

# TencentDB for SQL Server

## FAQs



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# FAQs

## Overview

Last updated: 2024-09-08 23:14:34

This article lists common issues encountered while using TencentDB for SQL Server, making it convenient for you to search and get solutions to common problems.

### Note

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# Model Selection

Last updated: 2024-09-08 23:14:49

## How do I select an appropriate architecture of TencentDB for SQL Server?

TencentDB for SQL Server architecture supports single-node (originally Basic Edition) and dual-node (originally High-availability/Cluster Edition) setups. To ensure high availability of instances, we recommend opting for the dual-node architecture (originally High-availability/Cluster Edition) and deploying across AZ for high availability<1>. If your application has a strong dependency on SA permissions, a single-node (originally Basic Edition) may be selected. The differences between architectural versions are as follows:

- Two-node (formerly high-availability/cluster edition):
- SQLServer 2008 R2, 2012, 2014, 2016 Enterprise/Standard versions use Database Mirroring for high-availability replication, providing second-level automatic switching and "zero" data loss reliability.
- SQL Server 2017, 2019 Enterprise/Standard, 2022 Enterprise: They adopt AlwaysOn technology to build a high-performance, high-availability, high-reliability, and easy-maintenance SQL Server cluster.
- Single-node (formerly basic edition): It is deployed on a single node with storage/computing separation, uses premium cloud disks for three-copy storage to avoid data losses, and fully opens up its SA permissions.

For detailed differences in architecture versions, see [Product Architecture](#) and [Instance Types](#).

## How do I select the architecture and version of TencentDB for SQL Server if a read-only feature is required?

If read-only access is needed, it is recommended to use SQL Server 2017 Enterprise, SQL Server 2019 Enterprise, or SQL Server 2022 Enterprise editions with the dual-node architecture (originally High-availability/Cluster Edition) for more efficient and stable data synchronization. For details, see [Read-only Instance Overview](#) and [Read-only Instance Specifications](#).

## How is the performance of TencentDB for SQL Server?

TencentDB for SQL Server provides the single-node architecture (formerly basic edition) and primary/replica two-node architecture (formerly high-availability/cluster edition):

- The highest TPM of the single-node architecture (formerly basic edition - premium cloud disk) is 1.32 million.

- The highest TPM of the single-node architecture (formerly basic edition – SSD) is 1.38 million.
- The highest TPM of the primary/replica two-node architecture (formerly high-availability/cluster edition) is 4.58 million.

For detailed performance, please refer to the [Performance Test Report](#).

## Which specifications does TencentDB for SQL Server support?

For specifications of TencentDB for SQL Server single-node (originally Basic Edition) and dual-node (originally High-availability/Cluster Edition) master instances, see [Master Instance Specification List](#). For read-only instance specifications, see [Read-only Instance Specification List](#).

## How do I select an appropriate TencentDB for SQL Server instance specification?

TencentDB for SQL Server specifications can be chosen based on capacity and performance. Capacity is determined by data storage needs. For supported instance specifications, see [Master Instance Specification List](#) and [Read-only Instance Specification List](#). For performance, refer to [Performance Test Report](#).

## In which regions is TencentDB for SQL Server available?

For TencentDB for SQL Server supported deployment regions and AZs, please refer to [Regions and AZs](#).

## What versions does TencentDB for SQL Server support?

For supported versions, please see [Engine and Version](#).

## How is the compatibility of TencentDB for SQL Server?

TencentDB for SQL Server is backward compatible. For example, you can upgrade or migrate TencentDB for SQL Server 2016 to 2019 but cannot downgrade or migrate TencentDB for SQL Server 2019 to 2016.

## What features does TencentDB for SQL Server offer?

Features supported by different series versions of TencentDB for SQL Server may vary. For details, see [Feature Overview and Differences](#) and [Constraints and Limitations](#).

## What are the differences in the features supported by different versions of TencentDB for SQL Server?

For features supported by different versions of TencentDB for SQL Server and their differences, please see [Feature Overview and Differences](#).

## How many databases can I create at most in a TencentDB for SQL Server instance?

From a performance perspective, having too many databases in TencentDB for SQL Server can lead to a decline in instance performance, occupy Worker Thread resources, and exceed the limit for the number of databases, potentially causing primary–secondary synchronization anomalies. It is recommended not to exceed the maximum limit of databases per instance. The number of databases an instance can support is related to the instance CPU cores. For detailed formulas on the maximum number of databases per version, refer to [Database Quantity](#).

You can also use SSMS to connect to the instance and create databases, and databases created via SSMS will be automatically synced to the replica instance. However, to avoid exceptions during primary–replica sync, we recommend that you not create more databases than the specified limit.

## Does TencentDB for SQL Server support real-time hot backup?

TencentDB for SQL Server two-node (formerly high-availability/cluster edition) instances support real-time hot backup in a one-primary-one-replica architecture.

## What are the use cases of TencentDB for SQL Server?

TencentDB for SQL Server is suitable for various application scenarios including industry tools, mobile offices, gaming, medical, pharmaceuticals, media, Internet, IoT, retail, e-commerce, logistics, insurance, securities, technical services, automotive, travel, finance, and more. For details, see [Application Scenarios](#).

## What high availability and disaster recovery capabilities does TencentDB for SQL Server have?

TencentDB for SQL Server provides disaster recovery capabilities at different levels, including instance, server, data center, AZ, and region, to ensure the business continuity on healthy systems with the minimum data loss in case of natural disasters, device failures, and maloperations.

Backup is the basis of all disaster recovery systems and the last line of defense in the high data availability architecture. TencentDB for SQL Server features rich backup capabilities, ensuring that the data can be restored quickly even after a total system crash to guarantee the business continuity as much as possible.

TencentDB for SQL Server provides instances in various architectures with guaranteed high availability:

- A SQL Server 2008R2/2012/2014/2016 Enterprise two-node (formerly high-availability/cluster edition) instance is in the primary/replica two-node architecture, where the underlying layer is deployed on a physical machine. It supports the database mirroring (high-availability replication) scheme to implement automatic HA switch within seconds.
- In two-node (formerly high-availability/cluster edition) instances, SQL Server 2017/2019/2022 Enterprise versions feature primary/replica nodes deployed on physical machines. They use AlwaysOn technology to build a high-performance, high-availability, high-reliability, and easy-maintenance SQL Server cluster, offering HA automatic switch in seconds.
- A single-node (formerly basic edition) instance is in the single-node architecture, where the underlying layer is deployed in a CVM instance, storage and computing are separated, and data is stored in three copies in premium cloud disk to avoid data loss. In extreme cases where an instance fails, a new instance will be started to automatically restore the data from data and log backups. The specific restoration time is subject to the data volume. The servers of two TencentDB instances are usually on the same physical machine.

For intra-region disaster recovery, TencentDB for SQL Server provides multi-AZ deployment capabilities. Different AZs in the same region are interconnected over the private network, and failures can be isolated between AZs. For instances in the primary/replica two-node architecture, the primary and replica instances can be deployed in different AZs in the same region (for example, one primary instance in the primary AZ and one replica instance in the replica AZ). This improves the business continuity and guarantees the data availability in case of instance failures or AZ disconnections. You can also manually switch between the primary and replica instances in the console to verify the business robustness. Switches within the same AZ and between different AZs are imperceptible to the application.

For remote disaster recovery, cross-region backup capabilities are offered to store backup files in another region. You can set the cross-region backup retention period and multiple backup regions. After a cross-region backup policy is enabled, the instance backup files will be automatically stored in the target region. In this way, if an instance in a region fails, you can restore its backup files in the remote region to a new instance there for guaranteed business continuity. Cross-region backup implements the high availability of database restoration and meets the requirements for data availability and security, remote backup and restoration, remote disaster recovery, long-term data archive, and regulation compliance.

In addition, TencentDB for SQL Server also has rich backup capabilities to guarantee the data security and prevent data loss or corruption. Specifically, you can configure automatic backup, manual backup, data backup, log backup, backup file format (unarchived files or archive file), instance backup, and multi-database backup. You can also customize the backup policy, backup retention period (7-1,830 days), and backup cycle.

Moreover, TencentDB for SQL Server comes with comprehensive disaster recovery capabilities at both the data and business management layers. Cross-region disaster recovery for databases is meaningful only if the business also features cross-region disaster recovery. However, cross-region distributed deployment of the business inevitably causes the split-brain problem. At the business management layer, the business is deployed in three AZs (two intra-region AZs and one remote AZ) to ensure the business continuity. Before an actual failover occurs, the system will always check whether the database sync status (database sync system table) is normal to avoid faulty failover.

## What strengths does TencentDB for SQL Server have?

TencentDB for SQL Server is licensed by Microsoft to continuously provide you with the latest features, so you can avoid any risks arising from unauthorized software use. It features out-of-the-box usage, high stability, reliability, and security, elastic scaling, data security protection, and failover in seconds, allowing you to focus on application development.

- **Diverse editions:** Two deployment architectures are available, namely, single-node architecture (formerly basic edition) and two-node architecture (formerly high-availability/cluster edition), to comprehensively guarantee the high service availability.
- **Official license:** Licensed by Microsoft, TencentDB for SQL Server continuously provides you with the latest features, helping you avoid the risks of using unauthorized software and enhance the trustworthiness of your business in competitive markets.
- **Excellent performance:** The new ultra-high specification of 90-core 720 GB MEM is released, with a TPM of up to 4.5 million. Both performance and cost performance have been improved by more than 30% once again, breaking Tencent Cloud's own performance record in the industry.
- **High stability and reliability:** TencentDB for SQL Server delivers a 99.9996% data reliability and 99.95% service availability. It provides easy-to-use cloud-based control capabilities, such as monitoring and alarming, backup and restoration, data migration, and elastic scaling.
- **Ease of management:** Various management tasks can be finished with ease in the Tencent Cloud console or SSMS, such as database management, permission configuration, and monitoring and alarming. This eliminates your concerns over database installation and Ops.
- **Monitoring and alarming:** Dozens of key metrics can be viewed in the console, such as the number of connections and requests, disk I/O, and buffer hit rate, helping you comprehensively monitor database conditions and accurately understand the database load and system health. User-defined resource threshold alarms are supported to help you discover database exceptions timely and resolve potential system problems quickly.
- **BI: SSIS + BI analysis services** are provided, which integrate data storage, ETL, and visual analysis to help meet your diversified needs in various use cases, including BI analysis, high-value data mining, and primary data management system setup.

## What strengths does TencentDB for SQL Server have over self-built SQL Server?

TencentDB for SQL Server has the following strengths over self-built databases:

Feature	TencentDB for SQL Server	Self-Built SQL Server
Service availability	Please refer to the <a href="#">Service Level Agreement</a> .	You have to guarantee the service availability and set up primary/replica replication and RAID capabilities on your own.
System security	Anti-DDoS is supported, and various database security vulnerabilities are fixed in time. The data security meets all mainstream national and international security standards.	You have to deploy security services and fix vulnerabilities on your own at high costs. Security compliance is not guaranteed, and the security requirements cannot be quickly met.
Database performance	High-performance devices, excellent performance, TPM of up to 4.5 million. For more information, see <a href="#">Performance Test Report</a> .	General devices without optimization and fine-tuning are used.
Software and hardware investment	No hardware or software investment is required, and the service is pay-as-you-go.	Database servers are costly.
System hosting	There are no hosting fees.	The hosting fees are high.
Deployment and scaling	The out-of-the-box service can be quickly deployed and elastically scaled.	You have to purchase hardware devices, host them in data centers, and deploy them on your own. You also have to solve stability problems and set up many supporting modules and management tools, which require heavy investments in technology and take a long period of time.

