

Alibaba Cloud

数据库网关DG Introduction

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Document conventions

Style	Description	Example
 Danger	A danger notice indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	 Danger: Resetting will result in the loss of user configuration data.
 Warning	A warning notice indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	 Warning: Restarting will cause business interruption. About 10 minutes are required to restart an instance.
 Notice	A caution notice indicates warning information, supplementary instructions, and other content that the user must understand.	 Notice: If the weight is set to 0, the server no longer receives new requests.
 Note	A note indicates supplemental instructions, best practices, tips, and other content.	 Note: You can use Ctrl + A to select all files.
>	Closing angle brackets are used to indicate a multi-level menu cascade.	Click Settings> Network> Set network type .
Bold	Bold formatting is used for buttons, menus, page names, and other UI elements.	Click OK .
Courier font	Courier font is used for commands	Run the <code>cd /d C:/window</code> command to enter the Windows system folder.
<i>Italic</i>	Italic formatting is used for parameters and variables.	<code>bae log list --instanceid</code> <i>Instance_ID</i>
[] or [a b]	This format is used for an optional value, where only one item can be selected.	<code>ipconfig [-all -t]</code>
{ } or {a b}	This format is used for a required value, where only one item can be selected.	<code>switch {active stand}</code>

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1.What is Database Gateway?

Database Gateway is a database connection service for remote access to on-premises databases or databases that are hosted on third-party clouds. Database Gateway allows you to connect an on-premises database or a database that is hosted on a third-party cloud to Alibaba Cloud in a secure manner at low costs. You can also integrate Database Gateway with other Alibaba Cloud services, such as Data Transmission Service (DTS), Database Backup (DBS), and Data Management (DMS).

