operation
	Available	az2	IPv4:	Unbound	View Metric Bind EIP
	Available	az2	IPv4:	Unbound	View Metric Bind EIP
	Available	az2	IPv4:	Unbound	View Metric Bind EIP

Step 5 In the monitoring area, you can select a duration to view the monitoring data.

The monitoring data generated in the latest 1 hour, 3 hours, 12 hours, 24 hours, or 7 days can be viewed.

To view the monitoring curve in a longer time range, click \sum to enlarge the graph.

----End

4.15.4 Event Monitoring

4.15.4.1 Introduction to Event Monitoring

Event monitoring provides event data reporting, query, and alarm reporting. You can create alarm rules for both system and custom events. When a specific event occurs, Cloud Eye generates and sends an alarm for you.

Key operations on GeminiDB Influx resources are monitored and recorded by Cloud Eye as events. Events include operations performed by specific users on specific resources, such as changing instance names and specifications.

Event monitoring provides an API for reporting custom events, which helps you collect and report abnormal events or important change events generated by services to Cloud Eye.

Event monitoring is enabled by default and allows you to view monitoring details of system events and custom events. For details about system events, see **Events Supported by Event Monitoring**.

NOTE

If you do not create an alarm rule, no alarm will be sent by default.

4.15.4.2 Viewing Event Monitoring Data

Scenarios

Event monitoring provides event data reporting, query, and alarm reporting. You can create alarm rules for both system and custom events. When a specific event occurs, Cloud Eye generates and sends an alarm for you.

Event monitoring is enabled by default. You can view monitoring details about system events and custom events.

This topic describes how to view event monitoring data.

Procedure

- Step 1 Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- Step 3 On the Instances page, locate the instance whose event monitoring data you want to view. In the Node Information area on the Basic Information page, click View Metric in the Operation column.

Step 4 Click [<] to return to the Cloud Eye console.

Step 5 In the navigation pane on the left, choose **Event Monitoring**.

On the displayed **Event Monitoring** page, all system events generated in the last 24 hours are displayed by default.

You can also click **1h**, **3h**, **12h**, **1d**, **7d**, or **30d** to view events generated in different time periods.

Step 6 Locate an event and click **View Event** in the **Operation** column to view its details.

----End

4.15.4.3 Creating an Alarm Rule for Event Monitoring

Scenarios

This topic describes how to create an alarm rule for event monitoring.

Usage Notes

If you do not create an alarm rule, no alarm will be sent by default.

Procedure

- Step 1 Log in to the Huawei Cloud console.
- Step 2 Click in the upper left corner of the page. Under Management & Governance, click Cloud Eye.
- **Step 3** In the navigation pane on the left, choose **Event Monitoring**.
- **Step 4** On the event list page, click **Create Alarm Rule** in the upper right corner.
- **Step 5** On the **Create Alarm Rule** page, configure the parameters.

Parameter	Description
Name	Specifies the name of the alarm rule. The system generates a random name, but you can change it if needed.
Description	(Optional) Provides supplementary information about the alarm rule.
Enterprise Project	You can select an existing enterprise project or click Create Enterprise Project to create one.
Alarm Type	Specifies the alarm type corresponding to the alarm rule.
Event Type	Specifies the event type of the metric corresponding to the alarm rule.

Table 4-59 Parameter description

Parameter	Description
Event Source	Specifies the service the event is generated for. Select GeminiDB.
Monitoring Scope	Specifies the monitoring scope for event monitoring.
Method	Specifies the event creation method.
Alarm Policy	Event Name indicates the instantaneous operations users performed on system resources, such as login and logout.
	For details about events supported by Event Monitoring, see Events Supported by Event Monitoring .
	You can select a trigger mode and alarm severity as needed.

Click to enable alarm notification. The validity period is 24 hours by default. If the topics you require are not displayed in the drop-down list, click **Create an SMN topic**.

Table 4-60 Alarm	notification	parameters
------------------	--------------	------------

Parameter	Description
Alarm Notification	Specifies whether to notify users when alarms are triggered. Notifications can be sent by email, text message, or HTTP/ HTTPS message.
Notification Object	Specifies the object an alarm notification is to be sent to. You can select the account contact or a topic.
	 Account contact is the mobile phone number and email address provided for registration.
	• Topic is used to publish messages and subscribe to notifications. If the required topic is unavailable, create one first and add subscriptions to it. For details, see Creating a Topic and Adding Subscriptions.
Validity Period	Cloud Eye sends notifications only within the validity period specified in the alarm rule.
	If you set Validity Period to 08:00-20:00 , Cloud Eye sends notifications only within 08:00-20:00.
Trigger Condition	Specifies the condition for triggering the alarm notification.

Step 6 After the configuration is complete, click **Create**.

----End

4.15.4.4 Events Supported by Event Monitoring

Event Sourc e	Event Name	Event ID	Eve nt Sev erit y	Description	Solution	lmpa ct
NoSQ L	Instance creation failure	NoSQL Createl nstance Failed	Maj or	The instance quota or underlying resources are insufficient.	Release unnecessary instances and try again. You can also choose Service Tickets > Create Service Ticket in the upper right corner of the console and submit a service ticket to adjust the quota.	Instan ces fail to be create d.
	Specificati ons change failure	NoSQL Resizel nstance Failed	Maj or	The underlying resources are insufficient.	Choose Service Tickets > Create Service Ticket in the upper right corner of the console. Submit a service ticket to the O&M personnel to coordinate resources in the background and change the specifications again.	Servic es are interr upted.

Table 4-61 Events Supported by Event Monitoring for GeminiDB

Event Sourc e	Event Name	Event ID	Eve nt Sev erit y	Description	Solution	lmpa ct
	Node adding failure	NoSQL AddNo desFail ed	Maj or	The underlying resources are insufficient.	Choose Service Tickets > Create Service Ticket in the upper right corner of the console. Submit a service ticket to O&M personnel to coordinate resources in the background, delete nodes that failed to be added, and add the nodes again.	None
	Node deletion failure	NoSQL Delete NodesF ailed	Maj or	Releasing underlying resources failed.	Delete the node again.	None
	Storage space scale-up failure	NoSQL ScaleU pStorag eFailed	Maj or	The underlying resources are insufficient.	Choose Service Tickets > Create Service Ticket in the upper right corner of the console. Submit a service ticket to O&M personnel to coordinate resources in the background and scale up storage again.	Servic es may be interr upted.

Event Sourc e	Event Name	Event ID	Eve nt Sev erit y	Description	Solution	lmpa ct
	Password resetting failure	NoSQL ResetPa ssword Failed	Maj or	Resetting the password times out.	Reset the password again.	None
	Parameter template change failure	NoSQL Updatel nstance Param GroupF ailed	Maj or	Changing a parameter template times out.	Change the parameter template again.	None
	Backup policy configurat ion failure	NoSQL SetBack upPolic yFailed	Maj or	The database connection is abnormal.	Configure the backup policy again.	None
	Manual backup creation failure	NoSQL Create Manual Backup Failed	Maj or	The backup files fail to be exported or uploaded.	Choose Service Tickets > Create Service Ticket in the upper right corner of the console and submit a service ticket to O&M personnel.	Data canno t be backe d up.
	Automate d backup creation failure	NoSQL CreateA utomat edBack upFaile d	Maj or	The backup files fail to be exported or uploaded.	Choose Service Tickets > Create Service Ticket in the upper right corner of the console and submit a service ticket to O&M personnel.	Data canno t be backe d up.

Event Sourc e	Event Name	Event ID	Eve nt Sev erit y	Description	Solution	lmpa ct
	Instance status abnormal	NoSQL FaultyD BInstan ce	Maj or	This event is a key alarm event and is reported when an instance is faulty due to a disaster or a server failure.	Choose Service Tickets > Create Service Ticket in the upper right corner of the console and submit a service ticket to O&M personnel.	The datab ase servic e may be unava ilable.
	Instance status recovery	NoSQL DBInsta nceRec overed	Maj or	If a disaster occurs, NoSQL provides an HA tool to automatically or manually rectify the fault. After the fault is rectified, this event is reported.	No further action is required.	None
	Node status abnormal	NoSQL FaultyD BNode	Maj or	This event is a key alarm event and is reported when a database node is faulty due to a disaster or a server failure.	Check whether the database service is functional. Choose Service Tickets > Create Service Ticket in the upper right corner of the console and submit a service ticket to O&M personnel.	The datab ase servic e may be unava ilable.

Event Sourc e	Event Name	Event ID	Eve nt Sev erit y	Description	Solution	lmpa ct
	Node status recovery	NoSQL DBNod eRecov ered	Maj or	If a disaster occurs, NoSQL provides an HA tool to automatically or manually rectify the fault. After the fault is rectified, this event is reported.	No further action is required.	None
	Primary/ standby switchove r or failover	NoSQL Primary Standb ySwitch ed	Maj or	This event is reported when a primary/ secondary switchover or a failover is triggered.	No further action is required.	None
	Occurrenc e of hotspot partitionin g keys	HotKey Occurs	Maj or	Hotspot data is stored in one partition because the primary key is improper. Improper application design causes frequent read and write operations on a key.	 Choose a proper partition key. Add service cache so that service applications read hotspot data from the cache first. 	The servic e reque st succes s rate is affect ed, and the cluste r perfor manc e and stabili ty deteri orates

Event Sourc e	Event Name	Event ID	Eve nt Sev erit y	Description	Solution	lmpa ct
	BigKey occurrenc e	BigKey Occurs	Maj or	The primary key design is improper. There are too many records or too much data in a single partition, causing load imbalance on nodes.	 Choose a proper partition key. Add a new partition key for hashing data. 	As more and more data is stored in the partiti on, cluste r stabili ty deteri orates
	Insufficien t storage space	NoSQL RiskyDa taDiskU sage	Maj or	The storage space is insufficient.	Scale up storage space. For details, see section "Scaling Up Storage Space" in the user guide of GeminiDB.	The instan ce is set to read- only and data canno t be writte n to the instan ce.
	Data disk expanded and being writable	NoSQL DataDi skUsag eRecov ered	Maj or	The data disk has been expanded and becomes writable.	No further action is required.	None

Event Sourc e	Event Name	Event ID	Eve nt Sev erit y	Description	Solution	lmpa ct
	Index creation failure	NoSQL Createl ndexFai led	Maj or	The service load exceeds what the instance specifications can take. In this case, creating indexes consumes more instance resources. As a result, the response is slow or even frame freezing occurs, and the creation times out.	 Select matched instance specifications based on the service loads. Create indexes during off- peak hours. Create indexes in the background. Select indexes as required. 	The index fails to be create d or is incom plete. Delet e the index and create a new one.
	Write speed decrease	NoSQL Stalling Occurs	Maj or	The write speed is close to the maximum write speed allowed by the cluster scale and instance specifications. As a result, the database flow control mechanism is triggered, and requests may fail.	 Adjust the cluster scale or node specifications based on the maximum write rate of services. Measure the maximum write request rate of services and distribute the peak write rate of services. 	The succes s rate of servic e reque sts is affect ed.