Resource utilization	The service is billed by the actual usage and supports elastic scaling to ensure a high resource utilization.	You have to consider traffic spikes, and the resource utilization is low.
Data disaster recovery	Primary/replica replication and backup are configured by default. Both intra-region and cross-region disaster recovery schemes are supported, such as multi-AZ deployment and cross-region backup.	You have to find the backup storage space and regularly verify whether backups can be restored, which cost more money and time.
Control and management services	Comprehensive cloud-based instance lifecycle management capabilities are available for various objects, including monitoring and alarming, backup and restoration, instance, database, account, network, parameter, and log.	All control capabilities require user construction.
Procurement costs	Instances are priced transparently and even more cost-effective than CVM.	In addition to instances, you also have to set up disaster recovery, monitoring, and management systems on your own at totally uncontrollable costs.
License	Official licenses from Microsoft continuously provide you with the latest features, eliminating your need to purchase additional licenses.	Pirated services lead to legal risks, while official licenses are expensive.
Ops costs	No need for user maintenance. Tencent Cloud provides quality service with a 24/7 professional team for large customers.	You have to hire dedicated DBAs for database maintenance, which incurs high labor costs.

## How do I migrate data to TencentDB for SQL Server?

TencentDB for SQL Server supports self-built databases in local IDCs, self-built databases on Tencent Cloud CVM servers, self-built databases on other cloud vendors' CVM, other cloud vendors' cloud databases, and migration of Tencent Cloud databases to TencentDB for SQL Server. It supports [Cold Backup Migration](#) and [Migration with DTS](#). You can choose the appropriate migration method based on your business scenario.

- If your business allows you to shut down the database for backup, you can use [Cold Backup Migration](#), i.e., restoring data from .bak backup files to migrate the source database to TencentDB for SQL Server. You can download COS files or upload local files for migration. Three data restoration modes are supported: full backups, full backups + log backups, and full backups + differential backups.
- If your business doesn't allow you to shut down the database and requires smooth migration, you can [Migrate with DTS](#). DTS supports two migration modes: full migration and full + incremental migration. It supports multiple access types, such as public network, self-built cloud hosts, Direct Connect, VPN access, CCN access, and cloud databases.

# Billing and Selection

Last updated: 2024-09-08 23:14:57

## How is TencentDB for SQL Server priced?

TencentDB for SQL Server comes with a genuine Microsoft license and uses both annual and monthly subscription (prepaid) and pay-as-you-go (postpaid) billing models.

The price consists of two parts: instance specifications (memory capacity) and storage space (hard disk capacity). For pricing details for different regions, please see [Product Pricing](#).

## How do I purchase TencentDB for SQL Server?

Log in to [SQL Server Console](#) to create an instance or directly log in to [Purchase Page](#) to buy an instance.

## Do I have to buy an SQL Server license?

Tencent Cloud provides a "license included" model for its cloud database. The "license included" pricing includes a SQL Server software license, underlying hardware resources, and TencentDB management features, so you don't need to purchase a Microsoft SQL Server license separately.

By using databases with an included license model, you can pay for the service based on instance specifications and usage time without having to consider hardware costs and licensing fees. High fixed costs are transformed into smaller variable costs, reducing your IT expenses.

### Note

- Purchasing TencentDB for SQL Server does not mean you have a long-term contract for the Microsoft SQL Server license; therefore, do not use the TencentDB license outside of authorized locations and times. For more information, please see [Microsoft Volume Licensing Service Provider Usage Rights](#).
- The basic price of TencentDB for SQL Server does not include other Microsoft or Tencent Cloud services.

## Does TencentDB for SQL Server come with a genuine Microsoft license?

TencentDB for SQL Server has a genuine Microsoft license.

## What is the renewal process for TencentDB for SQL Server?

Renewal operations refer to the extension of the instance usage duration and support two renewal operations:

- In the [SQL Server console](#), on the **Instance List** page, select the relevant instance, click **Renew** or choose **More Actions > Set up Auto Renewal**.
- In the [Billing Center](#), on the Renewal Management page, select the Cloud Database (SQL Server) items awaiting renewal, choose the appropriate instance, click **Renew** or **Renew in Bulk**.

For details, refer to [Renewal Instructions](#).

## How to handle a refund request for TencentDB for SQL Server purchased in the wrong region?

You can request a refund based on your instance type:

- **On-Demand instances:** TencentDB for SQL Server can be directly released, but refunds cannot be applied for.
- **Monthly subscribed instance:**
- **5-day unconditional self-service return:** Each account can return one monthly subscribed prepaid TencentDB for SQL Server instance unconditionally within five (inclusive) days after purchase by default.
- **Standard return:** If you have already returned one TencentDB instance unconditionally within five days after purchase, you can further return 199 monthly subscribed instances in the console at any time.
- For a pay-as-you-go instance switched to monthly subscription TencentDB, the 5-day unconditional return is not supported.
- If there is suspected abnormal/malicious return, Tencent Cloud reserves the right to reject your return request. For refund details, please read the refund instructions and notes, please refer to [Refund](#).

## What happens if the SQL Server instance expires and payment is overdue?

- **Monthly subscribed instance:**
- The system will send renewal notifications via email, in-site messages, and SMS 7 days before the expiration of your SQL Server resources.
- If your cloud service is not renewed before expiry (including the expiry date), the system will start suspending it at the expiry time (disconnect and shut down the device, only data will be retained).
- If the cloud database resources expire for more than seven days, they will be reclaimed by the system and the data will be cleared and unrecoverable.

- For a pay-as-you-go instance:
- From the moment the balance becomes negative: within 24 hours, the SQL database can still be used and charges will continue. After 24 hours, the database instance will be isolated, and isolated instances cannot be accessed, and billing will stop.
- After automatic shutdown: Within 3 days of shutdown, if your account balance is not topped up to a positive amount, you will not be able to start it; if the balance becomes positive, billing continues, and you can start it; if the account balance remains negative for 3 days, the pay-as-you-go database will be reclaimed and all data will be cleared and cannot be recovered. For details, please refer to [Notes on Overdue Payment](#).

## What are the differences between annual and monthly subscription and pay-as-you-go billing?

- Annual and Monthly Subscription: Also known as prepaid, where you pay when creating an instance. Suitable for long-term needs, it is more cost-effective than pay-as-you-go, and the longer the duration, the more discounts. Monthly subscribed instances do not support conversion to pay-as-you-go instances.
- Pay-as-you-go: Also known as postpaid, a billing order is generated every hour, and the fee is deducted from your Tencent Cloud account according to the instance specifications at the time the order is generated. Suitable for short-term needs, instances can be released immediately after use, saving costs. Pay-as-you-go can be converted to a monthly subscription. For details, refer to [Pay-as-You-Go to Monthly Subscription](#).

## Can monthly subscription and pay-as-you-go billing be converted to each other?

Pay-as-you-go can be converted to a monthly subscription. For details, refer to [Pay-as-You-Go to Monthly Subscription](#).

Monthly subscription instances do not support conversion to pay-as-you-go instances.

## What impact does switching the billing mode from pay-as-you-go to monthly subscription for TencentDB for SQL Server have on my business? How will I be charged?

Rest assured that access to your business will not be affected during the billing switch from pay-as-you-go to monthly subscription. For billing details, please refer to [Product Pricing](#).

## Are there any differences in the features supported by monthly subscription and pay-as-you-go?

The supported features are basically the same. For specific details on each feature, you can view [Feature Overview](#).

## Will I be charged if my TencentDB for SQL Server pay-as-you-go instances are idle?

Pay-as-you-go instances will be continuously charged. If an instance is no longer used, please [terminate the instance](#) promptly to avoid further fees.

## What should I do if the inventory of TencentDB for SQL Server instances in a particular availability zone is insufficient?

If the desired availability zone lacks sufficient inventory of TencentDB for SQL Server instances, you have the following options:

- Purchase an instance in another availability zone within the same region. Once the target availability zone has been restocked, you can migrate the instance there. Detailed steps can be found in [Migrating Across AZs](#). Instances in different availability zones within the same region can communicate internally, so your usage will not be affected. This method is recommended.
- If your business needs are not urgent, you can wait until the target availability zone has sufficient inventory before purchasing. Due to varying supply chain conditions, the time required to restock is uncertain.

If you have a large procurement need for TencentDB for SQL Server, you can also [submit a work order](#) to contact us for resource reservation. We will coordinate resources in advance to ensure timely usage for you.

## How can I view the spending bill for TencentDB for SQL Server?

You can view your available balance, transaction details, fees incurred by SQL Server, top up your account, etc., through the Billing Center in the Tencent Cloud Console. For specific details, see [Viewing Bill Details](#).

## How do I terminate a TencentDB for SQL Server instance?

According to your business needs, you can self-return pay-as-you-go and monthly subscription instances via the console. For details, see [Terminate Instance](#).

## Can a terminated TencentDB for SQL Server instance be restored?

Terminated instances will be placed in the Recycle Bin and can be restored from there.

- Monthly subscription instances in the Recycle Bin: Instances in the Recycle Bin are kept for 7 calendar days. If not renewed within 7 calendar days, the system will release the resources and they cannot be recovered.
- Pay-as-you-go instances in the Recycle Bin: User-terminated instances are kept in the Recycle Bin for 24 hours in the absence of overdue payments. If not renewed on time, the

system will release the instance resources after the 24-hour retention period, and they cannot be recovered.

## Can TencentDB for SQL Server instances in different AZs within the same region communicate via intranet?

Instances in different availability zones within the same region can communicate via intranet addresses.

## Can CVM instances and TencentDB for SQL Server instances in different availability zones within the same region communicate? What is the latency?

CVM instances and TencentDB for SQL Server instances in different availability zones within the same region and the same VPC can communicate via intranet addresses. Latency is generally around 0.5 milliseconds.

## Can the region of a TencentDB for SQL Server instance be changed?

The region cannot be changed after the instance is purchased. You can use [DTS](#) to migrate data to the instance in the desired region and then [destroy the original instance](#).

## Can the availability zone of a TencentDB for SQL Server instance be changed?

In general, there is no need to change the availability zone. If it is necessary due to special reasons, please refer to [Migrating Across AZs](#).

## Should I choose a single AZ or multiple AZs for a TencentDB for SQL Server Dual Node (formerly High Availability/Cluster Edition) instance?

AZs within the same region are interconnected via intranet, and isolation between AZs ensures fault tolerance. If your application requires high disaster recovery capabilities, it is recommended to deploy instances in different AZs within the same region. For details, see [Multi-AZ Disaster Recovery](#).

## How do I purchase a multi-AZ TencentDB for SQL Server instance?

Log in to [SQL Server Console](#). In the instance list, click New Instance to enter the purchase page. On the TencentDB for SQL Server purchase page, select a supported region, and choose a desired replica AZ in the **Multi-AZ** option. Note that only some AZs support replicas. Please check the available replica AZs on the purchase page.

## How do I upgrade a single AZ TencentDB for SQL Server instance to a multi-AZ instance?

Log in to [SQL Server Console](#). In the instance list, select the instance you want to upgrade, and click **Adjust Configuration** to enter the adjustment page. In the deployment options, select **Multi-AZ Deployment**, and choose a desired replica AZ. For details, see [Upgrade to Multi-AZ](#).

## How do I restart TencentDB for SQL Server?

Instance restart is a common maintenance method for TencentDB for SQL Server. Restarting an instance is similar to restarting a local database. For details, see [Restart Instance](#).

## How do I view and manage TencentDB for SQL Server instances?

Log in to [SQL Server Console](#). In the instance list, you can view instance information and manage instances. For details, see [Manage SQL Server Instances](#).

## What tags can be used for categorized management of TencentDB for SQL Server resources?

As business grows, the number of devices and instances that need management increases. Proper categorization and maintenance of resources are essential in resource management. Users can add descriptive details to TencentDB for SQL Server instances through [Modify Instance Name](#), [Set Instance Remarks](#), [Set Instance Tag](#), and [Set Instance Project](#) to facilitate better management and differentiation of resources.

## What is the purpose of an instance name for TencentDB for SQL Server and how do I modify it?

The instance name is mainly used to distinguish and manage SQL Server instances. The instance name can be modified through the console. For details, see [Modify Instance Name](#).

## What is the purpose of instance remarks for TencentDB for SQL Server and how do I set them?

TencentDB for SQL Server supports user-defined remarks that add descriptive details to instances, facilitating better management and differentiation of resources. For details, see [Set Instance Remarks](#).

## What is the purpose of instance tags for TencentDB for SQL Server and how do I set them?

Tag is a marker provided by Tencent Cloud to label cloud resources. It consists of a key-value pair and can be used to categorize TencentDB for SQL Server resources by various

dimensions (such as business, purpose, owner, etc.). Tags make it convenient to filter and select the corresponding resources. For details, see [Set Instance Tag](#).