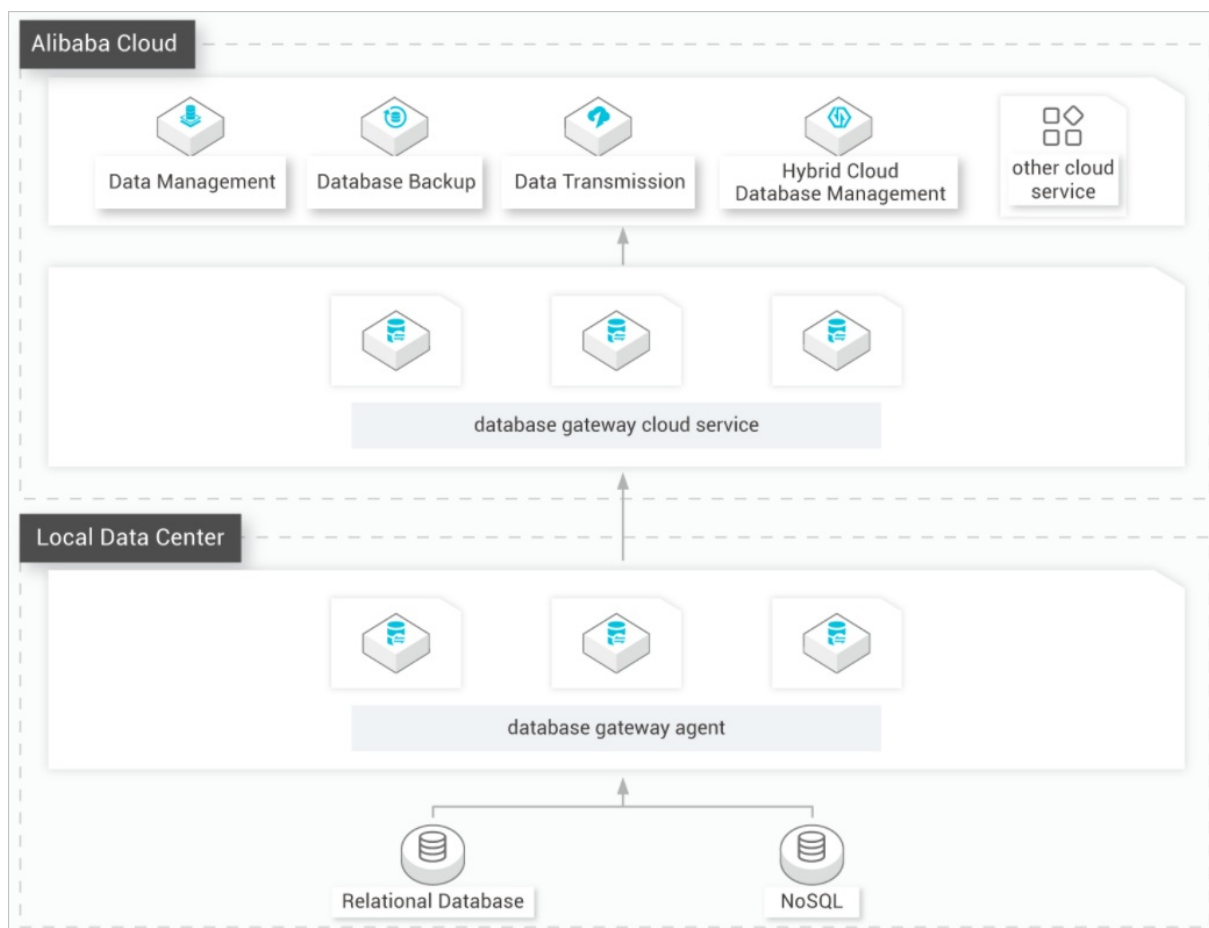
User guide

If you are using Database Gateway for the first time, perform the following steps:

1. [Before you begin](#)
2. [Create a database gateway](#)

2.How it works

Database Gateway provides the connection service for remote access to private databases. Through Database Gateway, you can use applications or cloud services to access and manage your on-premises databases or databases from other cloud service providers.



Database Gateway works as follows:

1. Database Gateway Agent is installed locally.
2. Database Gateway Agent establishes secure and trusted channels with Database Gateway Cloud Service. Channels established by different accounts and database gateways are isolated from each other.
3. When you use a cloud database service such as Data Management or Database Backup to access your private on-premises database, the database service accesses your on-premises network through the established channel.

3. Benefits

Database Gateway provides secure, reliable, and cost-effective database connection services.

- Security:
 - Database Gateway does not require you to open the service ports of databases to the Internet because account permissions are authenticated at each network layer. Database Gateway also transmits data over HTTPS to implement natural asymmetric encryption.
 - Before a Database Gateway agent establishes a channel to the Database Gateway server, the agent requests the Database Gateway server to assign a token. After the agent receives the token, it encrypts the token and uses the encrypted token to perform identity verification on the Database Gateway server. This ensures that the channel is available to only the user who creates the database gateway. The token expires in 5 minutes after it is generated and can be verified only once.
 - Database Gateway transmits data over HTTPS to implement natural asymmetric encryption.
 - When you use Alibaba Cloud services to access databases that are not deployed on Alibaba Cloud, you can call API operations to obtain only a list of the database gateways that are created by your account. This prevents unauthorized access to database gateways and on-premises databases that are connected to the database gateways.
 - When you use Alibaba Cloud services to access on-premises databases that are connected to a database gateway, you must provide the AccessKey pair and the database gateway ID to pass authentication. This prevents unauthorized access to your on-premises databases.
 - When you install and start a Database Gateway agent on an on-premises server, you must provide the Alibaba Cloud account information and the gateway verification code to pass authentication. Channels that are established between Database Gateway agents and Database Gateway are identified by Alibaba Cloud AccessKey pairs and database gateway IDs.
- Ease of use: Database Gateway does not require complex network and routing configurations. You can use an AccessKey pair to connect your databases to Alibaba Cloud in a few minutes.
- Cost-effectiveness: Database Gateway provides free database connection services. Database Gateway agents can run on servers that have available memory. Therefore, you do not need to separately purchase Elastic Compute Service (ECS), Virtual Private Cloud (VPC), or Express Connect. In terms of data transmission, Database Gateway compresses data before it transmits data over the Internet. This reduces network costs.
- High availability: On-premises servers are configured in disaster recovery mode. You can deploy multiple nodes to implement disaster recovery across servers or data centers. Database Gateway automatically performs disaster recovery across data centers. This ensures that connections can be recovered in seconds after disconnection.
- End-to-end ecosystem services: Database Gateway is gradually integrated with Alibaba Cloud database services to form an end-to-end ecosystem. The ecosystem covers cross-cloud, cloud-based, and on-premises services, which include database migration, disaster recovery, cross-database JOIN operations, data analysis, and data security. Database Gateway allows you to use integrated database services from Alibaba Cloud.