Event Sourc e	Event Name	Event ID	Eve nt Sev erit y	Description	Solution	lmpa ct
	Data write stopped	NoSQL Stoppin gOccur s	Maj or	The data write is too fast, reaching the maximum write capability allowed by the cluster scale and instance specifications. As a result, the database flow control mechanism is triggered, and requests may fail.	 Adjust the cluster scale or node specifications based on the maximum write rate of services. Measure the maximum write request rate of services and distribute the peak write rate of services. 	The succes s rate of servic e reque sts is affect ed.
	Database restart failure	NoSQL Restart DBFaile d	Maj or	The instance status is abnormal.	Choose Service Tickets > Create Service Ticket in the upper right corner of the console and submit a service ticket to O&M personnel.	The instan ce status may be abnor mal.

Event Sourc e	Event Name	Event ID	Eve nt Sev erit y	Description	Solution	lmpa ct
	Restoratio n to new instance failure	NoSQL Restore ToNewl nstance Failed	Maj or	The underlying resources are insufficient.	Choose Service Tickets > Create Service Ticket in the upper right corner of the console. Submit a service ticket to O&M personnel to coordinate resources in the background and add nodes again.	Data canno t be restor ed to a new instan ce.
	Restoratio n to existing instance failure	NoSQL Restore ToExistI nstance Failed	Maj or	The backup file fails to be downloaded or restored.	Choose Service Tickets > Create Service Ticket in the upper right corner of the console and submit a service ticket to O&M personnel.	The curren t instan ce may be unava ilable.
	Backup file deletion failure	NoSQL DeleteB ackupF ailed	Maj or	The backup files fail to be deleted from OBS.	Delete the backup files again.	None

Event Sourc e	Event Name	Event ID	Eve nt Sev erit y	Description	Solution	lmpa ct
	Failure to display slow query logs in plaintext	NoSQL SwitchS lowlog PlainTe xtFailed	Maj or	The DB API does not support this function.	Refer to GeminiDB User Guide to ensure that the API supports slow query logs in plaintext. Choose Service Tickets > Create Service Ticket in the upper right corner of the console and submit a service ticket to O&M personnel.	None
	EIP binding failure	NoSQL BindEip Failed	Maj or	The node status is abnormal, an EIP has been bound to the node, or the EIP to be bound is invalid.	Check whether the node is normal and whether the EIP is valid.	The instan ce canno t be access ed from a public netwo rk.
	EIP unbinding failure	NoSQL Unbind EipFaile d	Maj or	The node status is abnormal or the EIP has been unbound from the node.	Check whether the node and EIP status are normal.	None

Event Sourc e	Event Name	Event ID	Eve nt Sev erit y	Description	Solution	Impa ct
	Parameter modificati on failure	NoSQL Modify Parame terFaile d	Maj or	The parameter value is invalid.	Check whether the parameter value is valid. Choose Service Tickets > Create Service Ticket in the upper right corner of the console and submit a service ticket to O&M personnel.	None
	Parameter template applicatio n failure	NoSQL ApplyP aramet erGrou pFailed	Maj or	The instance status is abnormal. So, the parameter template cannot be applied.	Choose Service Tickets > Create Service Ticket in the upper right corner of the console and submit a service ticket to O&M personnel.	None
	Enabling or disabling SSL failure	NoSQL SwitchS SLFaile d	Maj or	Enabling or disabling SSL times out.	Try again or choose Service Tickets > Create Service Ticket in the upper right corner of the console and submit a service ticket. Retain the SSL connection mode configured before the event.	The SSL conne ction mode canno t be chang ed.

Event Sourc e	Event Name	Event ID	Eve nt Sev erit y	Description	Solution	lmpa ct
	Too much data in a single row	LargeR owOcc urs	Maj or	If there is too much data in a single row, queries may time out, causing faults like OOM error.	 Limit the write length of each column and row so that the key and value length of each row does not exceed the preset threshold. Check whether there are abnormal writes or coding, causing large rows. 	If there are too many record s in a single row, cluste r stabili ty will deteri orate as the data volum e increa ses.
	Schedule for deleting a KMS key	planDel eteKms Key	Maj or	The user plans to delete a KMS key.	Check whether the GeminiDB instance associated with the key has been deleted or is no longer used. Deleting the key will affect the instance services.	The key will be auto matic ally delete d after it expire s. Deleti ng the key will affect the instan ce servic es.

Event Sourc e	Event Name	Event ID	Eve nt Sev erit y	Description	Solution	lmpa ct
	Too many tombston es	TooMa nyQuer yTombs tones	Maj or	Querying too many tombstones may time out.	Use a proper query and deletion method to avoid batch range queries.	The query may time out.
	Ultra- large collection column	TooLar geColle ctionCo lumn	Maj or	If there are too many elements in the collection column, the query will fail.	Set a threshold for the number of elements in the collection column. Check whether there is an error while data is written and encoded	The query on the collec tion colum n will fail.

4.16 Managing Tags

Scenarios

Tag Management Service (TMS) enables you to manage resources using tags on the management console. TMS works with other cloud services to manage tags. TMS manages tags globally while other cloud services manage their own tags.

Adding tags to GeminiDB Influx instance helps you better identify and manage them. An instance can be tagged when or after it is created.

After a DB instance is tagged, you can search for the tag key or value to quickly query the instance details.

Usage Notes

- You are advised to set predefined tags on the TMS console.
- A tag consists of a key and value. You can add only one value for each key. For details about naming rules of tag keys and tag values, see **Table 4-62**.
- A maximum of 20 tags can be added for each instance.
- The tag name must comply with the naming rules described in **Table 4-62**.

Parameter	Requirement	Example Value
Tag key	Cannot be left blank.	Organization
	Must be unique for each instance.	
	 Can contain a maximum of 128 characters. 	
	 Cannot start with _sys_ and cannot start or end with a space. Only letters, digits, spaces, and the following special characters are allowed:@.:/+= 	
Tag value	Can be left blank.	nosql_01
	• Can contain a maximum of 255 characters.	
	 Only letters, digits, spaces, and the following special characters are allowed:@.:/+= 	

Table 4-62 Naming rules

Adding a Tag

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, locate the instance you want to add tags to and click its name.
- **Step 4** In the navigation pane on the left, choose **Tags**.
- **Step 5** On the **Tags** page, click **Add Tag**. In the displayed dialog box, enter a tag key and value, and click **OK**.
- **Step 6** View and manage the tag on the **Tags** page.

----End

Editing a Tag

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, locate the instance whose tags you want to edit and click its name.
- **Step 4** In the navigation pane on the left, choose **Tags**.
- **Step 5** On the **Tags** page, locate the tag to be edited and click **Edit** in the **Operation** column. In the displayed dialog box, change the tag value and click **OK**.

Only the tag value can be edited.

Step 6 View and manage the tag on the **Tags** page.

----End

Deleting a Tag

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** On the **Instances** page, locate the instance whose tags you want to delete and click its name.
- **Step 4** In the navigation pane on the left, choose **Tags**.
- **Step 5** On the **Tags** page, locate the tag to be deleted and click **Delete** in the **Operation** column. In the displayed dialog box, click **Yes**.
- **Step 6** Verify that the tag is no longer displayed on the **Tags** page.

----End

Search by Tag

- **Step 1** Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- Step 3 On the Instances page, select Tags in the search box.

Figure 4-129 Selecting tags



Step 4 Select the tag to be queried and click **OK** to query information about instances associated with the tag.

Figure 4-130 Searching by tag

Q Tags:	Add filter	
	(Select all)	
	✓ tag_key_2024060709543	
	aa = aa	ng
	aa = bb	
	🗌 a = a	abl
	cc = cc	
	Cancel OK	abl

----End

4.17 Viewing User Resource Quotas

Scenarios

Quotas are enforced for service resources on the platform to prevent unforeseen spikes in resource usage. Quotas limit the number or amount of resources available to users, for example, the maximum number of GeminiDB instances that you can create.

If a quota cannot meet your needs, apply for a higher quota.

Viewing Quotas

Step 1	Log in	to the	Huawei	Cloud	console.
--------	--------	--------	--------	-------	----------

- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** Click **(**) in the upper left corner and select a region and project.
- **Step 4** In the upper right corner, choose **Resources** > **My Quotas**.

The **Quotas** page is displayed.



Resources	>	My Resources
Billing		My Quotas
Enterprise		Open Beta Tests
Tools		My KooGallery

Step 5 Check the used and total quotas of each type of GeminiDB instance resources.

Increasing Quotas

Step 1 Log in to the Huawei Cloud console.

- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- **Step 3** Click **(2)** in the upper left corner and select a region and project.
- **Step 4** In the upper right corner, choose **Resources** > **My Quotas**.
- **Step 5** In the upper right corner of the page, click **Increase Quota**.



Step 6 On the **Create Service Ticket** page, configure parameters.

In the **Problem Description** area, describe why you need the adjustment.

Step 7 After all mandatory parameters are configured, read and agree to the agreement and click **Submit**.

----End

5 Best Practices

5.1 Buying and Connecting to a GeminiDB Influx Instance

This section describes how to buy a GeminiDB Influx instance and uses a Linux ECS as an example to describe how to connect to the instance over a private network.