## **What is the purpose of instance projects for TencentDB for SQL Server and how do I set the project for an instance?**

The project feature is used to manage cloud resources by project, allowing for project-specific resource management. When creating a TencentDB for SQL Server instance, it must be assigned to a project. Users can create multiple projects within one account, each managing different resources, and assign various instances to different projects. For details, see [Set Instance Project](#).

# Connection and Network

Last updated: 2024-09-08 23:15:05

## How do I create an instance and connect to a database?

You can manage databases in the SQL Server Management Console page. For detailed directions, see [Creating and Connecting to Database](#).

## How do I connect to TencentDB for SQL Server?

1. To connect to TencentDB for SQL Server from a Windows CVM instance, we recommend you connect over the private network, which has a higher transfer speed and security. The following three prerequisites must be met before you can do so:
  - The CVM and TencentDB for SQL Server instances are under the same Tencent Cloud root account.
  - The CVM and TencentDB for SQL Server instances are in the same region.
  - The CVM and SQL Server network types are both VPC and are in the same VPC, or the CVM and SQL Server network types are both in the classic network.For more information, see [Connecting to SQL Server Instance from Windows CVM](#). If the CVM and SQL Server are under different Tencent Cloud root accounts, in different regions under the same root account, or in different VPCs in the same region under the same root account, we recommend using [CCN](#) for interconnection.
2. If connecting to TencentDB for SQL Server from a local network, it is recommended to use [VPN](#), [Direct Connect](#), or [CCN](#) for intercommunication, ensuring high security and reliable network latency. If cost is a consideration, public network intercommunication is possible, including [directly enabling a public network address](#) and [using CLB to enable the public network](#) in the console. For more details, please refer to [Connecting to SQL Server Instances from a Local Network](#).

If your TencentDB for SQL Server instance is in the dual-node (original High-Availability/Cluster Edition), you can use CLB to enable public network access.

## How do I access a TencentDB for SQL Server instance from a CVM instance over the private network?

To connect to a TencentDB for SQL Server instance from a CVM instance over the private network, the following three prerequisites must be met:

- The CVM and TencentDB for SQL Server instances are under the same Tencent Cloud root account.
- The CVM and TencentDB for SQL Server instances are in the same region.

- The CVM and SQL Server network types are both VPC and are in the same VPC, or the CVM and SQL Server network types are both in the classic network.

For more information, see [Connecting to SQL Server Instance from Windows CVM](#).

## What should I check when interconnecting a CVM instance and a TencentDB for SQL Server instance over the private network?

To connect to a TencentDB for SQL Server instance from a CVM instance over the private network, the following three prerequisites must be met:

- The CVM and TencentDB for SQL Server instances are under the same Tencent Cloud root account.
- The CVM and TencentDB for SQL Server instances are in the same region.
- The CVM and SQL Server network types are both VPC and are in the same VPC, or the CVM and SQL Server network types are both in the classic network.

## How do I view the private network address of a TencentDB for SQL Server instance?

Log in to [SQL Server Console](#), view in the instance list, or click the instance ID to enter the instance details page.

## How do I access a TencentDB for SQL Server instance from a CVM instance under another Tencent Cloud root account?

CVM and TencentDB for SQL Server instances under different accounts cannot interconnect over the private network. We recommend migrating the TencentDB for SQL Server instance to the CVM owner's account.

If you need to keep the CVM and TencentDB for SQL Server under different Tencent Cloud accounts, ensure their network types are both VPC, and create CCN between the two VPCs for interconnection through [CCN](#).

## How do I interconnect a CVM instance and a TencentDB for SQL Server instance in different regions under the same Tencent Cloud root account over the private network?

CVM instances and TencentDB for SQL Server instances in different regions cannot interconnect over the private network. Only instances in the same region can interconnect over the private network, either in the same or different Availability Zones.

If you need to keep the CVM and TencentDB for SQL Server in different regions, ensure their network types are both VPC, and create CCN between the two VPCs for interconnection through [CCN](#).

## How do I interconnect a CVM instance and a TencentDB for SQL Server instance in different VPCs in the same region under the same Tencent Cloud root account over the private network?

CVM instances and TencentDB for SQL Server instances in different VPCs cannot interconnect over the private network. We recommend migrating the TencentDB for SQL Server instance to the VPC of the CVM instance.

If you need to keep the CVM and TencentDB for SQL Server in different VPCs, create CCN between the two VPCs for interconnection through [CCN](#).

## How do I interconnect a CVM instance and a TencentDB for SQL Server instance in different types of networks in the same region under the same Tencent Cloud root account over the private network?

CVM and TencentDB for SQL Server instances in different types of networks cannot interconnect over the private network. We recommend you change the classic network of the CVM or TencentDB for SQL Server instance to VPC and ensure that the instances are in the same VPC for interconnection over the private network.

## How do I interconnect a CVM instance and a TencentDB for SQL Server instance in different AZs in the same region under the same Tencent Cloud root account over the private network?

CVM and TencentDB for SQL Server instances in different AZs in the same region may or may not be in the same VPC.

- If they are in different AZs in the same VPC, they can interconnect over private network.
- If the VPCs are different, they cannot interconnect directly over the private network. You need to change the VPC network to ensure the CVM and TencentDB for SQL Server are in the same VPC. For details, see [Changing Network \(VPC to VPC\)](#).

## Can I interconnect a CVM instance and a TencentDB for SQL Server instance in different AZs in the same VPC under the same Tencent Cloud root account?

Yes. Instances in different AZs but in the same VPC interconnect over private network by default.

## How do I access a TencentDB for SQL Server instance from a local server?

If connecting from a local server to TencentDB for SQL Server, it is recommended to use [VPN](#), [Direct Connect](#), or [CCN](#) for intercommunication, offering high security and guaranteed

network latency.

For cost considerations, using the public network for intercommunication is an option, including [directly enabling a public network address](#) and [using CLB to enable the public network](#) in the console. For more details, please refer to [Connecting to SQL Server Instances from a Local Network](#).

If your TencentDB for SQL Server instance is in the dual-node (original High-Availability/Cluster Edition), you can use CLB to enable public network access.

## How do I connect to a TencentDB for SQL Server instance without a CVM instance?

Without a CVM instance, we recommend using [VPN](#) or [Direct Connect](#) or [CCN](#) for network interconnection to connect to TencentDB for SQL Server. For details, see [Connecting to SQL Server Instance from Local System](#).

## How do I switch a TencentDB for SQL Server instance from VPC A to VPC B?

TencentDB for SQL Server Changing VPC networks, see [Changing Networks \(VPC to VPC\)](#).

## How do I switch between the classic network and VPC for a TencentDB for SQL Server instance?

TencentDB for SQL Server only supports switching from Basic Network to VPC, see [Basic Network to VPC](#). The Basic Network will be phased out in December 2022, switching from VPC to Basic Network is not supported.

## How do I migrate a TencentDB for SQL Server instance from classic network to VPC?

TencentDB for SQL Server supports switching from Basic Network to VPC, see [Basic Network to VPC](#).

## How do I enable public network access for a TencentDB for SQL Server instance?

For cloud database instances with dual nodes (formerly high-availability/standard editions), external network addresses can be directly enabled through the console, or external network services can be opened via CLB. For details, see: [Enabling or Disabling External Network Addresses through the Console](#) or [Binding CLB to Enable External Network Services](#).

## How do I use the port mapping feature of SSH2 to connect to and manage a TencentDB for SQL Server instance from the internet?

For security reasons, if external network addresses cannot be opened for business, port mapping with SSH2 can be used for connecting to the instance from the external network for configuration and management. For specifics, see [Connecting to SQL Server Instance from Local](#) with [Port Mapping Using Linux CVM with an External Network IP](#).

## **Does my application need to support automatic reconnection to TencentDB for SQL Server?**

We recommend you configure automatic reconnection for your application for a higher availability. After a database is switched or migrated, the application can recover automatically with no manual intervention needed. We also recommend you use a persistent connection to connect your application to the database, as non-persistent connections consume many resources and compromise the performance.

## **Can I access a TencentDB for SQL Server replica instance?**

TencentDB for SQL Server supports the mode of primary + replica + read-only instances. Only the primary and read-only instances can be accessed, while the replica instance is used for backup only and doesn't support business access.

## **Will a primary/replica switch affect the connection address?**

A primary/replica switch won't change the connection address, but the IP address on the backend will change. There will be a momentary disconnection during the switch.

## **How do I configure a security group in TencentDB for SQL Server?**

A security group is a stateful virtual firewall with filtering features, used for setting network access control for one or more cloud databases, an important means of network security isolation provided by Tencent Cloud. It is a logical grouping where you can add cloud database instances within the same region and with the same network security isolation needs to the same security group.

Cloud databases share the security group list with CVMs etc., with in-group rule-based matching, for details see [Configuring Security Groups](#).

## **Can I use a security group in TencentDB for SQL Server to control the classic network?**

TencentDB for SQL Server security groups currently only support network access control for VPCs and public network but not the classic network.

## **Can I select the SQL Server (1433) port as the type when adding an inbound rule to a security group?**

When adding a security group rule, select SQL Server(1433) under **Type** to open port 1433, for details see [Configuring Security Groups](#).

## How do I set the instance maintenance time in TencentDB for SQL Server?

You can log in to [SQL Server Console](#), in the instance list, click on the instance ID to enter the instance detail page, at **Maintenance Information**, click **Modify**, for details see [Setting Instance Maintenance Information](#).

## Will TencentDB for SQL Server be disconnected during the maintenance?

During the maintenance of TencentDB for SQL Server, in case of data migration, there might be second-level database connection interruptions during instance switching. Please ensure that your service has a reconnection mechanism, for details see [Setting Instance Maintenance Information](#).

## Why can't I connect to TencentDB for SQL Server?

Troubleshoot as follows if you can't connect to TencentDB for SQL Server:

- Check if CVM can normally connect to the TencentDB for SQL Server instance's port address. `telnet <Connection Address> <Port Number>`. If communication is possible, the network is normal. If not, check if the CVM and TencentDB for SQL Server instance are in the same VPC and are using the same security group. For internal network connections, CVM and TencentDB for SQL Server instances must be in the same VPC and can only connect through CVM.
- Check if the connection IP and port number are correct. Note that a "comma" separates the IP and port number.
- Check whether the status of the TencentDB for SQL Server instance is abnormal.
- Check whether the database username and password are correct and try resetting the password.
- Try restarting the TencentDB for SQL Server instance and check whether the problem is resolved.

## How to troubleshoot a failed TencentDB for SQL Server connection?

1. Failed to connect to the SQL Server instance from Windows CVM.

- Troubleshoot network issues
  - Check whether the CVM and TencentDB for SQL Server instances are in the same VPC in the same region.
  - Check the security group rules. When accessing the database inside the security group from outside, you need to [add the corresponding inbound direction rules](#) to the security

group. Check the CVM security group, CVM internal firewall, CVM internal security policies (other custom security policies), and ensure the 1433 port number for the specified database instance IP is open.

- Test on the CVM to see if it can normally connect to the port of the TencentDB for SQL Server instance address. `telnet <connection address> <port number>` . If communication is successful, it indicates that the network is functioning properly.
- Troubleshoot instance issues
  - If the network is normal, check the instance monitoring information in the console. If the instance load is too high or there is no or intermittent monitoring data, the instance is abnormal.

## 2. Failed to connect to the SQL Server instance from a local IDC.

- Troubleshoot network issues
  - To connect from a local server to a cloud database instance, it is necessary to establish network connectivity from on-premises to the cloud. It is recommended to use [VPN](#) , [dedicated line](#) , or [CCN](#) for network interconnection, which offers high security and reliable network latency.
  - Test on the server to see if it can normally connect to the port of the TencentDB for SQL Server instance address. `telnet <connection address> <port number>` . If communication is successful, it indicates that the network is functioning properly.
  - If telnet fails, the network is disconnected, and you need to check local security group policies and VPC routing configurations, open port 1433 for the specified database IP, and perform online and offline CVM instance connectivity tests.
- Troubleshoot instance issues
  - If the network is normal, check the instance monitoring information in the console. If the instance load is too high or there is no or intermittent monitoring data, the instance is abnormal.