4.Scenarios

Database Gateway allows your Alibaba Cloud database services to access and manage on-premises databases or databases that are hosted on third-party clouds. You can also integrate Database Gateway with other Alibaba Cloud services to provide a wide range of solutions.

Manage databases across clouds in a centralized manner

DMS is an all-in-one data management service that supports data management, schema management, access security, security audit, data trend analysis, and data tracking.

Database Gateway works with DMS to provide highly stable, cost-effective, and centralized solutions for you to manage databases that are not hosted on Alibaba Cloud. These databases can be deployed in on-premises data centers, on third-party clouds, or on servers of third-party clouds. This helps you manage databases across clouds in a centralized manner.

Migrate data from on-premises databases or databases on third-party clouds to Alibaba Cloud

DTS supports data transmission between data sources such as relational database management systems (RDBMSs), NoSQL databases, and online analytical processing (OLAP) databases. DTS provides the data migration, change tracking, and data synchronization features to help you build data architectures that feature security, scalability, and high availability.

Database Gateway works with DTS to connect on-premises databases or databases on third-party clouds to Alibaba Cloud at a low cost. When you use DTS to migrate, synchronize, and change tracking of data, you can specify a database that is connected to a database gateway as the source or destination database.

Synchronize data from on-premises databases or databases on third-party clouds to Alibaba Cloud databases

You can use **DTS** to synchronize data from on-premises databases or databases on third-party clouds to your Alibaba Cloud databases. For more information, see [Design concept of real-time data synchronization](#).

Back up on-premises databases or databases on third-party clouds to Alibaba Cloud

DBS is a cost-effective and reliable database management service that allows you to back up and restore data. Database Backup supports data restoration in seconds and provides data backup capabilities for Data Lake Analytics. Database Backup allows you to build an enterprise-level data backup platform for hybrid cloud databases. These databases can be deployed in on-premises data centers or on third-party, private, and public clouds.

Database Gateway works with DBS to back up on-premises databases or private databases on third-party clouds to Alibaba Cloud storage services at a low cost. When you configure a backup schedule of the logical backup mode, you can specify a database that is connected to a database gateway as the source database.

Use cases

For more information about scenarios of Database Gateway, see [Use cases](#).

5. Use cases

Database Gateway provides secure, reliable, and cost-effective database connection services. This topic describes how Database Gateway helps Baixing.com resolve business challenges.

Baixing.com Co., Ltd

- Industry: classified information service provider
- Company website: <https://www.baixing.com/>

Company profile

Baixing.com Co., Ltd was established on March 1, 2005. Baixing.com provides leading classified information services and sets a model for asset-light Internet companies in China. Baixing.com is a one-stop information platform that provides local life services. These services include community services, recruitment and job hunting, house rentals and sales, second-hand car trading, second-hand transactions, education and training, and dating in the same city. Baixing.com also provides comprehensive and precise marketing solutions for small and medium-sized merchants.

Challenges

Baixing.com was confronted with the following challenges when databases are migrated across clouds:

- The migration requires the company to open the service ports of the databases to the Internet. This causes potential security risks.
- The migration requires a VPN or a dedicated connection. This incurs high costs.

Solutions

Alibaba Cloud provides a solution that integrates Database Gateway with Alibaba Cloud Data Transmission Service (DTS) to help Baixing.com migrate private databases across clouds. This solution does not require Baixing.com to open the service ports of the databases to the Internet. Baixing.com needs only to install Database Gateway agents on database servers to connect databases to Alibaba Cloud. Database Gateway also provides the compressed data transmission and high concurrency features to facilitate long-distance data migration.

Customer values

- Database Gateway allows Baixing.com to migrate private databases across clouds on the premises that service ports of databases are not open to the Internet. This way, Alibaba Cloud services can directly access private databases that are deployed in on-premises data centers. This ensures data security during the migration process.
- Database Gateway provides the compressed data transmission and high concurrency features to facilitate long-distance data migration.
- Database Gateway integrates with DTS to migrate data to Alibaba Cloud in a few simple steps.

Customer remarks

"Alibaba Cloud Data Transmission Service and Database Gateway help us migrate databases across clouds in a secure and reliable manner. This ensures data security of the stores and consumers at our website and reduces our costs."