- Buying a GeminiDB Influx Instance
- Buying an ECS
- Connecting to the GeminiDB Influx Instance
- Basic Syntax

Buying a GeminiDB Influx Instance

- Step 1 Log in to the Huawei Cloud console.
- **Step 2** In the service list, choose **Databases** > **GeminiDB**.
- Step 3 On the Instances page, click Buy DB Instance.
- **Step 4** Click **Buy DB Instance**, select a billing mode, and configure instance parameters. Then, click **Next** and complete subsequent operations.
| Billing Mode | Yearly/Monthly | Pay-per-use | | | | |
|-------------------|---|---|--------------------------------|--|----------------------------|------------|
| Region | • | ~ | | | | |
| | Regions are geographic a | reas isolated from eac | h other. For low netw | vork latency and quick resourc | e access, select the neare | st region. |
| | | | | | | |
| | | | | | | |
| DB Instance Name | geminidb-3944 | | | | | |
| Compatible API | Redis | Cassandra | HBase | InfluxDB | MongoDB | |
| Storage Type | Classic
The traditional architectur | Cloud native
e is stable and reliable. | | | | |
| DB Instance Type | Cluster (performance
You can buy 10 more Influ | -enhanced)
IXDB instances that are | Cluster
compatible with the | Single node
InfluxDB database. Increase | quotas | |
| DB Engine Version | 1.8 | | | | | |

Figure 5-1 Basic information

Figure 5-2 Selecting specifications

Data Node Specifications	Flavor Name	vCPU Memory
	geminidb influxedb sqlstore large 4	2 vCPUs 8 GB
	geminido influxido sqlistore xlarge 4	4 vCPUs 16 GB
	geminido influxido sqlstore 2xlarge 4	8 vCPUs 32 GB
	geminido influxido sigistore. 4xlarge. 4	16 vCPUs 64 GB
	geminido influxido sigistore 8xlarge 4	32 vCPUs 128 GB
	Currently selected geminidb.influxdb.sqlstore.large.4 2 vCPUs 8 GB	
Data Nodes	- 3 + The quantity ranges from 3 to 300.	
	If you select 3 AZs, set the number of nodes to a multiple of 3 to balance the load between AZs.	

Figure 5-3 Network settings

VPC	(statut, voc V) C View VPC
	After a GennicB instance is cealed, the VPC where the instance resides cannot be charged. Exercise caution when selecting the VPC. If the GennicB instance needs to communicate with your ECS in a private network, you are advised to select the VPC where the ECS is deployed, or configure a VPC pering contendion across VPCs. To create a VPC, go to the VPC consele.
Subnet	default_subrei V View Subret
	Required IP addresses: 7 Available IP addresses in the current submet: 243
Security Group	646uit (1122492-4617-4607-9605-21446009e V C Veex Security Group

Figure 5-4 Setting a password

Administrator	rwuser
Administrator Password	(The system cannot retrieve your password secure. The system cannot retrieve your password.
Confirm Password	
Enterprise Project	-Select- View Project Management
SSL	Default certificate CCM certificate
Tags	It is recommended that you use TMS's predefined tag function to add the same tags to different cloud resources. View predefined tags C Enter a tag key You can add 20 more tags.

Step 5 View the purchased GeminiDB Influx instance.

```
Figure 5-5 Instance successfully purchased
```

Buying an ECS

Step 1 Log in to the Huawei Cloud console.

- **Step 2** In the service list, choose **Compute** > **Elastic Cloud Server**. On the Elastic Cloud Server console, click **Buy ECS**.
- **Step 3** Configure basic settings and click **Next: Configure Network**. Make sure that the ECS is in the same region, AZ, VPC, and security group as the GeminiDB Influx instance you created.

Figure 5-6 Basic settings



Figure 5-7 Selecting specifications

	by type by Scenario								
Architecture	x86 Kunpeng	0							
ifications	Latest generation •	vCPUs -Select vCPUs-	• Memory -St	elect Memory	Flavor Name	Q 🗌 Hi	de sold-out specifications		
	General computing-plus	General computing M	emory-optimized La	ge-memory Disk-int	ensive Ultra-high I/C	GPU-accelerated	Al-accelerated (?)		
	Select All c7 Collapse Help 个	cês cê cốh	63						
	General computing-plus ECSs use	dedicated vCPUs and next-generation	on network acceleration engine	s to provide powerful compute a	and network performance.				
	EC.\$ Type	Flavor Name	vCPUs ↓Ξ	Memory ↓Ξ	CPU ↓Ξ	Assured / Maximum Bandwidth ↓≣	Packets Per Second ⑦ JΞ	IPv6	Estimated Price ⑦ ↓≣
	General computing-plus c7	c7 Jarge 2	2 vCPUs	4 GIB	Intel Ice Lake	Max 4 Gbit/s	400,000 PPS	Yes	
	General computing-plus c7	c7.large.4	2 vCPUs	8 GIB	Intel Ice Lake	Max 4 Gbit/s	400,000 PPS	Yes	
	General computing-plus c7	c7.xiarge.2	4 vCPUs	8 GiB	Intel Ice Lake	Max 8 Gbit/s	800,000 PPS	Yes	
	General computing-plus c7	c7.xlarge.4	4 vCPUs	16 GiB	Intel Ice Lake	Max 8 Gbit/s	800,000 PPS	Yes	
	General computing-plus c7	c7.2xlarge.2	8 vCPUs	16 GiB	Intel Ice Lake	Max 15 Gbibls	1,500,000 PPS	Yes	
	General computing-plus c7	c7.2xlarge.4	8 vCPUs	32 GIB	Intel Ice Lake	Max 15 Gbit/s	1,500,000 PPS	Yes	
	General computing-plus c7	c7.3xlarge.2	12 vCPUs	24 GIB	Intel Ice Lake	Max 17 Gbit/s	2,000,000 PPS	Yes	
	Selected specifications G	eneral computing-plus c7.large.2	2 vCPUs 4 GiB						

Figure 5-8 Selecting an image

Image	Public image	Private image	Shared image	Marketplace image	
	(i) Rocky Linux	▼ Rocky Lin	ux 8.4 64bit(40 GiB)		• C
System Disk	General Purpose SSD	• 40) + GiB IOPS limi	t: 2,280, IOPS <u>burst limit</u> : 8,000	⑦ Show ✓ Enabled SCSI
	🕀 Add Data Disk 🛛 You ca	n attach 23 more disks.			
	Yearly/monthly data disks c	annot be unsubscribed (or renewed separately. Da	ata disks added to a Linux ECS	can be initialized using a wizard script.

- **Step 4** Configure the network and click **Next: Configure Advanced Settings**. Make sure that the ECS is in the same VPC and security group as the GeminiDB Influx instance.
 - If security group rules allow access from the ECS, you can connect to the instance using the ECS.
 - If the security group rules do not allow access from the ECS, add an inbound rule to the security group.

Figure 5-9 Network settings

(1) Configure Basic Settings	Configure Network	- (3) Configure Advanced	Settings ④ Co	tfirm			
Network	[-5met WC- ↓] C [-6met rainet- ↓] C () Cuele WC						
Extension NIC							
Security Group	delauti(30H132Hc84-4891-98bd-800/784 Similar is a frewall, a security group logical Ensure that the selected security group allo Security Group Rules ^ Inbound Rules Outbound Rules	Scherz) Uy controls network access. We access to port 22 (SSH-bu	C Create Security Grov acced Linux login), 3389 (Winds	Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø	ure Security Group Rules		
	Security Group Name	Priority	Action	Protocol & Port (?)	Туре	Source 🕤	Description
		1	Permit	TCP: 3389	IPv4	0.0.0.00	Permit default Windows remote desktop port.
		1	Permit	TCP: 22	IPv4	0.0.0.0/0	Permit default Linux SSH port.
	defauit	12	Permit	TCP: 3	IPy4	0.0.0.0/0	
		100	Permit	AI	IPv4	default	-
		100	Permit	Al	IPv6	default	-

Figure 5-10 Selecting an EIP

EIP	Auto assign Use existing Not required ?	
EIP Type	Dynamic BGP Static BGP	
Billed By	Bandwidth 🖕 For heavy/stable traffic For heavy/stable traffic Dilled bead on held Iraffic irrecords of usage duration: configurable maximum bandwidth	Shared bandwidth For staggered peak hours
	billed based on total italiic inespective of usage duration, conligurative maximum bandw	Juun 5120.
Bandwidth Size	5 10 20 50 100 Custom -	1 + The bandwidth can be from 1 to 300 Mbit/s.
	⊘ Free Anti-DDoS protection	
Release Option	Release with ECS (?)	

Step 5 Configure a password for the ECS and click **Next: Confirm**.

Figure 5-11 Advanced settings

Configure Basic Settings -	Configure Network Onfigure Advanced Settings (4) Confirm
ECS Name	If you are creating multiple ECSs at the same time, automatic naming and customizable naming are available for you to select.
Login Mode	Password Key pair Set password later
Username	root
Password	Keep the password secure. If you forget the password, you can log in to the ECS console and change it.
Confirm Password	······ 🕸
Cloud Backup and	To use CBR, you need to purchase a backup vault. A vault is a container that stores backups for servers.
Recovery	Create new Use existing Not required ⑦
Cloud Eye	Enable Detailed Monitoring Free ?
	Senable 1-minute fined-grained monitoring of ECS metrics, such as CPU, memory, network, disk, and process.
ECS Group (Optional)	Anti-affinity ⑦
	-Select ECS group-
	Create ECS Group

Step 6 Confirm the configurations and click **Submit**.

Figure 5-12 Confirming the configurations

Configure Basic Setting	is —— (2) Config	ure Network (3) Configure Advanced Settings	— 🕢 Confirm			
Configuration	Basic 🖉 Billing Mode Specifications	Pay-per-use General computing-plus c6 large 2 2 vCPUs 4 Gi8	Region Image	Rocky Linux 8.4 64bit	AZ System Disk	AZ1 General Purpose SSD, 40 GIB
	Network 🖉 VPC EIP	default_vpc(19 Dynamic BGP	Security Group	default	Primary NIC	defaul
	Advanced 🖉	ecs-152c	Login Mode	Password	ECS Group	-
Enterprise Project	-Select	C Create Enterprise Proje	ect (?)			
Quantity	- 1 +	You can create a maximum of 20 ECSs. Learn how to increase qu	uota.			
Agreement	I have read and	agree to the Image Disclaimer.				

Step 7 View the purchased ECS.

----End

Connecting to the GeminiDB Influx Instance

Step 1 On the ECS console, log in to the ECS using the remote login option.