# Account and Permission

Last updated: 2024-09-08 23:15:14

## How do I manage the account of a TencentDB for SQL Server instance?

We recommend managing accounts in the [SQL Server Console](#). Click on the instance ID to go to the management page and perform operations on the **Account Management** page, such as [Create Account](#), [Delete Account](#), and [Modify Account Permissions](#). It is not recommended to operate the database directly on the SSMS client.

## How do I manage TencentDB for SQL Server databases?

We recommend managing databases in the [SQL Server Console](#). Click on the instance ID to go to the management page and perform operations on the **DMC** page, such as [Create Database](#), [Delete Database](#), and [Set Database Permissions](#). It is not recommended to operate the database directly on the SSMS client.

## How do I create an account in TencentDB for SQL Server?

We recommend that you create an account in the [SQL Server Console](#). It is not recommended to operate the database directly on the SSMS client. For more information, see [Creating Account](#).

## How do I delete an account in TencentDB for SQL Server?

We recommend that you delete an account in the [SQL Server Console](#). It is not recommended to operate the database directly on the SSMS client. For more information, see [Deleting Account](#).

## How do I modify account permissions in TencentDB for SQL Server?

We recommend that you modify account permissions in the [SQL Server Console](#). It is not recommended to operate the database directly on the SSMS client. For more information, see [Modifying Account Permissions](#).

## How do I create a database in TencentDB for SQL Server?

We recommend that you create a database in the [SQL Server Console](#). It is not recommended to operate the database directly on the SSMS client. For more information, see [Creating Database](#).

## How do I delete a database in TencentDB for SQL Server?

We recommend that you delete a database in the [SQL Server Console](#). It is not recommended to operate the database directly on the SSMS client. For more information, see [Deleting Database](#).

## How do I modify database permissions in TencentDB for SQL Server?

We recommend that you modify database permissions in the [SQL Server Console](#). It is not recommended to operate the database directly on the SSMS client. For more information, see [Setting Database Permissions](#).

## When managing a database with Microsoft SQL Server Management, I was prompted with the message "Login failed. The login is from an untrusted domain and cannot be used with Windows authentication." Why?

Change the authentication method to "SQL Server Authentication".

## Does TencentDB for SQL Server support assigning the sysadmin role to users?

- Dual-node (formerly High Availability/Cluster version) instances: Considering the potential risk of intrusion, the sysadmin role is not enabled by default. If your business absolutely requires the sysadmin role, please [submit a ticket](#) to obtain a solution. When managing databases through Microsoft SQL Server Management, the system may prompt "You must be a member of the sysadmin role to perform this operation."
- Single-node (formerly Basic Edition) instances: The sysadmin role can be provided through the admin account. Note that the admin account has the highest-level sysadmin permission and the owner permissions of all databases. After it is enabled, the product SLA will no longer be guaranteed.

## How do I create an account with SA permissions in TencentDB for SQL Server?

TencentDB for SQL Server dual-node (formerly high availability/cluster) instances: If your business requires the sysadmin role, please [Submit Ticket](#) for a solution. For single-node (formerly basic) versions, authorization can be granted through the console using a super privilege account. Note that the super privilege account has the highest sysadmin permissions and owner permissions for all databases. Once enabled, the product will no longer guarantee instance SLA.

## Can I connect to TencentDB for SQL Server with a Windows system account?

For TencentDB for SQL Server non-single-node (formerly basic) instances, it is currently not supported to connect to cloud SQL Server using Windows system accounts. For single-node (formerly basic) instance connections with Windows system accounts, please [Submit Ticket](#) for assistance.

## What should I do if I forget the login password of TencentDB for SQL Server?

You can <login> to the [SQL Server Console](#), click on the instance ID to go to the management page, and on the **Account Management** page, select **More > Reset Password** to reset the password. For more information, see [Reset Password](#).

## How do I reset the password of TencentDB for SQL Server?

You can <login> to the [SQL Server Console](#), click on the instance ID to go to the management page, and on the **Account Management** page, select **More > Reset Password** to reset the password. For more information, see [Reset Password](#).

## What should I do if I cannot create any database or table?

It is possible that your logged-in account is a business account that does not have permissions to create databases/tables. Please assign permissions to the account in the [SQL Server Console](#). For more information, see [Setting Database Permissions](#).

## Why don't I have permission to modify database parameters such as blocked process threshold(s)?

The issue might arise from the subaccount users not having the permission to modify instance parameters. It should be operated by the primary account or through [CAM CAM](#) to grant the subaccount the necessary permissions.

## Can I have the permission to access and create folders on the server in TencentDB for SQL Server?

Currently, TencentDB for SQL Server doesn't allow you to access and create folders on the instance server.

## Can I view connection details in TencentDB for SQL Server?

Users can use SSMS to connect to the instance and check by themselves. If the permission is insufficient, please [submit a ticket](#) for assistance in requesting elevated database account permissions.

## Can I view the slow SQL table in TencentDB for SQL Server?

You can log in to the [SQL Server console](#), in the instance list, click on the instance ID, to enter the operation log page and [query and download the slow log logs](#).

By default, the TencentDB for SQL Server slow SQL table is not open to the public. You can use SSMS to connect to the instance and check by yourself. If the permission is insufficient, please [submit a ticket](#) for assistance in requesting elevated database account permissions.

## Can I have the SQL trace permission in TencentDB for SQL Server?

Log in to the [SQL Server console](#), accounts created on the **Account Management** page by default have SQL trace tracking permissions.

If you manually created an account using the SSMS client, SQL trace tracking isn't supported by default. You can authorize it with an admin account, the authorization command is:

```
GRANT ALTER TRACE TO [$account]; .
```

## Why does the system prompt that I don't have the permission to enable Profiler in TencentDB for SQL Server?

Accounts created through the SQL Server console's **Account Management** page by default have profiler permissions; if you manually created an account using the SSMS tool, it doesn't have the permission. You can grant it using the following command:

```
GRANT ALTER TRACE TO [$account]; .
```

## Can I use accounts created in the primary instance in read-only instances?

Accounts created in the primary instance will be synced to read-only instances but cannot be managed there. They only support read but not write operations in read-only instances.

## Will permissions be synced to replica instances and read-only instances automatically after an account in the primary instance is deleted and created again?

After an account in the TencentDB for SQL Server primary instance is deleted and created again, the permissions and other modifications in the primary instance will be automatically synced to replica instances and read-only instances.

## How do I sync account permissions on two-node (formerly High Availability/Cluster Edition) primary and replica instances to read-only instances?

Accounts created in a two-node (formerly High Availability/Cluster Edition) primary instance will be automatically synced to read-only instances. 2017/2019 Enterprise two-node instances use the Always On mode for sync, while 2008R2/2012/2014/2016 Enterprise two-node

instances use the publish/subscribe mode for sync. Accounts created in the primary instance in the console will be synced to read-only instances in real time. After the sync is completed, you can use the created login username or modify the password permission in read-only instances.

## **Can I manage database accounts at a finer granularity (such as source address and access table)?**

You can use commands for authorization at a finer granularity after connecting to a database.

## **Which account permissions are granted by default in TencentDB for SQL Server?**

The following account permissions are granted in TencentDB for SQL Server by default:

Server-level roles:

- Securityadmin: Manages login and CREATE DATABASE permissions and reads auditing.
- Processadmin: Manages SQL Server processes.
- Dbcreator: Creates and modifies databases.

Database-level roles:

- db\_owner: Owns the database and performs all database operations.
- db\_datareader: Views the data in all user tables in a database.
- db\_reader: Reads data in the database.
- db\_writer: Writes data to the database.

# Backup and rollback

Last updated: 2024-09-08 23:15:22

## How do I back up TencentDB for SQL Server?

TencentDB for SQL Server features a wide range of backup capabilities to ensure data security, prevent data loss, or damage. It supports managing and viewing backups through the [SQL Server console](#)'s **Backup Management** page, including automatic backups, manual backups, data backups, log backups, single database backups, package backups, instance backups, multiple database backups, cross-region backups, custom backup strategies, from 7 to 1830 days of backup retention period and custom backup cycles, etc. For more details, please refer to [Backup Overview](#).

## How do I configure automatic backup?

You can set this up on the [SQL Server console](#)'s **Backup Management** page of your instance. For more details, please refer to [Setting up Automatic Backups](#).

## How do I create a manual backup?

You can set this up on the [SQL Server console](#)'s **Backup Management** page of your instance. For more details, please refer to [Creating Manual Backups](#).

## How do I view and modify the backup policy?

You can view and modify backup policies on the [SQL Server console](#)'s **Backup Management** page of your instance. For more details, please refer to [Setting up Automatic Backups](#).

## How long can TencentDB for SQL Server retain backups?

TencentDB for SQL Server automatically retains backups for 7 days by default, supporting custom backup retention periods. The validity is based on the user-set backup days. For more details, please refer to [Setting up Automatic Backups](#).

Manual backups are retained for the same duration as automatic backups unless manually deleted. Users can delete them as needed, for more details, please refer to [Deleting Manual Backups](#).

## Can I delete backups manually?

- Automatic backups cannot be deleted manually. You can set the retention period for automatic backups, and they will be deleted automatically when they expire.
- Manual backups can be manually deleted from the backup list on the [SQL Server console](#), without manual deletion, the retention duration will be determined by the chosen retention

time strategy at the time of the backup.

## Can I disable data and log backups?

It cannot be turned off. However, you can reduce the backup frequency and delete manual backup data no longer in use through the [SQL Server console](#) to decrease the amount of space occupied by backups.

## Why can't I initiate a manual backup task?

You need to check the automatic backup time you configured. If the instance is performing the daily automatic backup task, you cannot initiate a manual backup task.

## How do I cancel a backup task?

Backup tasks for TencentDB for SQL Server cannot be canceled.

## Is the database available during the backup period?

The backup window is a user-defined time period for daily automatic backups. During this time, TencentDB for SQL Server instances will be backed up. These regular backups allow you to restore your database instance to any backup point within the retention period. Business operations are not affected during the backup window, but you cannot perform restart or manual backup operations in the TencentDB for SQL Server console.

## How do I back up a single database in TencentDB for SQL Server?

You can log in to the [SQL Server Console](#). In the instance list, click the instance ID, select the Backup Management page, and click **Backup Task Configuration**. Set the backup file format to Single Database Backup Files, which will upload each database's .bak file directly to COS without packaging. For details, see [Setting Backup Task](#).

## How do I set up backup tasks from instances in TencentDB for SQL Server?

You can log in to the [SQL Server Console](#). In the instance list, click the instance ID, select the Backup Management page, and click Backup Task Configuration. Set the backup task execution option to Back up tasks from instances. Then, you can adjust the execution instance of the backup task. For details, see [Setting Backup Task](#). Only the 2017/2019 cluster versions support setting the backup task execution instance.

## How do I download TencentDB for SQL Server backup files?

The TencentDB for SQL Server console provides a list of backup files that can be downloaded via intranet and internet addresses.

You can log in to the [SQL Server Console](#). In the instance list, click the instance ID, select the Backup Management page. In the backup list, click **Download** to get the private and public network download addresses, or directly click **Local Download** to download. For details, see [Downloading Backups](#).

## Can TencentDB for SQL Server be backed up using third-party tools?

TencentDB for SQL Server does not support backups using third-party tools. For security reasons, data directory permissions on physical machines cannot be granted. Users can only initiate backups through the console.

## Can I download or restore backup files that exceed the retention period?

Expired backup sets will be deleted automatically and cannot be downloaded or restored.

- We recommend that you configure a backup retention period based on business needs or download the backup files locally in the [SQL Server Console](#).
- You can also manually back up instance data in the console. Manual backups can be manually deleted; if not manually deleted, they will be retained according to the retention duration of automatic backups.

### Note

Manual backups will also take up the backup space. We recommend that you plan the usage of the backup space appropriately to reduce costs.

## Can I download the backup files of an isolated instance?

You can still download backups of isolated instances.