Figure 5-13 Remote login

NameID J≡	Monitori	Security	AZ 🏹	Status 🍞	Specifications/Image	IP Address	Billing Mode 🍞	Enterprise Project	Tag	Operation
C ecs-		0	AZ1	Running	2 vCPUs Rocky Lit	124 196	Pay-per-use Created on May 3	default		Remote Login More 💌

Step 2 Enter the username and password of the ECS.

Figure 5-14 Entering the username and password

Rocky Linux 8.4 (Green Obsidian)
Kernel 4.18.0-37
Hint: Num Lock on
ecs-fd82 login: root
Password:
Last failed login: Tue May 30 13:53:07 CST 2023 from 114.116.222.88 on ssh:notty
There were 10 failed login attempts since the last successful login.
Welcome to Huawei Cloud Service
[root0ecs-fd82 ~]#

Step 3 Obtain the x86 or Arm InfluxDB client.

Download the **x86** or **Arm** InfluxDB client and upload the InfluxDB client installation package to the ECS.

- **Step 4** Decompress the client tool package (the x86 client is used as an example). tar -xzf influxdb-1.8.10_linux_amd64.tar.gz
- **Step 5** Connect to your instance in the directory where the InfluxDB client is located.

- 1. Run the following command to go to the InfluxDB directory: cd influxdb-1.8.10-1/usr/bin
- 2. Connect to the GeminiDB Influx instance. ./influx -ssl -unsafeSsl -username '<DB_USER>' -password '<DB_PWD>' -host <DB_HOST> -port <DB_PORT>

Example:

./influx -ssl -unsafeSsl -username 'rwuser' -password '<*DB_PWD*>' -host 192.xx.xx.xx -port 8635

Parameter	Description
<db_user></db_user>	Username of the administrator account. The default value is rwuser .
	On the Instances page, locate the instance and click its name. In the DB Information area on the Basic Information page, you can find the administrator username.
<db_pwd></db_pwd>	Administrator password
<db_host></db_host>	Load balancer address of the instance to be connected. Connecting to an instance using a load balancer address is now in OBT. To use it, choose Service Tickets > Create Service Ticket in the upper right corner of the console and contact customer service personnel.
	Scenario 1:
	If you have obtained a load balancer address before creating an instance, you can view that the load balancer address is selected by default on the instance creation page.
	After the instance is created, click its name to go to the Basic Information page and obtain the load balancer IP address in the Network Information area.
	Scenario 2:
	To use a load balancer address after the instance is created, choose Service Tickets > Create Service Ticket in the upper right corner of the console and contact customer service personnel.
	Then you can click the instance name to view the load balancer IP address in the Network Information area on the Basic Information page.
<db_port></db_port>	Port for accessing the instance.
	Click the name of the instance to go to the Basic Information page. In the Network Information area, you can find the database port.

Step 6 If information similar to the following is displayed, the connection was successful.

```
Connected to https://host:port version x.x.x
InfluxDB shell version: 1.8.10
```

----End

Basic Syntax

- Database syntax
 - Create a database.
 - create_database_stmt = "CREATE DATABASE" db_name

[WITH

[retention_policy_duration]

[retention_policy_replication]

[retention_policy_shard_group_duration]

[retention_policy_name]

].

The commands in square brackets ([]) are optional.

Example:

- Creating database mydb
 CREATE DATABASE "mydb"
- Creating database mydb, configuring retention policy myrp to retain data for 1 day, keeping 1 a copy, and setting the storage duration for shardGroup to 30 minutes

CREATE DATABASE "mydb" WITH DURATION 1d REPLICATION 1 SHARD DURATION 30m NAME "myrp"

- Creating database mydb and using the default retention policy, myrp
 CREATE DATABASE "mydb" WITH NAME "myrp"
- Query databases.

SHOW DATABASES

- Switch to another database.
 USE db_name
- Delete a database.
 DROP DATABASE "db_name"

```
InfluxDB shell version: 1.7.4
> create database demo
> show databases
name: databases
name
----
_internal
mydb
demo
> use mydb
Using database mydb
```

- RETENTION POLICY
 - Create a retention policy and ensure that the policy name does not contain periods (,), colons (:), semicolons (;), or dots (.).

create_retention_policy_stmt = "CREATE RETENTION POLICY"
policy_name on_clause

retention_policy_duration

```
retention_policy_replication
```

[retention_policy_shard_group_duration]

["DEFAULT"] .

D NOTE

The commands in square brackets ([]) are optional.

Example:

- Creating a data retention policy
 CREATE RETENTION POLICY "10m_events" ON "somedb"
 DURATION 60m REPLICATION 2
- Creating a data retention policy and setting it as the default retention policy

CREATE RETENTION POLICY "10m_events" ON "somedb" DURATION 60m REPLICATION 2 DEFAULT

 Creating a data retention policy and specifying the storage duration for shardGroup

CREATE RETENTION POLICY "10m_events" ON "somedb" DURATION 60m REPLICATION 2 SHARD DURATION 30m

- View a retention policy.

show retention policies on <database name>

> CREATE RE	TENTION P	OLICY "rp_1_d	lay" ON "mydb" DURA	TION 1d R	EPLICATION 2	SHARD	DURATION	1h
> show rete	ention pol	icies						
name	duration	warmDuration	shardGroupDuration	replicaN	default			
autogen	0s	0s	168h0m0s	1	true			
rp_1_hours	1h0m0s	0s	1h0m0s	1	false			
rp_1_day	24h0m0s	0s	1h0m0s	1	false			

If you specify both parameters **retention_policy_duration** and **retention_policy_shard_group_duration**, ensure that the former parameter has a larger value than the latter.

- Delete a retention policy.
- DROP RETENTION POLICY policy_name ON db_name
- Modify a retention policy.

Alter_retention_policy_stmt = "ALTER RETENTION POLICY" policy_name on_clause

retention_policy_option

- [retention_policy_option]
- [retention_policy_option]
- [retention_policy_option] .

NOTE

The commands in square brackets ([]) are optional.

Example:

- Modifying the default retention policy
 ALTER RETENTION POLICY "1h_cpu" ON "mydb" DEFAULT
- Modifying the retention period and number of copies
 - ALTER RETENTION POLICY "policy1" ON "somedb" DURATION 1h REPLICATION 4
- Adding data

insert into <retention policy> measurement,tagKey=tagValue
fieldKey=fieldValue timestamp

NOTE

When a data record is inserted, the system will automatically create measurements as required.

– Use the default retention policy.

insert demo, name=LiSi math=99, english=90, language=95

Add a data record, where **measurement** is **demo**, **tag** is **name**, and there are three fields **math**, **english**, and **language**.

Use a specific retention policy.

insert into rp_1_hours demo,name=ZhangSan math=99,english=90,language=95

- Querying data
 - Query data from the default retention policy.

select * from demo where time < xxx and time > xxx

- Query data from a specific retention policy.

select * from rp_1_hours.demo where time < xxx and time > xxx

Remember to specify a time range in the query statement.

• Modifying data

When you modify data using INSERT, if all tags and timestamps are the same, the existing data will be overwritten.

> select * from demo				
		_		
time	english	Language	math	name
2019-07-26T13:55:27.925320596Z	90	86	95	LiLei
2022-07-14T08:14:54.593459723Z	90	95	99	LiSi
2022-07-14T09:07:48.520893767Z	70	86	77	ZhangSan
>				
> insert demo,name=LiLei math=9	90,englis	sh=91,lang	juage=	88 1564149327925320596
> select * from demo				
name: demo				
time	english	language	math	name
2019-07-26T13:55:27.925320596Z	91	88	90	LiLei
2022-07-14T08:14:54.593459723Z	90	95	99	LiSi
2022-07-14T09:07:48.520893767Z	70	86	77	ZhangSan

Deleting data

You can create a retention policy to make data automatically deleted.

- HELP command
 - Run the **HELP** command to view all supported commands.

Figure 5-15 Viewing all supported commands

nfluxDE	B shell version: 1.7.4	
help		
sage:		
	<pre>connect <host:port></host:port></pre>	connects to another node specified by host:port
	auth	prompts for username and password
	pretty	toggles pretty print for the json format
	chunked	turns on chunked responses from server
	chunk size <size></size>	sets the size of the chunked responses. Set to θ to reset to the default chunked size
	use <db_name></db_name>	sets current database
	format <format></format>	specifies the format of the server responses: json, csv, or column
	precision <format></format>	specifies the format of the timestamp: rfc3339, h, m, s, ms, u or ns
	consistency <level></level>	sets write consistency level: any, one, quorum, or all
	history	displays command history
	settings	outputs the current settings for the shell
	clear	clears settings such as database or retention policy. run 'clear' for help
	exit/quit/ctrl+d	quits the influx shell
	show databases	show database names
	show series	show series information
	show measurements	show measurement information
	show tag keys	show tag key information
	show field keys	show field key information
	A full list of influx https://docs.influxda	<pre>iql commands can be found at: ta.com/influxdb/latest/query_language/spec/</pre>

HELP <COMMAND> is used to query the usage of a command.
 Example: HELP DESC

5.2 Comparison Between GeminiDB Influx and Self-Managed InfluxDB Instances

This section describes differences between GeminiDB Influx and self-managed InfluxDB instances.

Feature Comparison

Table 5-2 Comparison between GeminiDB Influx and self-managed InfluxDB instances

ltem	Self-Managed InfluxDB Instance	GeminiDB Influx
Cloud native	Not supported	Supported
Cluster	Not supported	Supported
Tiered storage of hot and cold data	Not supported	Two types of storage media ensure high performance and low costs.
System security	Database vulnerabilities are automatically fixed.	You do not need to give serious attention to database vulnerabilities.
DR	High availability is not provided.	Instances can be deployed across three AZs, ensuring 99.95% service availability.
Backup	Users back up data by themselves.	Data is automatically backed up.
O&M difficulty	It is difficult for users to maintain hardware and software by themselves.	Users perform basic management operations on the GUI. Instructional documents and 24/7 technical support are provided.

5.3 GeminiDB Time Series IoV Solution

Application Scenarios

Fueled by immense popularity of intelligent new energy vehicles, time series data generated in real time experienced tremendous growth. There were urgent demands for vehicle enterprises and owners to query the real-time status of vehicles, but the traditional HBase-based vehicle monitoring platform cannot meet the requirements.

Solution Overview

The GeminiDB time series IoV solution is designed for real-time queries of vehicle data through the dedicated Influx API, which parses, sorts, merges, analyzes, and writes millions of time series data of vehicles in real time. This solution supports high compression ratio and separation of cold and hot data, effectively reducing costs.

- **Figure 5-16** shows the technical architecture of HBase.
 - Vehicle data is collected and then reported to Kafka.
 - Real-time data is written to HBase through Flink. All monitoring data is written to HBase as a character string.
 - HBase supports point queries.
 - Offline data is parsed by Flink and written to Hive using Spark for analysis.





- Figure 5-17 shows the technical architecture of GeminiDB Influx API.
 - Vehicle data is collected and then reported to Kafka.
 - Real-time data is parsed by Flink and written to GeminiDB Influx API.
 - GeminiDB Influx API supports real-time queries and data analysis.
 - GeminiDB Influx API can convert data into Parquet format, which can be directly read and analyzed by Hive. For details, see Converting Data into a Parquet file and Exporting the Data to OBS.

Figure 5-17 Technical architecture of GeminiDB Influx API



Advantages

• Parsing and writing massive volumes of data in real time; simplifying application development

HBase: Thousands of monitoring metrics reported by vehicles are written into HBase as character strings. When an application reads a metric, it needs to read and parse all character strings. This process is complex and inefficient. GeminiDB Influx API: Thousands of monitoring metrics reported by vehicles are directly written into GeminiDB Influx instances as thousands of columns. Metrics can be directly queried and without being parsed again.

• Automatically sorting and combining data; simplifying the intermediate process

Multi-dimensional metric data reported at the same time point by vehicles is processed by different components under different network delays, so the data cannot be reported and written at a time in sequence.

HBase: Applications need to use Spark to combine and sort HBase data, which is complex and cannot meet real-time query requirements.

GeminiDB Influx API: When time series data is written, it is automatically merged and sorted. Applications can directly access GeminiDB Influx instances to obtain the result.

• Real-time analysis

Traditional HBase: Raw data consists of unresolved character strings and cannot be used directly. It must be read and resolved, or it cannot meet requirements for efficiently analyzing and processing large volumes. Typically, data analysis involves synchronizing data to platforms like Hive, which lacks real-time capabilities.

GeminiDB Influx API: Data can be queried and analyzed based on metrics at a time. Just one database is enough for effective real-time query and analysis.

• High compression ratio

HBase: The compression algorithm can be set only by column family. Only the GZIP, Snappy, LZO, and LZ4 algorithms are supported.

GeminiDB Influx API: Different compression algorithms are used for data types of each column. Multiple compression algorithms, such as Simple8b, Delta, Delta-Of-Delta, RLE, ZigZag, ZSTD, Snappy, and bit-packing, are supported. The compression ratio is 10 times that of HBase.

• Separation of hot and cold data

Users can configure hot and cold data policies to automatically dump data to cold storage without changing applications, which effectively reducing the overall cost.

5.4 GeminiDB's Functions for Efficient Data Analysis

Application Scenarios

In IoV and IoT scenarios, a large amount of data needs to be collected frequently. Service personnel have been seeking a better way to analyze data faster. Traditionally, queried data is analyzed at the service layer. The design of a service's functionality and behavior must meet stringent criteria and a large number of service resources will be consumed, so the traditional solution does not fit the need of analyzing massive amount of data. GeminiDB Influx API is a time series database that can efficiently process massive data write and analysis requests. It provides various advanced data analysis functions, making data analysis efficient and convenient. This section uses histogram functions to demonstrate GeminiDB's advantages in advanced data analysis.

Use Cases

In statistics, a histogram is a valuable tool for gaining insights into data characteristics. It is widely used in many scenarios:

- Network monitoring: Histograms clearly show abnormal data distributions, facilitating network self-diagnosis and recovery.
- IoT data analysis: Histograms reveal data distribution characteristics, facilitating identification of time series data.

GeminiDB Influx API supports two types of histograms: equi-height and bounded histograms. Each bucket in an equi-height histogram contains roughly the same number of values. Values in each bucket have both upper and lower limits in a bounded histogram. Custom bounded histograms can be created by users to identify key distribution characteristics of data. Integers, floating-point data, strings, and Boolean values can meet data analysis requirements in all sectors.

Using Histograms for GeminiDB Influx API

Example

In the example, **mst** is the table name. There are four fields of different data types and two tags. The raw data is as follows:

> select * from mst name: mst time address age alive country height name 1629129600000000000 shenzhen 12 true china 70 azhu 1629129601000000000 shanghai 20 false american 80 alan 162912960200000000 beijin 3 true germany 90 alang 1629129603000000000 guangzhou 30 false japan 121 ahui 1629129604000000000 chengdu 35 true canada 138 aqiu 162912960500000000 wuhan 48 china 149 agang 162912960600000000 52 true american 153 agan 1629129607000000000 anhui 28 false germany alin 162912960800000000 xian true japan 179 ali 1629129609000000000 hangzhou 60 false canada 180 162912961000000000 nanjin 102 true 191 ahuang 1629129611000000000 zhengzhou 123 false china 203 ayin

Equi-height histogram

Query syntax:

SELECT HISTOGRAM([* | <field_key> | /<regular_expression>/], <N>) [WINTO_clause] FROM_clause [WHERE_clause] [GROUP_BY_clause] [ORDER_BY_clause] [LIMIT_clause] [OFFSET_clause] [SLIMIT_clause] [SOFFSET_clause] HISTOGRAM(field_key, N) generates a histogram visualization of the data distribution for *field_key*, with *N* representing the desired number of bins in the histogram. HISTOGRAM(/regular_expression/, N) calculates values of the field that matches the regular expression in each bin. HISTOGRAM(*, N) calculates values of integer and floating-point fields in each bin.

Example

1. Query an equi-height histogram in which *field_key* is specified as **age** and *N* as **5**.

> select histogram(age, 5) from mst where time >= 162912960000000000 and time <= 1629129611000000000

name: mst time histogram value 0 20 3 0 30 2 0 48 2 0 60 2 0 9223372036854775807 2

2. Query an equi-height histogram in which */regular_expression/* is specified as **/hei/** (heights only) and *N* as **5**.

> select histogram(/hei/, 5) from mst where time >= 162912960000000000 and time <= 1629129611000000000 name: mst</p>

time histogram_height value 0 90 3 0 138 2 0 153 2 0 180 2 0 1.7976931348623157e+308 2

3. Query an equi-height histogram with addresses of the string type and an equi-height histogram with the **alive** field of the Boolean type.

> select histogram(address, 5) from mst where time >= 162912960000000000 and time <= 162912961100000000 name: mst histogram value time 162912960000000000 chengdu 3 162912960000000000 hangzhou 2 162912960000000000 shanghai 2 162912960000000000 wuhan 2 162912960000000000 zhengzhou 2 > select histogram(alive, 3) from mst where time >= 162912960000000000 and time <= 1629129611000000000 name: mst time histogram value 162912960000000000 false 5 162912960000000000 true 6

Bounded histogram

Query syntax:

SELECT HISTOGRAM([* | <field_key> | /<regular_expression>/], 'specifyBins', boundary1, boundary2, ..., boundaryN) [WINTO_clause] FROM_clause [WHERE_clause] [GROUP_BY_clause] [ORDER_BY_clause] [LIMIT_clause] [OFFSET_clause] [SLIMIT_clause] [SOFFSET_clause]

HISTOGRAM (field_key, 'specifyBins', boundary1, boundary2,..., boundaryN) calculates values of a specified metric field in a specified bin. *specifyBins* indicates a flag and *boundaryN* the specified boundary value. Integers, floating-point data, strings, and Boolean values are supported.

HISTOGRAM(/regular_expression/, 'specifyBins', boundary1, boundary2, ..., boundaryN) calculates values of the field that matches the regular expression in each bin.

HISTOGRAM (*,'specifyBins', boundary1, boundary2,..., boundaryN) calculates values of integer and floatingpoint fields in the specified bin.

Example

1. Query a bounded histogram in which *field_key* is specified as **age** with the following bins: [0, 10), [10, 20), [20, 30), [30, 40), and [40, 50)

> select histogram(age, 'specifyBins', 10, 20, 30, 40, 50) from mst name: mst time histogram value 0 10 1

- 0 20 2 0 30 2
- 0 30 0 40
- 0 40 1 0 50 1
- Query a bounded histogram in which *field_key* matches regular expression / eight/ (heights only) in the following bins [0, 160), [160, 170), [170, 180), [180, 190), [190, 200):

> select histogram(/eight/, 'specifyBins', 160.0, 170.0, 180.0, 190.0, 200.0) from mst name: mst time histogram value

0 160 7 0 170 0 0 180 2 0 190 0 0 200 1

3. Query a bounded histogram with addresses of the string type and a bounded histogram with the **alive** field of the Boolean type.

In addition to histogram functions, GeminiDB supports multiple other types of advanced analysis functions. For details, see **Supported Commands**.

Advantages

GeminiDB's advanced functions can be used to quickly analyze data and directly generate results. Databases handle the massive amount of data, eliminating the need for processing logic at the service layer. Using such functions will simplify your service design and reduce unnecessary resource consumption.

5.5 Multi-Level Downsampling

Application Scenarios

In DevOps or IoT scenarios, users focus on statistical metrics (such as maximum, minimum, and average values) instead of historical data details.

A conventional approach involves storing all granular data, querying it, and performing calculations on demand. If historical data is retained only for feature calculation purposes, the conventional approach presents several drawbacks: the longer granular data is retained, the higher the storage costs incurred.

Introduction to Multi-Level Downsampling

Multi-level downsampling policies are available to data across time ranges. For instance, data from the last week to month is aggregated every 15 minutes (regardless of aggregation methods), while historical data in the last month is aggregated every hour.

Users may be sensitive to recent data but have little requirements for long-term data, so different multi-level downsampling policies need to be used. Multi-level downsampling not only meets query requirements for high-value data, but also ensures storage efficiency.

For example, raw data in the last 7 days is directly imported to a database. Data from the last 7 to 30 days is downsampled every 15 minutes and then stored in a database. Data from the last 30 days to 12 months is downsampled every hour and then stored in a database. As shown in **Figure 5-18**, assume that today is December 31, 2022. The dark blue area on the left displays data within the last 7 days. The gray blue area in the middle displays data from the last 7 to 30 days. The light blue area on the right displays data from the last 30 days to 12 months. After a period of time, data in the dark blue area is aggregated into the gray blue area every 15 minutes, and data in the gray blue area is aggregated into the light blue area every hour. There are four 15-minute segments in an hour, so aggregation is available as a convenience to avoid extra implementation overhead.