- For annual and monthly subscription instances: seven days after the instance expires, starting from the 8th day, the instance is isolated and moved to the recycle bin. At this time, rollback is prohibited; manual backups and automatic backups still proceed. Backup downloads can be done under the instance operations column > More. The portion of the instance backup that exceeds the free space provided is still billed until the instance is taken offline.
- Pay-as-you-go instances: 24 hours after expiration, the instance is isolated and moved into the Recycle Bin. At this time, rollback is prohibited, but manual backup and automatic backup can still be performed. You can perform backup download in the instance operation column > More. The excessive backup space will still be billed until the instance is decommissioned.

## Will my TencentDB for SQL Server backup files remain after the instance is deleted?

Once a TencentDB for SQL Server instance is deleted, the corresponding backup files will be automatically deleted and not retained. If you need to keep the data, please ensure the data is backed up before deleting the instance.

## How is the backup space for TencentDB for SQL Server charged?

TencentDB for SQL Server offers a free backup space quota based on regions. The amount of free backup space is equal to the total storage space of all single-node (formerly Basic Edition) and dual-node (formerly High Availability/Cluster Edition) master instances in the respective region. For pricing beyond the free quota, see [Backup Space Charging](#).

## What should I do if the backup space exceeds the free quota?

When your backup file size exceeds the free quota for backup space, you can increase the storage space or reduce the usage of backup space.

The backup files of an instance will occupy backup space. Each TencentDB for SQL Server instance has a certain amount of free quota for backup space. Any usage beyond the free quota will incur additional charges.

## How can I reduce the backup space costs for TencentDB for SQL Server?

- Delete unused manual backup data (Manual backups can be deleted on the [SQL Server console](#)'s Instance Management page under **Backup Management**).
- Reduce the frequency of automatic data backup for non-core businesses. You can adjust the backup cycle and backup file retention period in the console, which should be at least twice a week.

### Note

[Rollback feature](#) is based on data backups + log backups within the backup cycle and retention days. Reducing the frequency of automatic backups and retention days will affect the rollback time range of instance data, so please weigh your backup configurations carefully.

- Reduce the retention period of data and log backups for non-core businesses (a 7-day retention period can meet the requirements of most scenarios).

Business Scenario	Recommended Backup Retention Period
Core product/service	7–1830 days

Non-core and non-data product/service	7 days
Archive businesses	Seven days. We recommend you manually back up data based on your actual business needs and delete the backups promptly after use
Testing business	Seven days. We recommend you manually back up data based on your actual business needs and delete the backups promptly after use

## How do I view the backup space usage of TencentDB for SQL Server?

You can log in to the [SQL Server console](#), select **Database Backup** to view the backup space statistics and trends for all instances and regions under your account, as well as real-time statistics for individual instances. For details, please refer to [Viewing Backup Space](#).

## How do I roll back a TencentDB for SQL Server instance?

The data backup retention period for TencentDB for SQL Server is seven days by default and supports custom retention days. The log backup retention period is the same as the data backup retention period. Users can roll back instance data to any point within the retention period set. For details, refer to [Rolling back Databases](#).

## How do I clone a database for a TencentDB for SQL Server instance?

TencentDB for SQL Server provides a database cloning feature, enabling one-click cloning of existing databases to the current instance. You need to specify the new database name during cloning. The account permissions and other relevant information of the new cloned database will be identical to the source database. For details, refer to [Cloning Database](#).

## What is the use of downloaded data backups and log backups?

You can use these backup files to restore data at any time. They can be restored to other cloud databases or self-built databases. For more details, refer to [Cold Backup Migration](#).

## Can I restore the downloaded backups to another TencentDB for SQL Server instance?

In the TencentDB for SQL Server console, you can use the cold backup migration feature to restore the downloaded backup files to another SQL Server instance. For details, refer to [Cold Backup Migration](#).

## How can I restore the backup of a self-built local database to TencentDB for SQL Server?

In the TencentDB for SQL Server console, you can upload backup files directly or download backup files from COS. Use the cold backup migration feature to restore the backup of a self-built database to TencentDB for SQL Server. For details, refer to [Cold Backup Migration](#).

## Does TencentDB for SQL Server support restoring a full backup to a self-built database?

TencentDB for SQL Server supports full backups. After downloading the backup file, you can manually restore it to a self-built database. For details, refer to [Downloading Backups](#).

## What is the difference between direct backup upload and downloading from COS in cold backup migration?

- **Direct Upload:** Users upload the backup file from their local environment to Tencent Cloud COS, then download it to TencentDB for SQL Server for restoration. Additionally, uploading to Tencent Cloud COS does not occupy the user's backup storage space, but the file is retained for 24 hours and automatically deleted afterward.
- **Downloading from COS:** The backup file is downloaded from the user's own COS to TencentDB for SQL Server for restoration.

## Will the backup files uploaded directly in cold backup migration occupy the user's backup storage space?

The backup files uploaded in the backup recovery scenario are temporarily stored in Tencent Cloud COS and will not occupy the user's own backup storage space. The files are retained for 24 hours after a successful upload and automatically deleted afterward.

# Data Migration

Last updated: 2024-09-08 23:15:30

## How do I migrate data to TencentDB for SQL Server?

TencentDB for SQL Server supports self-built databases in local IDCs, self-built databases on Tencent Cloud CVM servers, self-built databases on other cloud vendors' CVM, other cloud vendors' cloud databases, and migration of Tencent Cloud databases to TencentDB for SQL Server. It supports [Cold Backup Migration](#) and [Migration with DTS](#). You can choose the appropriate migration method based on your business scenario.

- If your business allows you to shut down the database for backup, you can use [Cold Backup Migration](#), i.e., restoring data from .bak backup files to migrate the source database to TencentDB for SQL Server. You can download COS files or upload local files for migration. Three data restoration modes are supported: full backups, full backups + log backups, and full backups + differential backups.
- If your business doesn't allow you to shut down the database and requires smooth migration, you can [use DTS for data migration](#). DTS supports two migration types: full migration and full + incremental migration. It supports multiple access types, such as public network, self-built on CVM, Direct Connect, VPN, CCN, and database.

## How do I migrate a self-built SQL Server in a local IDC to TencentDB for SQL Server?

- If your business allows you to shut down the database for backup, you can use [Cold Backup Migration](#), i.e., restoring data from .bak backup files to migrate the source database to TencentDB for SQL Server. You can download COS files or upload local files for migration. Three data restoration modes are supported: full backups, full backups + log backups, and full backups + differential backups.
- If your business doesn't allow you to shut down the database and requires smooth migration, you can [use DTS for data migration](#). DTS supports two migration types: full migration and full + incremental migration. It supports multiple access types, such as public network, self-built on CVM, Direct Connect, VPN, CCN, and more.

## How do I restore a backup from a local self-built database to TencentDB for SQL Server?

In the TencentDB for SQL Server console, you can either upload backup files directly or download them from COS. Use the Cold Backup Migration feature to restore backups from self-built databases to TencentDB for SQL Server. For details, see [Cold Backup Migration](#).

## I've purchased a Tencent Cloud SQL Server database. How do I restore my local .bak backups to the cloud?

In the TencentDB for SQL Server console, you can either upload backup files directly or download them from COS to restore your local .bak backups to the cloud. For details, see [Cold Backup Migration](#).

## How do I migrate a self-built SQL Server on a Tencent Cloud CVM server to TencentDB for SQL Server?

- If your business doesn't allow you to shut down the database and requires smooth migration, you can [use DTS for data migration](#). DTS supports two migration types: full migration and full + incremental migration. It supports multiple access types, such as public network, self-built on CVM, Direct Connect, VPN, CCN, and more.
- If your business allows you to shut down the database for backup, you can use [Cold Backup Migration](#), i.e., restoring data from .bak backup files to migrate the source database to TencentDB for SQL Server. You can download COS files or upload local files for migration. Three data restoration modes are supported: full backups, full backups + log backups, and full backups + differential backups.

## How do I migrate a self-built SQL Server on other cloud vendors' CVM to TencentDB for SQL Server?

- If your business doesn't allow you to shut down the database and requires smooth migration, you can [use DTS for data migration](#). DTS supports two migration types: full migration and full + incremental migration. It supports multiple access types, such as public network, self-built on CVM, Direct Connect, VPN, CCN, and more.
- If your business allows you to shut down the database for backup, you can use [Cold Backup Migration](#), i.e., restoring data from .bak backup files to migrate the source database to TencentDB for SQL Server. You can download COS files or upload local files for migration. Three data restoration modes are supported: full backups, full backups + log backups, and full backups + differential backups.

## How do I migrate a TencentDB for SQL Server instance from other cloud vendors to TencentDB for SQL Server?

- If your business doesn't allow you to shut down the database and requires smooth migration, you can [use DTS for data migration](#). DTS supports two migration types: full migration and full + incremental migration. It supports multiple access types, such as public network, self-built on CVM, Direct Connect, VPN, CCN, and more.

- If your business allows you to shut down the database for backup, you can use [Cold Backup Migration](#), i.e., restoring data from .bak backup files to migrate the source database to TencentDB for SQL Server. You can download COS files or upload local files for migration. Three data restoration modes are supported: full backups, full backups + log backups, and full backups + differential backups.

## How do I migrate a TencentDB for SQL Server dual-node (formerly High Availability/Cluster Edition) instance to a TencentDB for SQL Server single-node (formerly Basic Edition) instance?

If the source instance is a Tencent Cloud dual-node (formerly High Availability/Cluster Edition) instance, it cannot be migrated to a Tencent Cloud single-node (formerly Basic Edition) instance through DTS. Instead, you can use [Cold Backup Migration](#), i.e., restoring data from .bak backup files to migrate the source database to TencentDB for SQL Server.

## How do I migrate a TencentDB for SQL Server single-node (formerly Basic Edition) instance to a TencentDB for SQL Server dual-node (formerly High Availability/Cluster Edition) instance?

If the source instance is a Tencent Cloud single-node (formerly Basic Edition) instance, you can [use DTS for data migration](#) to migrate the data to a Tencent Cloud dual-node (formerly High Availability/Cluster Edition) instance.

## How do I migrate a TencentDB for SQL Server dual-node (formerly High Availability/Cluster Edition) instance to another version of a TencentDB for SQL Server dual-node (formerly High Availability/Cluster Edition) instance?

If the source instance is a lower version of a Tencent Cloud dual-node (formerly High Availability/Cluster Edition) instance, you can [use DTS for data migration](#) to migrate the data to a higher version, although it is not recommended. Instead, you can directly [adjust the instance version](#) to upgrade from a lower version to a higher version without data migration.

## Does TencentDB for SQL Server support cross-account migration?

TencentDB for SQL Server supports using the DTS migration feature to perform instance-to-instance data migration across different Tencent Cloud accounts. For detailed precautions and operational methods, please refer to [Cross-Account Migration with DTS](#).

## Does TencentDB for SQL Server support heterogeneous migration?

TencentDB for SQL Server does not support heterogeneous migration.

## Does TencentDB for SQL Server support data synchronization between self-built databases and cloud databases?

TencentDB for SQL Server does not support data synchronization.

## How do I connect Kingdee K/3 WISE to TencentDB for SQL Server?

Connecting Kingdee K/3 WISE to TencentDB for SQL Server involves several steps. First, you need to migrate data to TencentDB for SQL Server and enable the execution of distributed transactions between the TencentDB for SQL Server instance and the Windows CVM. After initializing the account set management, distributed transactions between the CVM and TencentDB for SQL Server will be supported, allowing you to log in to and use Kingdee K/3 WISE normally. For detailed instructions, refer to [Connecting Kingdee K/3 WISE to TencentDB for SQL Server](#).