Figure 5-18 Multi-level downsampling grid

D NOTE

Raw data from the last 7 to 30 days as well as 30 days to 12 months will not be retained after downsampling.

Creating a Downsampling Task

Syntax:

Create DownSample [on <rp_name>| on <dbname>.<rp_name>|]((dataType(aggregators)...)) With Duration <timeDuration> SampleInterval(time Durations) TimeInterval(time Durations)

Table 5-3 Parameters	
------------------------------	--

Duration	SampleInterval	TimeInterval
Data retention period after downsampling	Next-level downsampling time	Sampling interval

Aggregation method definition:

dataType(aggfunctions...)

Example of an aggregation method:

integer(first,sum,count,last,min,max)
integer(min,max),float(sum)

For example:

Create a retention rule named rp1. Data is retained for seven days, and one shard is created every day.

create retention policy rp1 on mydb duration 7d replication 1 shard duration 1d

To create a downsampling task based on rp1, set the retention period of the sampled data to seven days. Details about data of the last day are stored. Data of the last one to two days is sampled every minute. Data generated two days ago is downsampled every 3 minutes.

Create DownSample on rp1 (float(sum,last),integer(max,min)) With Duration 7d sampleinterval(1d,2d) timeinterval(1m,3m)

NOTE

• The second values of **sampleinterval** and **timeinterval** must be integer multiples of their first values.

Valid example:

- sampleinterval(1d,2d)
- timeinterval(1m,3m)

Invalid example:

- sampleinterval(2d,3d)
- timeinterval(5m,6m)
- The number of values of **sampleinterval** and **timeinterval** must be consistent. Valid example:
 - sampleinterval(1d,2d) and timeinterval(1m,3m)

Invalid example:

- sampleinterval(1d,2d) and timeinterval(3m)
- sampleinterval(1d) and timeinterval(1m,3m)
- **Duration** controls the retention period of downsampled data. The value specified for rp1 is updated synchronously and can be the same as that specified for rp. Only **first**, **last**, **sum**, **max**, **min**, **mean**, and **count** are allowed.
- float(sum,last) indicates that FLOAT data is downsampled using the sum() and last() functions.
- The mechanism of integer(max,min) is similar to that of float(sum,last).

Showing Downsampling Tasks

Show all downsampling tasks of the default database.

SHOW DOWNSAMPLES

Show all downsampling tasks of a specified database.

SHOW DOWNSAMPLES ON <database name>

For example:

> show downsamples on ExampleDatabase				
++	+++			
rpName field_operator	duration sampleInterval timeInterval			
++	++			
rp1 float{max},integer{min	} 24h0m0s 1h0m0s,2h0m0s 1m0s,5m0s			
++	+++++			

Deleting Downsampling Tasks

Delete all downsampling tasks of a specified database.

Drop DownSamples Drop DownSamples on db0

Delete all downsampling tasks of a specified RP.

Drop DownSample on rp1 Drop DownSample on db0.rp1

5.6 Suggestions on Alarm Rules of GeminiDB Influx Instance Metrics

After setting alarm rules on the Cloud Eye console, for example, specifying monitored objects and notification policies, you can stay ahead of your instance status. For details, see **Configuring Alarm Rules**.

This section describes recommended alarm rules of GeminiDB Influx instances.

Metric ID	Metric Name	Dim ensi on	Threshold (Raw Value) in Best Practices	Alar m Sev erit y in Best Prac tice s	Alarm Handling Suggestion
gemini001_c pu_usage	CPU Usage	Nod e	> 90% for 3 consecutiv e periods	Maj or	Upgrade instance specifications. For details, see Changing vCPUs and Memory.
gemini002_ mem_usage	Memo ry Usage	Nod e	> 80% for 3 consecutiv e periods	Maj or	Upgrade instance specifications. For details, see Changing vCPUs and Memory.

Table 5-4 Suggestions on alarm rules of GeminiDB Influx instance metrics

Metric ID	Metric Name	Dim ensi on	Threshold (Raw Value) in Best Practices	Alar m Sev erit y in Best Prac tice s	Alarm Handling Suggestion
nosql005_dis k_usage	Storag e Space Usage	Inst ance	> 80% for 3 consecutiv e periods	Maj or	Evaluate how much storage needs to be added based on data growth. For details, see Manually Scaling Up Storage Space of a GeminiDB Influx Instance.
influxdb005_ write_concur rency	Concur rent Write Reques ts	Nod e	≥ CPU cores x 4 for 3 consecutiv e periods	Maj or	Check whether the service traffic increases sharply and whether the database is normal. For details, see Viewing Metrics .
influxdb006_ query_concu rrency	Concur rent Querie s	Nod e	≥ CPU cores for 3 consecutiv e periods	Maj or	Check whether the service traffic increases sharply and whether the database is normal. For details, see Viewing Metrics .

6 Performance White Paper

6.1 Performance Test Methods

This section describes performance testing of GeminiDB Influx instances, including the test environment, procedure, and results.

Test Environment

- Region: CN-Hong Kong
- AZ: AZ1
- Elastic Cloud Server (ECS): m6.2xlarge.8 with 8 vCPUs, 64 GB of memory, and CentOS 7.6 64-bit image
- Nodes per instance: 3
- Instance specifications: 4 vCPUs | 16 GB, 8 vCPUs | 32 GB, 16 vCPUs | 64 GB, and 32 vCPUs | 128 GB

Test Tool

Time Series Benchmark Suite (TSBS) of the open-source community is used.

Test Metrics

- Write performance test: Data points per second
- Query performance test: Latency and OPS (operations per second)

Test Procedure

Step 1 Run the following command to generate the data to be written:

```
tsbs_generate_data --use-case="devops" --seed=123 --scale=10000 --
timestamp-start="2016-01-01T00:00:00Z" --timestamp-
end="2016-01-01T12:00:00Z" --log-interval="10s" --format="influx" | gzip
> /tmp/influx-data.gz
```

D NOTE

--scale indicates the number of time series to be generated.

- --log-interval indicates the interval for collecting data.
- **Step 2** Run the following command to test write performance and obtain the required data:

NUM_WORKERS=\${numWorkers} BATCH_SIZE=\${batchSize} DATABASE_HOST=\${influxIP} DATABASE_PORT=\${influxPORT} BULK_DATA_DIR=/tmp scripts/load_influx.sh

Step 3 Run the following commands to generate query statements:

tsbs_generate_queries --use-case="devops" --seed=123 --scale=10000 -timestamp-start="2016-01-01T00:00:00Z" --timestampend="2016-01-01T12:00:01Z" --queries=20 --query-type="high-cpu-all" -format="influx" | gzip > /tmp/influx-20queries-high-cpu-all-12h-frequency.gz

tsbs_generate_queries --use-case="devops" --seed=123 --scale=10000 -timestamp-start="2016-01-01T00:00:00Z" --timestampend="2016-01-01T12:00:01Z" --queries=1000000 --query-type="singlegroupby-1-8-1" --format="influx" | gzip > /tmp/influx-1000000queries-singlegroupby-1-8-1-12h-frequency.gz

tsbs_generate_queries --use-case="devops" --seed=123 --scale=10000 -timestamp-start="2016-01-01T00:00:00Z" --timestampend="2016-01-01T12:00:01Z" --queries=500 --query-type="double-groupby-1" --format="influx" | gzip > /tmp/influx-500queries-double-groupby-1-12hfrequency.gz

tsbs_generate_queries --use-case="devops" --seed=123 --scale=10000 -timestamp-start="2016-01-01T00:00:00Z" --timestampend="2016-01-01T12:00:01Z" --queries=50 --query-type="double-groupby-all" --format="influx" | gzip > /tmp/influx-50queries-double-groupby-all-12hfrequency.gz

tsbs_generate_queries --use-case="devops" --seed=123 --scale=10000 -timestamp-start="2016-01-01T00:00:00Z" --timestampend="2016-01-01T12:00:01Z" --queries=200 --query-type="lastpoint" -format="influx" | gzip > /tmp/influx-200queries-lastpoint-12h-frequency.gz

tsbs_generate_queries --use-case="devops" --seed=123 --scale=10000 -timestamp-start="2016-01-01T00:00:00Z" --timestampend="2016-01-01T12:00:01Z" --queries=500 --query-type="groupby-orderbylimit" --format="influx" | gzip > /tmp/influx-500queries-groupby-orderbylimit-12h-frequency.gz

NOTE

Ensure that values of fields --**use-case**, -**seed**, --**scale**, and --**timestamp-start** must be the same as those values set when data is generated in **Step 1**.

--timestamp-end indicates the second after data generation ends.

--queries indicates the number of generated queries.

--queries-type indicates the type of generated queries. For details, see Table 6-1.

Step 4 Run the following commands to query performance data:

cat /tmp/influx-20queries-high-cpu-all-12h-frequency.gz | gunzip | tsbs_run_queries_influx --workers=\${numWorkers} --print-interval 10 -urls=(http|https)://\${influxIP}:\${influxPORT}

cat /tmp/influx-1000000queries-single-groupby-1-8-1-12h-frequency.gz | gunzip | tsbs_run_queries_influx --workers=\${numWorkers} --print-interval 10000 --urls=(http|https)://\${influxIP}:\${influxPORT}

cat /tmp/influx-500queries-double-groupby-1-12h-frequency.gz | gunzip | tsbs_run_queries_influx --workers=\${numWorkers} --print-interval 50 -urls=(http|https)://\${influxIP}:\${influxPORT}

cat /tmp/influx-50queries-double-groupby-all-12h-frequency.gz | gunzip | tsbs_run_queries_influx --workers=\${numWorkers} --print-interval 10 -urls=(http|https)://\${influxIP}:\${influxPORT}

cat /tmp/influx-200queries-lastpoint-12h-frequency.gz | gunzip | tsbs_run_queries_influx --workers=\${numWorkers} --print-interval 10 -urls=(http|https)://\${influxIP}:\${influxPORT}

cat /tmp/influx-500queries-groupby-orderby-limit-12h-frequency.gz | gunzip | tsbs_run_queries_influx --workers=\${numWorkers} --print-interval 50 -urls=(http|https)://\${influxIP}:\${influxPORT}

----End

Test Models

Test Model	Description	Example Statement
load	100% insertion.	-
high-cpu- all	Queries all the readings where one metric is above a threshold across all hosts for a period of time.	SELECT * from cpu where usage_user > 90.0 and time >= '2020-11-01T05:24:55Z' and time < '2020-11-01T17:24:55Z'
single- groupby-1- 8-1	Queries the maximum value of one metric for 8 hosts for a period of time.	SELECT max(usage_user) from cpu where (hostname = 'host_61885' or hostname = 'host_51710' or hostname = 'host_9380' or hostname = 'host_46446' or hostname = 'host_67623' or hostname = 'host_54344' or hostname = 'host_82215' or hostname = 'host_7458') and time >= '2020-11-01T19:38:15Z' and time < '2020-11-01T20:38:15Z' group by time(1m)

Table 6-1 Test models involved

Test Model	Description	Example Statement
single- groupby-1- 1-1	Queries the maximum value of one metric for 1 host for a period of time.	SELECT max(usage_user) from cpu where (hostname = 'host_6334') and time >= '2016-01-01T03:03:21Z' and time < '2016-01-01T04:03:21Z' group by time(1m)
cpu-max- all-1	Queries the maximum value of all metrics for 1 host for a period of time.	SELECT max(usage_user),max(usage_system), max(usage_idle),max(usage_nice),max(usage_iowait),max(usage_irq),max(usa ge_softirq),max(usage_steal),max(usag e_guest),max(usage_guest_nice) from cpu where (hostname = 'host_1166') and time >= '2016-01-01T00:23:32Z' and time < '2016-01-01T08:23:32Z' group by time(1h)

6.2 Performance Test Data

Write Performance Testing

Instance Specifications	Concurrent Requests	Write Performance (unit: rows/sec)
4 vCPUs 16 GB	20	123648.75
8 vCPUs 32 GB	40	221034.80
16 vCPUs 64 GB	80	348762.25
32 vCPUs 128 GB	160	496511.06

Table 6-2 Data used for testing write performance of cluster instances

Table 6-3 Data used for testing write performance of single-node instances

Instance Specifications	Concurrent Requests	Write Performance (unit: rows/sec)
4 vCPUs 8 GB	10	50113
8 vCPUs 16 GB	10	108781
16 vCPUs 32 GB	20	158744

Query Performance Testing

The test data depends on service models and instance specifications.

NOTE

 Table 6-1 describes the service models involved in this test.

• The test instance of the cluster type, with specifications of 4 vCPUs and 16 GB and concurrent requests of 20. All metrics in the following table are average values calculated from 1 million executions.

Test Model	OPS (unit: queries/sec)	Average Latency (unit: ms)	Minimum Latency (unit: ms)	Maximum Latency (unit: ms)
high-cpu-all	710.81	28.12	9.35	714.11
single- groupby-1-8 -1	1308.56	13.74	2.56	148.96
single- groupby-1-1 -1	6393.67	3.10	1.43	45.02
cpu-max- all-1	850.51	23.49	6.16	715.23

Table 6-4 Test data

• The test instance of the cluster type, with specifications of 8 vCPUs and 32 GB and concurrent requests of 40. All metrics in the following table are average values calculated from 1 million executions.

Table 6-5	Test data
-----------	-----------

Test Model	OPS (unit: queries/sec)	Average Latency (unit: ms)	Minimum Latency (unit: ms)	Maximum Latency (unit: ms)
high-cpu-all	1236.46	32.34	9.70	412.86
single- groupby-1-8- 1	2663.19	12.47	2.58	222.84
single- groupby-1-1- 1	9696.13	4.03	1.56	141.06
cpu-max- all-1	1406.48	28.42	8.97	444.16

• The test instance of the cluster type, with specifications of 16 vCPUs and 64 GB and concurrent requests of 80. All metrics in the following table are average values calculated from 1 million executions.

Test Model	OPS (unit: queries/sec)	Average Latency (unit: ms)	Minimum Latency (unit: ms)	Maximum Latency (unit: ms)
high-cpu-all	2107.83	37.94	11.33	252.74
single- groupby-1-8- 1	4707.25	15.40	3.29	225.18
single- groupby-1-1- 1	17658.59	4.44	1.80	51.16
cpu-max- all-1	2262.40	35.35	12.80	247.85

Table 6-6 Test data

• The test instance of the cluster type, with specifications of 32 vCPUs and 128 GB and concurrent requests of 160. All metrics in the following table are average values calculated from 1 million executions.

Table 6-7 Test data

Test Model	OPS (unit: queries/sec)	Average Latency (unit: ms)	Minimum Latency (unit: ms)	Maximum Latency (unit: ms)
high-cpu-all	3468.89	46.10	19.14	290.61
single- groupby-1-8- 1	5107.15	13.84	3.58	118.97
single- groupby-1-1- 1	23023.11	6.72	1.80	74.45
cpu-max- all-1	3715.62	43.04	14.24	186.80

• The test instance of the single-node type, with specifications of 4 vCPUs and 8 GB and concurrent requests of 10. All metrics in the following table are average values calculated from 1 million executions.

Test Model	OPS (unit: queries/sec)	Average Latency (unit: ms)	Minimum Latency (unit: ms)	Maximum Latency (unit: ms)
high-cpu-all	423.07	14.17	5.24	693.53
single- groupby-1-8- 1	1278.77	4.68	2.01	822.53
single- groupby-1-1- 1	3138.4	1.9	1.1	424.77
cpu-max- all-1	357.93	16.75	8.51	992.06

Table 6-8 Test data

• The test instance of the single-node type, with specifications of 8 vCPUs and 16 GB and concurrent requests of 20. All metrics in the following table are average values calculated from 1 million executions.

Table	6-9	Test	data

Test Model	OPS (unit: queries/sec)	Average Latency (unit: ms)	Minimum Latency (unit: ms)	Maximum Latency (unit: ms)
high-cpu-all	1031.77	15.49	5.37	614.3
single- groupby-1-8- 1	3082.18	5.18	2.12	154.53
single- groupby-1-1- 1	7604.41	2.1	0.96	31.93
cpu-max- all-1	856.75	18.66	7.76	573.18

• The test instance of the single-node type, with specifications of 16 vCPUs and 32 GB and concurrent requests of 20. All metrics in the following table are average values calculated from 1 million executions.

Table	e 6-10	Test	data
-------	--------	------	------

Test Model	OPS (unit: queries/sec)	Average Latency (unit: ms)	Minimum Latency (unit: ms)	Maximum Latency (unit: ms)
high-cpu-all	1646.46	12.13	4.4	409.82

Test Model	OPS (unit: queries/sec)	Average Latency (unit: ms)	Minimum Latency (unit: ms)	Maximum Latency (unit: ms)
single- groupby-1-8- 1	3909.19	5.11	2.15	122.95
single- groupby-1-1- 1	10340.02	1.93	1.02	146.8
cpu-max- all-1	1181.3	16.92	7.79	175.29

7 FAQs

7.1 Product Consulting

7.1.1 What Do I Need to Note When Using GeminiDB Influx API?

- 1. DB instance operating systems (OSs) are invisible to you. Your applications can access a database only through an IP address and a port.
- 2. The backup files stored in OBS and the system containers used by GeminiDB Influx API are invisible to you. They are visible only in the GeminiDB Influx API management system.
- 3. Precautions after purchasing instances:

After purchasing instances, you do not need to perform basic database O&M operations, such as applying HA and security patches, but you should still note:

- a. The CPU, input/output operations per second (IOPS), and space are insufficient for the DB instances.
- b. The instance has performance problems and whether optimization is required.

7.1.2 What Does the Availability of GeminiDB Influx Instances Mean?

The formula for calculating the instance availability is as follows:

DB instance availability = (1 – Failure duration/Total service duration) × 100%

The failure duration refers to the total duration of faults that occur during the running of a DB instance after you buy the instance. The total service duration refers to the total running time of the instance.

7.1.3 Can GeminiDB Influx API Convert Multiple Columns to Multiple Rows?

GeminiDB Influx API does not support the function for converting multiple columns into multiple rows.

7.1.4 How Much Data Can a GeminiDB Influx Instance Hold?

For details, see Instance Specifications.

7.1.5 Can I Access GeminiDB Influx Instances Using Grafana?

Yes. You can access GeminiDB Influx Instances using Grafana. For details, see **How Do I Connect to a GeminiDB Influx Instance Using Grafana?**.

7.1.6 How Do I Use GeminiDB Influx Hints?

GeminiDB Influx API supports hints, improving query performance. Hints can be used only when you need to specify a value for each tag in a query statement. To use hints, add **/*+ full_series */** before an SQL statement.

For example:

A common query statement is as follows:

select value from cpu where server_id=1;

If a hint is used, the corresponding syntax is:

select /*+ full_series */ value from cpu where server_id=1;

7.1.7 What Do I Do If Error "select *" query without time range is not allowed Is Reported?

When you execute a query statement like SELECT* and give no constraints on the time range, error "select *" query without time range is not allowed will be reported. To resolve this problem, you need to rectify the query statement and specify time range constraints.

Example:

- select * from measurement where time > '2023-01-19T12:00:00Z' and time <= '2023-01-19T13:00:00Z'
- select * from measurement where time = '2023-01-19T12:30:00Z'

7.1.8 What Do I Do If the Error Message "ERR: Max-selectseries Limit Exceeded" Is Displayed?

If the timeline involved in the result returned by a query statement exceeds the limit, the error "max-select-series limit exceeded" is triggered. Two solutions are available:

1. Optimize the query statement and add timeline constraints. Tag restriction information is added to the WHERE statement to narrow down the tag query scope and ensure that the timeline restriction is not exceeded.

2. Scale up the instance specifications. The number of timelines allowed for query is related to the instance specifications. The larger the instance specifications, the larger the number of timelines allowed.

The **limit** keyword cannot reduce the timelines involved in the query. Therefore, the error cannot be rectified by using the keyword.

7.1.9 What Do I Do If "delete is forbidden" Is Reported?

When a logical deletion command, such as **delete/drop measurement**, is executed, error message "delete is forbidden" is displayed.