## What precautions should be taken before using DTS for cloud migration?

It is recommended to perform the following checks on the source and target databases before using DTS for cloud migration:

- Version numbers of source and target databases. The target database must be on a version later than or equal to the source database. For example, if the source database is on v2016, the target database can only be on v2016, v2017, or v2019.
- Check the architecture versions of the source and target databases. If the source instance is a self-built database in a local IDC, a self-built CVM server from Tencent Cloud, a self-built CVM from other cloud vendors, or a cloud SQL Server instance from other cloud vendors, you can migrate it to any architecture version of Tencent Cloud's single-node (formerly Basic Edition) and dual-node (formerly High Availability/Cluster Edition) SQL Server instances. If the source instance is a Tencent Cloud dual-node (formerly High Availability/Cluster Edition) instance, it cannot be migrated to a single-node (formerly Basic Edition) instance through DTS. If the source instance is a Tencent Cloud single-node (formerly Basic Edition) instance, it can be migrated to a dual-node (formerly High Availability/Cluster Edition) instance through DTS.
- Network connectivity between source and target databases. The source and target databases must be connected. The server where the source database resides must have enough outbound bandwidth; otherwise, the migration efficiency will be affected.
- Names of source and target databases. The source and target instances cannot contain databases with the same name.
- Check the source database instance account permissions. The source SQL service needs to be set to local for migration. The source database account has no restrictions but needs sysadmin permission.

- Account permissions of the target database. The target database needs to have an account with admin permissions for migration.
- Ports of the source database. The source database needs to open port 1433, and the service where the source database is located must open the file sharing port 445 for Windows server sharing.
- Recovery mode of the source database. The source database must be set to "full recovery mode", and we recommend that you make a full backup before migration.
- Local disk space of the source database. The local disk space of the source database must be large enough, so that the remaining free space can fit the size of the database to be migrated.
- Disk space of the target database. The disk space of the target database must be at least 1.5 times the size of the source database.
- Status of the target database. The target database cannot have access requests or active businesses; otherwise, the migration will fail.

## What precautions should be taken during the DTS cloud migration process?

During the DTS migration process, pay attention to the following operation limits:

- Only one migration task can be initiated at any time for the same source instance.
- Only database-level migration is supported, that is, all objects in the database must be migrated together. Single-table migration is not supported.
- Logins, jobs, triggers, and database links (link servers) at the instance level cannot be migrated.
- Do not modify or delete user information (including username, password, and permissions) in the source and target databases and port numbers during migration; otherwise, the migration task will fail.
- Do not perform transaction log backup during incremental sync; otherwise, the transaction log will be truncated and become discontinuous.
- If you only perform full data migration, do not write new data into the source database during migration; otherwise, the data in the source and target databases will be inconsistent. In scenarios with data writes, to ensure the data consistency in real time, we recommend that you select full + incremental data migration.
- For full + incremental data migration, when the task status is 'completed' after clicking, do not write new data into the source database. It is recommended to stop writing for two minutes after clicking, otherwise it may cause data inconsistency between the source and target databases.

## What precautions should be taken after completing DTS cloud migration?

After completing the DTS migration, it is recommended to perform the following checks on the target database:

- **Permission completeness.** Permissions will affect operations performed on the database. The migration only restores data. To restore other service-level permissions, such as database users and login usernames, you need to create them again and associate them with database accounts.
- **Rebuild indexes.** Since the physical environment of the data files changes after the migration, the database index statistics will not be updated immediately. It is recommended to rebuild the indexes; otherwise, database performance may decline.
- **Instance-level objects** such as logins, jobs, triggers, and database links (link servers). You need to create them again after the migration is completed.

# Publish/Subscribe

Last updated: 2024-09-08 23:15:40

## Does TencentDB for SQL Server support publish/subscribe?

The publish/subscribe feature is available only when both the publishing and subscribing instances are TencentDB for SQL Server instances. In addition, this feature is supported only for TencentDB for SQL Server two-node (formerly High Availability/Cluster Edition) but not single-node (formerly Basic Edition) instances.

## Does a TencentDB for SQL Server single-node (formerly Basic Edition) instance support publish/subscribe?

TencentDB for SQL Server single-node (formerly Basic Edition) does not support publish-subscribe.

## How do I implement publish/subscribe between a self-built SQL Server database in my local IDC and a TencentDB for SQL Server instance?

The publish/subscribe feature is not supported between a self-built SQL Server database in a local IDC and a TencentDB for SQL Server instance. It is available only when both the publishing and subscribing instances are TencentDB for SQL Server instances.

## What are the use cases of the publish/subscribe feature of TencentDB for SQL Server?

TencentDB for SQL Server supports the native publish-subscribe replication feature of Microsoft SQL Server. Users can self-service create, change, and delete publisher and subscriber servers on the [SQL Server console](#) to meet their business's data replication and synchronization needs. For more details, see [Publish-Subscribe Overview](#).

## What are the prerequisites for using the publish/subscribe feature of TencentDB for SQL Server?

- This feature is available only when both the publishing and subscribing instances are TencentDB for SQL Server instances.
- This feature is supported only for TencentDB for SQL Server two-node (formerly High Availability/Cluster Edition) but not single-node (formerly Basic Edition) instances.
- The publishing and subscribing instances must be on the same edition, such as 2017 Enterprise Edition.

- The publishing and subscribing instances must be in the same region (but they can be in different AZs). For example, if the publishing instance is in Beijing Zone 5, the subscribing instance can be in Beijing Zone 7.
- A read-only instance cannot be used as a publishing or subscribing server.
- If the publishing and subscribing instances have a database with the same name, the database cannot be subscribed to.
- Data tables without a primary key cannot be subscribed to. You can use the following code to check whether the database to be published contains this type of tables:

```
use dbname
select name from sys.sysobjects where xtype='U' and id not in(select
parent_obj from sys.sysobjects where xtype='PK')
```

- After a publish/subscribe linkage is created, if a database in the linkage is deleted, the linkage will also be deleted.
- If either the publishing or subscribing instance is terminated, the publish/subscribe linkage will also be deleted.
- You can configure up to 80 databases to be published/subscribed to in each publish/subscribe task.

## How do I create a publish/subscribe task in TencentDB for SQL Server?

Log in to the [SQL Server console](#), in the instance list, click on instance ID to enter the instance management page, select the Publish-Subscribe page, click **New** to set up publish-subscribe. For more details, see [Manage Publish-Subscribe](#).

## How do I delete the publish/subscribe relationship between two TencentDB for SQL Server instances?

Log in to the [SQL Server console](#), in the instance list, click on instance ID to enter the instance management page, select the Publish-Subscribe page, choose the publish-subscribe task to be deleted, click **Delete**. Bulk deletion is also possible. For more details, see [Manage Publish-Subscribe](#).

# Read-only replica

Last updated: 2024-09-08 23:15:54

## How to view read-only instances in TencentDB for SQL Server?

1. Log in to the [SQL Server Console](#). In the instance list, instances with an "R" Tag are read-only instances. You can click on the instance ID or the **Operation** column's **Manage** to enter the details page and view the read-only instance details.
2. In the master instance details page, you can access the details page of the read-only instance through the topology diagram of the master instance.

### Note:

Some features of the read-only instance details page are restricted from modification, synchronized with the configuration of its master instance. If changes are needed, please make them on the master instance's details page. For more details, see [Managing Read-Only Instances](#).

## Does TencentDB for SQL Server support read-write separation?

Currently, TencentDB for SQL Server does not support a unified read-write separation address, meaning it does not automatically separate read requests from write requests. Read-only instances need to be accessed through a separate IP and PORT. After creating a read-only instance, you need to configure the connection addresses for both the master instance and each read-only instance in your application to direct write requests to the master instance and read requests to the read-only instances. For more details, see [Overview of Read-Only Instances](#).

## How to create a read-only instance in TencentDB for SQL Server?

1. Log in to the [SQL Server Console](#). In the instance list, click on the instance ID or the **Operation** column's **Manage** to enter the details page.
2. In the instance details page, click on **Add Read-Only Instance** in the instance architecture diagram, or select the **Read-Only Instance** page, click **Create** to enter the purchase page. For more details, see [Managing Read-Only Instances](#).

## How to create a RO Group for read-only instances in TencentDB for SQL Server?

TencentDB for SQL Server allows users to create one or more read-only instances to form a Read-Only Instance (RO) group, suitable for read-write separation and one-to-many

application scenarios. It can significantly improve the read load capacity of the user's database. For more details, see [Read-Only Instance RO Group](#).

## What is the synchronization delay from the master to the read-only instance in TencentDB for SQL Server?

For versions below 2017, replication synchronization has a delay of 3 to 5 seconds. For 2017/2019 versions using Always On replicas for read-only, the synchronization delay is 1 to 2 seconds.

## Do different versions of read-only instances have any differences? If the business needs to use read-only, how should I choose the version of TencentDB for SQL Server?

Different versions of read-only instances do have differences. If your business requires read-only functionality, it is recommended to use the 2017 version or later database instances for the following reasons:

- Versions below 2017 use the publish-subscribe method to construct read-only instances, which is object-level synchronization. The synchronization delay is 3 to 5 seconds. If you use read-only instances, to ensure efficient and stable data synchronization, it is recommended to upgrade the primary instance to version 2017 or later before using the read-only instance feature.
- The 2017 Enterprise Dual Node (original High Availability Version/Cluster Version) and above versions use the Always-On method to construct read-only instances, with a synchronization delay of 1 to 2 seconds. Data synchronization is more efficient and stable.

## Can I use accounts created in the primary instance in read-only instances?

Accounts created in the primary instance will be synced to read-only instances, but read-only instances cannot manage accounts. Accounts in read-only instances can only perform read operations, not write operations.

## How many read-only instances can be created per primary instance in TencentDB for SQL Server?

A primary instance in TencentDB for SQL Server can create a maximum of 5 read-only instances. If you need to create more, please [submit a ticket](#) for a solution.

## Does TencentDB for SQL Server support data migration to read-only instances?

TencentDB for SQL Server does not support data migration to read-only instances.

## **Do read-only instances in TencentDB for SQL Server support creating/deleting databases?**

Read-only instances in TencentDB for SQL Server do not support creating or deleting databases. If needed, please operate on the primary instance.

## **Do read-only instances in TencentDB for SQL Server support creating/deleting accounts?**

Read-only instances in TencentDB for SQL Server do not support creating or deleting accounts, nor do they support account authorization or changing account names and passwords. If needed, please operate on the primary instance.

## **Do read-only instances in TencentDB for SQL Server support backup and rollback?**

Read-only instances in TencentDB for SQL Server do not support backup and rollback. If needed, please operate on the primary instance.

## **Do I need to re-enable load balancing after defining weight in TencentDB for SQL Server?**

If rebalancing is disabled, modifying weight will only affect new loads and will not impact read-only instances accessed by existing persistent connections, thus not causing momentary database disconnections. When rebalancing is enabled, the database will experience momentary disconnections to break all connections, and new connections will be load-balanced according to the set weights. Users can choose whether to re-enable load balancing based on their needs.

# Version and Architecture Upgrade

Last updated: 2024-09-08 23:16:02

## **Can I change a TencentDB for SQL Server instance from two-node architecture (formerly High Availability/Cluster Edition) to single-node architecture (formerly Basic Edition)?**

TencentDB for SQL Server does not currently support changing from a dual-node (formerly High Availability/Cluster Edition) to a single-node (formerly Basic Edition). If architecture adjustment is needed, you must purchase a new single-node (formerly Basic Edition) instance and use [backup and recovery to migrate data](#).

## **Can I upgrade TencentDB for SQL Server?**

TencentDB for SQL Server single-node (formerly Basic Edition) and dual-node (formerly High Availability/Cluster Edition) instances support version upgrades. For more information, see [Adjusting Instance Version](#).

## **Can I downgrade the TencentDB for SQL Server version ?**

TencentDB for SQL Server doesn't support the version downgrade; for example, you cannot downgrade a Basic Edition instance from v2019 to v2017.

# Disk Space and Specification Adjustment

Last updated: 2024-09-08 23:16:10

## Which configuration items can I adjust in TencentDB for SQL Server?

TencentDB for SQL Server supports quick adjustment of the instance architecture, version, and specifications in the console, providing flexible scaling operations. You can elastically adjust the configurations of SQL Server instances according to your actual business conditions (initial stage, rapid development, peak hours, off-peak hours), to better meet the needs of resource utilization and real-time cost optimization. For more information, see [Overview of Instance Configuration Adjustment](#).

## Can I expand/reduce the disk space of a TencentDB for SQL Server instance?

- TencentDB for SQL Server two-node (formerly high-availability/cluster edition) local disk instance: The disk space can be expanded and reduced.
- TencentDB for SQL Server two-node (formerly high-availability/cluster edition) cloud disk instance: The disk space can only be expanded.
- TencentDB for SQL Server single-node (formerly basic edition) instance: The disk space can only be expanded.

## Can I upgrade/downgrade the CPU/memory specifications of a TencentDB for SQL Server instance?

The CPU/memory specifications of TencentDB for SQL Server support upgrades and downgrades. For more information, see [Adjusting Instance Specifications](#).

## Is the service still available when the specification of a TencentDB for SQL Server single-node (formerly basic edition) instance is changed?

When the configuration of a single-node (formerly basic edition) instance is adjusted (CPU/memory specification upgrade/downgrade as well as disk space expansion), the instance will be restarted and remain unavailable for about three minutes. Therefore, perform this operation during off-peak hours.

## Will the service be interrupted when the specification of a TencentDB for SQL Server two-node (formerly high-availability/cluster edition) is changed?

- During the **specification upgrade and disk space expansion** process of a two-node (formerly high-availability/cluster edition) instance, if in-place update conditions are met, the service will not experience any momentary disconnections, and the adjustment will take effect immediately without impacting the business. If a migration upgrade is required, the configuration will be upgraded by migrating data. The more data, the longer the migration time. During the migration, the instance will remain accessible. After the migration, a switch will occur, causing a brief database connection disruption. Ensure that your business has a reconnection mechanism. During the connection disruption, most database, account, and network operations cannot be performed, so perform this operation during off-peak hours.
- During the **disk space reduction** process of a two-node (formerly high-availability/cluster edition) instance, the service will not experience any momentary disconnections, and the adjustment will take effect immediately without impacting the business.
- During the **specification downgrade** process of a two-node (formerly high-availability/cluster edition) instance, the instance will be unavailable for about one minute. Perform this operation during off-peak hours.

For more information on configuration adjustment scenarios and impacts, see [Adjusting Instance Specifications](#).

## How do I perform disk space expansion/reduction and specification upgrade/downgrade in TencentDB for SQL Server?

**Disk space and specification adjustment** refers to changing the current specifications of a TencentDB for SQL Server instance from Specification A to Specification B. Choose the corresponding instance in the [SQL Server console](#), click **Operation**, and then click **Adjust Configuration**. On the configuration adjustment page, select the target specifications and effective time as needed, and pay the fees. The system will automatically update the instance specifications. For more information, see [Adjusting Instance Specifications](#).

## How are TencentDB for SQL Server disk space expansion/reduction and specification upgrade/downgrade fees calculated?

Monthly subscribed instance:

- Upgrade fees: Payment amount = (price of target specification – price of original specification) x remaining validity period
- Downgrade fees: Refund amount = Remaining value of original configuration – purchase price of new configuration

For a pay-as-you-go instance:

- Upgrade fees: After upgrade, the instance will be billed based on the new instance specifications starting from the next billing cycle.

- Downgrade costs: After downgrading, the instance will be billed based on the new specifications starting from the next billing cycle. For more information, see [Adjustment of instance fee description](#).

## **Will the read-only instance configuration be upgraded automatically when the primary instance configuration is upgraded?**

Read-only instances can only be upgraded manually.

# Monitoring and Alarms

Last updated: 2024-09-08 23:16:19

## How do I view the monitoring data of a TencentDB for SQL Server instance?

TencentDB for SQL Server supports 38 common SQL Server parameters. For details, please refer to [Supported Monitoring Metrics](#). You can also use SSMS's counters to additionally track other parameters.

You can view and understand the operational information of instances through [Monitoring Charts](#), and set up [Alarm Policies](#), [Alarm Notifications](#), and [View Alarm History](#) for a total of 38 monitoring metrics including CPU, memory, storage, network, connections, access, locks, etc., using TCOP. You can configure alarm settings in [TCOP](#) > Alarm Management > Policy Management > Create Policy.

## Where can I view monitoring charts in TencentDB for SQL Server?

To make it easier for you to view and stay up to date with how instances work, TencentDB for SQL Server provides a wide variety of performance monitoring metrics and convenient monitoring features (custom view, time comparison, merged monitoring metrics, etc.). You can view instance performance information through [Monitoring Charts](#).

## What monitoring metrics are supported by TencentDB for SQL Server?

TencentDB for SQL Server supports 38 common metrics of SQL Server. For more information, see [Monitoring Metrics](#). You can also collect statistics of other metrics by configuring the counters of SSMS.

## How do I set an alarm policy for TencentDB for SQL Server?

You can create an alarm policy in the TCOP console to trigger an alarm and send notifications if a monitoring metric of TencentDB for SQL Server becomes abnormal. For more information, see [Setting Alarm Policies](#).

## How do I associate an alarm policy with an alarm object in TencentDB for SQL Server?

You can create an alarm policy and associate it with an alarm object in the TCOP console. If the object meets the alarm trigger condition, an alarm will be triggered. For more information, see [Setting Alarm Policies](#).

## How do I set alarm notifications for TencentDB for SQL Server?

After creating an alarm policy, you can configure an alarm notification template and alarm notifications in the TCOP console. If an exception triggers an alarm, the system will send notifications to the recipients via your specified channels (email, SMS, WeChat, WeCom, telephone). For more information, see [Setting Alarm Notifications](#).

## How do I view alarm records in TencentDB for SQL Server?

You can view detailed alarm records in the console and quickly locate specific problems through alarm messages for further troubleshooting. For more information, see [Viewing Alarm Records](#).

## What is the minimum monitoring granularity in TencentDB for SQL Server?

The minimum monitoring granularity in TencentDB for SQL Server is 10 seconds, and the time range automatically changes with the granularity.

## Which monitoring metrics of a TencentDB for SQL Server instance should I stay up to date with?

Key monitoring metrics to pay attention to include: CPU utilization, memory usage, and percentage of remaining disk capacity. Alarm alerts can be configured based on actual application scenarios, so when TencentDB for SQL Server monitoring metrics show abnormal states, alarms are triggered and relevant notifications are sent. Upon receiving an alarm, appropriate measures should be taken to clear the alert. For details, please see [Setting Alarm Policies](#).

Configuration example: If, over a certain period (e.g., 5min), the CPU utilization exceeds a specific value (e.g., 80%) multiple times (e.g., 5 times), an alarm is triggered (e.g., once every hour).

# Logs

Last updated: 2024-09-08 23:16:27

## What is the collection threshold for slow logs in TencentDB for SQL Server?

The default collection threshold for slow logs in TencentDB for SQL Server is 1 second. SQL executions exceeding 1 second are recorded in slow logs.

## Can the collection threshold for slow logs in TencentDB for SQL Server be modified?

The default threshold for TencentDB for SQL Server slow log collection is 1 second, currently not supported for modification via the console. To modify, please [submit a ticket](#) for assistance. Modifying the threshold will not impact user operations.

## Does the slow log in TencentDB for SQL Server occupy user space?

The slow log in TencentDB for SQL Server does not occupy user space.

## Can I view the slow SQL table in TencentDB for SQL Server?

You can log in to the [SQL Server console](#), select an instance from the instance list, click the instance ID to enter the slow log page, and [query and download slow logs](#). The slow SQL table for TencentDB for SQL Server is not open by default. You can view it by connecting to the instance via SSMS. If lacking permissions, please [submit a ticket](#) for assistance in applying for elevated database account permissions.

## How to analyze slow SQL in TencentDB for SQL Server?

You can log in to the [SQL Server console](#), select an instance from the instance list, click the instance ID to enter the slow log page, for more details, see [query and download slow logs](#). Download slow logs in xel format from the console, open the xel file with SSMS to view specific slow SQL. If optimization is needed, you can copy the slow SQL, enable the execution plan to see specific plans, and optimize the slow SQL based on this plan. For more information, see [view execution plan](#).

## Will the transaction logs in TencentDB for SQL Server be automatically cleaned?

The transaction logs in TencentDB for SQL Server will be automatically cleaned every 10 minutes.

## Does TencentDB for SQL Server support viewing audit logs?

TencentDB for SQL Server currently does not support viewing audit logs.

## Does TencentDB for SQL Server support viewing error logs?

TencentDB for SQL Server currently does not support viewing error logs through the console. You can check the instance logs directly via SSMS.

## How to get TencentDB for SQL Server error logs via commands?

Log in to the SQL Server client and execute the following query in the query box to retrieve the error logs.

```
Exec master.sys.sp_readerrorlog FileID,LogType,FilterText
```

- **FileID:** The log file number of the Error Log. 0 represents the most recent log.
- **LogType:** Log type. A value of 1 retrieves error logs, and a value of 2 retrieves Agent logs.
- **FilterText:** Query keyword, which can be NULL.

Below is a sample:

```
exec master.sys.sp_readerrorlog 0,1,'error'
```

# Parameter modification

Last updated: 2024-09-08 23:16:36

## How do I modify the time zone in TencentDB for SQL Server?

TencentDB for SQL Server modifies the time zone strategy based on different architecture versions as follows. For more information on the system time zone and detailed modification methods, see [Modifying System Time Zone](#).

- **Dual-node local disk instances:**

Since **modifying the system time zone requires separate configuration of machine resources**, if you need to modify it, please [submit a work order](#) before purchase to get a solution and specify the system time zone to be adjusted. Modification is only supported for instances with 90 cores and 720GB specifications. If you need to modify the system time zone, it is recommended to directly purchase the Cloud Disk Version Dual-Node Instance, which allows modifications on the purchase page without specification limits.

- **Single-node cloud disk/Dual-node cloud disk instances:**

When purchasing single-node cloud disk/dual-node cloud disk architecture instances, you can directly modify the system time zone on the purchase page.

**Note:**

- For instances with the modified system time zone, the actual **back-end data storage is in the modified UTC time**. After conversion, **backups, rollbacks, and slow log files are displayed in the console in Beijing time, and the monitoring time is Beijing time**.
- If you have modified the system time zone for your instance, and a subsequent **scale-out involves data migration**, please [submit a work order](#) to obtain a solution.

## How do I modify a character set collation in TencentDB for SQL Server?

TencentDB for SQL Server has two dimensions of character set collation: instance dimension and database dimension

- The default character set collation for the instance dimension is Chinese\_PRC\_CI\_AS.

TencentDB for SQL Server modifies the instance dimension character set collation strategy based on different architecture versions as follows. For more information on the character set, see [Modifying Instance-Level Character Set Collation](#).

- **Dual-node local disk instances:**

Since **modifying instance-level collation rules requires separate machine resources configuration**, if modification is needed, please [submit a ticket](#) for a solution and

provide the target collation before purchasing.

If the collations have been modified for your instance and subsequent **scale-out** involves **data migration**, please [submit a ticket](#) for a solution.

- **Single-node cloud disk/Dual-node cloud disk instances:**

You can modify the instance-level collation rules directly on the purchase page.

- The character set collation for the database dimension can be specified when creating the database. For details, see [Create a Database](#). If not specifically specified, the database character set defaults to Chinese\_PRC\_CI\_AS.

## How do I modify the configuration parameters of TencentDB for SQL Server?

You can log in to [SQL Server console](#), in the instance list, click the instance ID, select **Parameter Configuration > Parameter Settings** page, and modify the instance parameters. For details, see [Setting Instance Parameters](#).

## Which parameters can I modify quickly in the TencentDB for SQL Server console?

You can log in to [SQL Server console](#), in the instance list, click the instance ID, select **Parameter Configuration > Parameter Settings** page, and modify the instance parameters. Currently, the following parameters are supported for modification.

- fill factor(%)
- max worker threads
- cost threshold for parallelism
- max degree of parallelism
- optimize for ad hoc workloads
- min server memory(MB)
- blocked process threshold(s)

## How do I view parameter modification logs in TencentDB for SQL Server?

You can log in to [SQL Server console](#), in the instance list, click the instance ID, select **Parameter Configuration > Modification Log** page, and view parameter modification logs. For details, see [Viewing Parameter Modification Log](#).