Executing a logical deletion command is inefficient, and the system may be suspended. Set a retention period so that data can be automatically deleted.

7.2 Billing

7.2.1 What Are the Differences Between Yearly/Monthly and Pay-per-Use Billing Modes?

Yearly/Monthly is a prepaid billing mode in which resources are billed based on the service duration. This cost-effective mode is ideal when the duration of resource usage is predictable. It is recommended for long-term users.

Pay-per-use is a post payment mode, so you can start or stop an instance at any time. Pricing is listed on a per-hour basis, but bills are calculated based on the actual usage duration.

7.2.2 Can I Switch Between Yearly/Monthly and Pay-per-Use Payments?

You can change the billing mode from yearly/monthly to pay-per-use or vice versa.

- If you want to change the billing mode from yearly/monthly to pay-per-use, see Yearly/Monthly to Pay-per-Use.
- If you want to change the billing mode from pay-per-use to yearly/monthly, see Changing a Pay-per-Use Instance to Yearly/Monthly.

7.3 Database Connection

7.3.1 How Can I Create and Connect to an ECS?

- 1. To create an ECS, see *Elastic Cloud Server User Guide*.
 - The ECS to be created must be in the same VPC with the GeminiDB Influx instance to which it connects.
 - Configure the security group rules to allow the ECS to access to the instance.
- 2. To connect to an ECS, see "Logging in to an ECS" *Getting Started with Elastic Cloud Server User Guide*.

7.3.2 Can I Change the VPC of a GeminiDB Influx Instance?

Once a GeminiDB Influx instance is created, the VPC where the instance resides cannot be changed.

However, you can change a VPC by restoring the full backup of your instance to the VPC you want to use. For details, see **Restoring Data to a New Instance**.

7.3.3 How Do I Connect to a GeminiDB Influx Instance Locally?

You can connect to a GeminiDB Influx instance using a private network, public network, or program code. For details, see **Connecting to a GeminiDB Influx Instance**.

7.3.4 How Do I Connect to a GeminiDB Influx Instance Using Grafana?

Grafana is a cross-platform open source analytics and interactive visualization web application. It provides charts, graphs, and alerts for the web when connected to supported data sources.

This section describes how to connect to a GeminiDB Influx instance using Grafana.

Procedure

Step 1 Start Grafana on the server and access http://IP:3000 using a browser.

NOTE

The **IP** field can be an elastic IP address of a cloud server or the IP address of an onpremises server.

Step 2 Log in to the Grafana homepage.

Ø	88 Home					
Q +	Welcome to Grafana				Need help? Docum	entation Tutorials Community Public Slack
88						Remove this panel
۲						
₽	The steps below will guide you to quickly	DATA SOURCE AND DASHBOARDS		Add your first data source	Create your first dashboa	rd
© 0	finish setting up your Grafana installation.	Granana runnoammentais Set up and understand Grafana if you have no prior experience. tutorial guides you through the entire process and covers the "t source" and "Dashboards" steps to the right.	This ata		88	
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		Dashboards	Monitor Today, I a traces wi billions o will walk	real-time distributed messaging pla im excited to introduce the NSO integrati th Grafana for full-stack observability. NS f messages per day. It's a simple and tigg you through how to get the mens out of f	Latest from the blog stform NSQ with the new integration on available for Grafans Cloud, our platf SQ is a real-time distributed messaging p threight alternative to other message qu he integration.	n for Grafana Cloud 3/10 08 om that brings together all your metrics, logs, and Natform designed to operate at scale, handling eues such as Kafka, RabbitMQ, or ActiveMQ. This
			Turn mi Malcolm Wellbein Grafanist security i	stakes into wins: How our no-blame joined Grafana Labs in 2018 and now we g ERG (employee resource group), which as. Tve recently joined a new team at Gra sues being found recently, this has mad	culture works at Grafana Labs xks on release processes for Grafana. H organizes activities such as mindfulnes fana Labs, one that is focused on releas te his work pretty full on.	3月 04 le is also a founding member of Grafana's s courses, book clubs, and lightning talks for all ing new versions of Grafana. With so many
0			How Da Ever sinc fungible blockcha collectibl	pper Labs uses Grafana Cloud to m e a JPEG created by the digital artist Bee tokens) that represent digital collections in gaming studio Dapper Labs, which live es, and run fan tokens for sports person	eet the global demand of NFT Man ple sold for more than \$69 million in 200 ard, and media has been growing. A cor reages blockhain to build addictive gan alities and music artists.	a 3月 04 21. the worldwide obsession with NFTs (non- npany at the forefront of the NFT world is the ses (such as CryptoKitties), verify authentic digital

Figure 7-1 Logging in to the Grafana homepage

Step 3 Create a data source.

Figure 7-2 Creating a data source

Ø	BB Home				•
Q +	Welcome to Grafana			Need help? Documenta	ion Tutorials Community Public Slack
88 (9) (4) (8)	Basic The steps below will gold you to quickly finally acting up your	TUTORAL DATA SOURCE AND DASHBOARDS Grafana fundamentals	DATA SOURCES Add your first data source	DASHBOARDS Create your first dashboard	Remove this panel
0		Set up and understand Grafena if you have no prior experience. This turbrief guides you through the entity encocess and covers the "Data source" and "Dashboards" steps to the right.	E	Learn how in the docs 🕈	

Step 4 Select InfluxDB.

Figure 7-3 Selecting InfluxDB

	Add data source
Q Filter by na	ame or type
Ç	Prometheus Open source time series database & alerting
	Graphite Open source time series database Socore
~~	OpenTSDB Open source time series database Core
\bigcirc	InfluxDB Open source time series database Score

Step 5 Configure the required parameters.

5	5	51			
†↓ Settings					
Name	3	nfluxDB			Default
Query Language					
InfluxQL				~	
нттр					
URL		https://192.1	68.0.139:8635		
Access		Server (defa	ult)	~	Help >
Whitelisted Cookies				Add	
Auth					
Basic auth			With Credentials		
TLS Client Auth			With CA Cert		
Skip TLS Verify					
Forward OAuth Identity					
Basic Auth Details					
User	r	wuser			
Password		•••••			
Custom HTTP Headers	1				
+ Add header					
InfluxDB Details					
Database	t	elegraf			
User	ŗ	wuser			
Password					

Figure 7-4 Configuring parameters

Parameter	Description			
URL	URL format: https:// <ip>:8635 The IP field indicates the private IP address of the database instance.</ip>			
Auth	Open Basic auth and skip TSL Verify .			
Basic Auth Details	 User: Username, for example, rwuser Password: The password you set when you buy a GeminiDB Influx instance 			
InfluxDB Details	 Database: Name of the created database, for example telegraf User: rwuser 			
	• Password : The password you set when you buy a GeminiDB Influx instance			

 Table 7-1 Parameter description

Step 6 Click Save.

Step 7 Create a dashboard based on service requirements.

----End

Related Issues

If you fail to connect to a GeminiDB Influx instance using Grafana, the causes may be as follows:

- Network connection is abnormal.
- The URL address is incorrect. When you enter a URL, make sure to type colons (:) and **https** correctly.
- SSL authentication failed. Note to select **skip ssl verify**.

7.4 Backup and Restoration

7.4.1 How Long Can a GeminiDB Influx Instance Backup Be Saved?

Automated backup data is kept based on the backup retention period you specified. There is no limit for the manual backup retention period. You can delete manual backups as needed.

7.5 Regions and AZs

7.5.1 Can Different AZs Communicate with Each Other?

An AZ is a part of a physical region with its own independent power supply and network. An AZ is generally an independent physical equipment room, ensuring independence of the AZ.

Each region contains multiple AZs. If one AZ becomes faulty, the other AZs in the same region can continue to provide services normally.

By default, different AZs in the same VPC can communicate with each other through an internal network.

For more information, see **Regions and AZs**.

7.5.2 Can I Change the Region of a GeminiDB Influx Instance?

No. After an instance is created, its region cannot be changed.

7.6 Instance Freezing, Release, Deletion, and Unsubscription

Why Are My GeminiDB Influx Instances Released?

If your subscriptions have expired but not been renewed, or you are in arrears due to insufficient balance, your instances enter a grace period. If you do not renew the subscriptions or top up your account after the grace period expires, your instances will enter a retention period and become unavailable. If you still do not renew them or top up your account after the retention period ends, your instances will be released and your data stored will be deleted. For details, see **Service Suspension and Resource Release**.

Why Are My GeminiDB Influx Instances Frozen?

Your instances may be frozen for a variety of reasons. The most common reason is that you are in arrears.

Can I Still Back Up Data If My Instances Are Frozen?

No. If your instances are frozen because your account is in arrears, go to top up your account to unfreeze your instances and then back up instance data.

How Do I Unfreeze My Instances?

If your instances are frozen because your account is in arrears, you can unfreeze them by renewing them or topping up your account. Frozen GeminiDB Influx instances can be renewed, released, or deleted. Expired yearly/monthly GeminiDB Influx instances cannot be unsubscribed from, while those that have not expired can be unsubscribed from.

What Impacts Does Instance Freezing, Unfreezing or Release Have on My Services?

- After an instance is frozen:
 - It cannot be accessed, and your services will be interrupted. For example, if a GeminiDB Influx instance is frozen, it cannot be connected.
 - If they are yearly/monthly resources, no changes can be made to them.
 - It can be unsubscribed from or deleted manually.
- After it is unfrozen, you can connect to it again.
- Releasing an instance means deleting it. Before the deletion, GeminiDB Influx API determines whether to move the instance to the recycle bin based on the recycling policy you specified.

How Do I Renew My Instances?

After a yearly/monthly GeminiDB Influx instance expires, you can renew it on the **Renewal Management** page. For details, see **Renewal Management**.

Can My Instances Be Recovered After They Are Released or Unsubscribed From?

If your instance is moved to the recycle bin after being deleted, you can recover it from the recycle bin by referring to **GeminiDB Influx Instance Recycle Bin**. If the recycling policy is not enabled, you cannot recover it.

When you unsubscribe from an instance, confirm the instance information carefully. If you have unsubscribed from an instance by mistake, purchase a new one.

How Do I Delete a GeminiDB Influx Instance?

- To delete a pay-per-use instance, see **Deleting a Pay-per-Use Instance**.
- To delete a yearly/monthly instance, see **How Do I Unsubscribe from a** Yearly/Monthly Instance?.