# Features related

Last updated: 2024-09-08 23:16:52

## Does TencentDB for SQL Server support manual active-standby switching?

TencentDB for SQL Server Dual-node Cloud Disk Edition supports manual active-standby switching. For details, please refer to [Manual Active-Standby Switching](#). Dual-node Local Disk architecture does not support manual active-standby switching from the console. If you need manual active-standby switching, please [Submit Ticket](#) for assistance.

## Can TencentDB for SQL Server currently access other heterogeneous databases?

Currently, TencentDB for SQL Server does not support accessing other heterogeneous databases from cloud SQL Server.

## Does TencentDB for SQL Server support BULK INSERT or other data imports?

Currently, TencentDB for SQL Server does not support BULK INSERT or other data imports.

## Does TencentDB for SQL Server support MSDTC?

TencentDB for SQL Server does not support MSDTC.

## What is the encryption method for TencentDB for SQL Server?

TencentDB for SQL Server supports SQL Server's native encryption key method. Users can create database-level encryption keys themselves.

## Can TencentDB for SQL Server scan security system vulnerabilities on its servers?

Currently, TencentDB for SQL Server does not support scanning security system vulnerabilities on its servers.

## Can TencentDB for SQL Server use maintenance plans?

Currently, TencentDB for SQL Server does not support using maintenance plans. Maintenance plans generate additional packages and JOBS. This process can be executed by directly creating a JOB to run SQL.

## Can I create folders on the server in TencentDB for SQL Server?

TencentDB for SQL Server does not support creating folders within the database server.

## How do I enable or disable Change Data Capture (CDC) in TencentDB for SQL Server?

Change Data Capture (CDC) captures insert, update, and delete activities applied to SQL Server tables and provides the details of these changes in a user-friendly relational format. For details on how to enable or disable CDC, see [Change Data Capture \(CDC\)](#).

## How do I enable or disable Change Tracking (CT) in TencentDB for SQL Server?

Change Tracking (CT) can be applied to track specific tables or even columns within a database. When a user performs an add, modify, or delete operation on a table with CT enabled, the system automatically generates a version number for the operation, recording the operation timestamp, operation type, and the primary key of the affected data. For details on how to enable or disable CT, see [Change Tracking \(CT\)](#).

## How do I shrink a database in TencentDB for SQL Server?

You can shrink the database directly through the console. For details, see [Shrink Database](#).

## How many databases can a single instance of TencentDB for SQL Server create?

From a performance perspective, having too many databases in TencentDB for SQL Server can lead to a decline in instance performance, occupy Worker Thread resources, and exceed the limit for the number of databases, potentially causing primary-secondary synchronization anomalies. It is recommended not to exceed the maximum limit of databases per instance. The number of databases an instance can support is related to the instance CPU cores. For detailed formulas on the maximum number of databases per version, refer to [Database Quantity](#).

## Is there a limit on the number of tables in a single instance of TencentDB for SQL Server?

The number of tables in a single instance of TencentDB for SQL Server is theoretically unlimited. However, having more than 1 million tables may affect database performance. It is recommended to keep the number of tables in a single instance under 1 million.

## Where are the databases created in TencentDB for SQL Server stored?

Log in to the SQL Server SSMS client. After connecting to the instance, right-click on the database properties to view the database file location.

## Does TencentDB for SQL Server support Reporting Services?

Currently, TencentDB for SQL Server does not support Reporting Services. If needed, you can use Tencent Cloud's **Business Intelligence (BI) Products** to achieve reporting services.

## What are the constraints and limitations on using features in TencentDB for SQL Server?

To ensure the stability and security of instances, TencentDB for SQL Server imposes certain use constraints. For more details, please refer to [Constraints and Limits](#).

# Performance/Space/Memory

Last updated: 2024-09-08 23:17:02

## How long does it take to create a TencentDB for SQL Server instance?

Normally, the creation time for a single node (previously Basic Edition) instance is about 20 minutes. For a double node (previously High-Availability/Cluster Edition) instance, the creation time is around 3 minutes. The creation time for a read-only instance depends on the data volume of the master instance; the larger the data volume, the longer the creation time. If the master instance is empty, the creation time for an instance is about 3 minutes. If it exceeds this time, there might be an issue with the creation process, please [submit a ticket](#) to contact us for assistance.

## How many databases can I create at most in a TencentDB for SQL Server instance?

For performance considerations, we recommend you create databases in a TencentDB for SQL Server instance within the following limits:

- Single Node (formerly Basic Edition): Theoretically, the number of databases that can be created is not limited. However, we recommend keeping it below 100.
- Dual Node (formerly High Availability/Cluster Edition): In the console, the number of databases that can be created is limited. We recommend keeping it below 70.

Although users can also use the SSMS tool to connect to the instance and create databases, and the databases created via SSMS will automatically sync to the standby machine, it is advised not to exceed the database quantity creation limit, as exceeding the limit may lead to primary-standby sync anomalies. If consultation is needed under special circumstances, please provide feedback through [online support](#).

## Does TencentDB for SQL Server limit the IOPS?

TencentDB for SQL Server has no strict limits on the IOPS metric. Theoretically, as long as the CPU and memory are not restricted and the instance is not locked or blocked, the IOPS can be unlimited.

## Why does TencentDB for SQL Server have a built-in monitor library?

The monitor library is a system database used to collect monitoring information. It does not affect database performance nor occupy your space.

## How does TencentDB for SQL Server track deadlocks?

Deadlocks in TencentDB for SQL Server can be tracked using SQL Profiler. To enable Profiler, open SSMS, select Tools > SQL Server Profiler, and connect to the database. Note that enabling Profiler tracking may slightly affect performance and occupy space, so it is recommended to disable it promptly after use.

## How do I view the memory usage of a TencentDB for SQL Server instance?

You can find the memory category on the system monitoring page of the [SQL Server console](#) instance, and check the storage space usage of TencentDB for SQL Server through the monitoring indicators of maximum memory, memory usage, and memory usage rate.

## How do I view the memory usage of each database in a TencentDB for SQL Server instance?

You can connect to the instance through the client. For details, please refer to [Connecting to SQL Server Instances from Windows CVM](#) or [Connecting to SQL Server Instances Locally](#). For example, the following SQL statement (for reference only) allows you to view the memory usage of each database in the instance:

```
select count(*)*8/1024 as 'cache size(MB)',
       case database_id
         when 32767 then 'ResourceDb'
         else DB_NAME(database_id)
       end as 'database'
from sys.dm_os_buffer_descriptors
group by DB_NAME(database_id),
         database_id
order by 'cache size(MB)' desc
```

## What should I do if the memory usage metric value stays high in TencentDB for SQL Server?

The memory mechanisms of TencentDB for SQL Server is the same as that of Microsoft SQL Server. The displayed memory usage of the SQL Server process is the highest memory usage of the instance, which will not be automatically released. SQL Server will perform internal interactions automatically. To release the memory, you need to restart the instance. For example, 16 GB memory is allocated to an instance. When the instance just starts to be used, it may use only 8 GB memory, and the SQL Server process will occupy 8 GB memory. When the instance uses 16 GB memory, the SQL Server process will occupy all of the allocated 16 GB memory and perform internal interactions to replace the old cached data with new cached data. However, that the process occupies 16 GB memory doesn't mean that the

instance actually uses 16 GB memory. In fact, it is possible that the instance only uses 1 GB memory.

## How do I view the storage space usage of a TencentDB for SQL Server instance?

You can find the **storage** category on the **system monitoring** page of the [SQL Server console](#) instance, and check the storage space usage of the cloud database SQLServer through the monitoring indicators of **used storage space** and the **percentage of remaining disk capacity**.

## After a SQL Server database is created, no or only a small amount of data is written, but why does the storage space monitor show that 500 MB of space has been used?

A TencentDB for SQL Server instance automatically allocates a 500 MB initial space to each database. When data is written, it will be written to the initial space first. Therefore, even if you write no or only a very small amount of data, the storage metric will still be displayed as 500 MB.

## Why doesn't the storage space usage decrease after data is deleted from a TencentDB for SQL Server instance?

After data is deleted from a TencentDB for SQL Server instance, the extended data files won't be shrunk, and the free space inside the files can support subsequent operations such as insertion and update.

For example, in a 50 GB instance, if 50 GB data is written to a database and then deleted, the value of the storage space usage metric will be 50 GB, but you can still write a large number of files.

## What will happen after the data volume exceeds the maximum storage space of a TencentDB for SQL Server instance?

- Dual Node (formerly High Availability/Cluster Edition) instances: If the data volume exceeds the purchased disk space, features like database import and rollback will be unavailable. Expansion or deleting some database tables via the console is needed to free up space.
- Single Node (formerly Basic Edition) instances: If the data volume exceeds the purchased disk space, the database will switch to a read-only mode. You can expand the storage or delete some database tables via the console to immediately restore read-write permissions.

## Why does disk overuse happen in a TencentDB for SQL Server instance?

The following may cause disk overuse:

- Too much data: As businesses expand, new data is constantly inserted, resulting in data file space growth.
- Too many logs: The TencentDB database backs up and truncates log files regularly. If transactions are not committed for a long time, and there are a high number of UPDATE, INSERT, and DELETE operations in the database, the transaction log file may become too large.

## What should I do if the data volume exceeds the maximum storage space of my TencentDB for SQL Server instance?

- If the data space is excessively occupied, you need to expand the database or delete some database tables from the console to release storage space. After deleting data, you can perform database shrink operations on the console. It is recommended to perform these operations during off-peak business hours. For details, please refer to [Adjusting Instance Specifications](#) or [Deleting Databases](#) or [Shrinking Databases](#).
- If the log file is too large, there may be some transactions not ended for a long time. You can monitor and clear sessions or transactions with a long execution time.

## Can I directly expand the storage space of a TencentDB for SQL Server instance? Do I need to perform data migration? What is the impact of the expansion?

Storage space can be directly expanded. If the storage space on the host of the instance is sufficient, there is no need to migrate data, and the expansion will not affect the business in any way. If the host's storage space is insufficient, the system will automatically create a new primary-standby instance on a host with enough storage space and synchronize the original instance data. The instance access will not be affected during data synchronization; after the migration is complete, a switch will occur, causing a second-level database connection flash disruption.

For more information on how to expand storage space and whether expansion will cause flash disruptions, please refer to [Adjusting Instance Specifications](#).

## Can I reduce the disk space of a TencentDB for SQL Server instance?

- TencentDB for SQL Server two-node (formerly high-availability/cluster edition) local disk version: Supports disk space reduction.
- TencentDB for SQL Server two-node (formerly high-availability/cluster edition) cloud disk version: Disk space reduction is not supported.
- TencentDB for SQL Server single-node (formerly basic edition) cloud disk version: Disk space reduction is not supported.

## What does the disk space of a TencentDB for SQL Server instance consist of?

1. Data file space: It is the space used by your data. The data file space of TencentDB for SQL Server is preallocated. Therefore, each created database takes up nearly 500 MB to store your data.
2. Transaction log file space: Each database in a TencentDB for SQL Server instance has a log file. In full recovery model, database transaction logs will be written to the log file.
3. Temporary table files: Files occupied by SQL Server tempdb, temporary tables generated by complex queries.

## How much disk space is required for DDL operations?

To ensure normal business operations, you should avoid performing operations that may cause disk space usage surges, such as Data Definition Language (DDL) operations. If you must execute a DDL operation, make sure that the available disk space is greater than or equal to twice the size of the tablespace plus 10 GB. For example, if your tablespace is 500 GB, then when performing a DDL operation, make sure that the available disk space is greater than or equal to  $500 * 2 + 10 = 1010$  GB.

## How do I view the data file size of a business database in a TencentDB for SQL Server instance?

Log in to the SQL Server client, connect to the instance. For details on how to connect to the instance, see [Connecting to TencentDB for SQL Server Instance from Windows CVM](#) or [Connecting to TencentDB for SQL Server Instance from Local System](#). Execute the following SQL query (for reference only) in the query box to view the data file size of the business database:

```
CREATE TABLE #DBspace (
    [DBname] [sysname] NOT NULL,
    [DBsize] [decimal](18, 2) NULL,
    [DataFileSize] [decimal](18, 2) NULL,
    [LogFileSize] [decimal](18, 2) NULL,
    [UnallocatedSize] [decimal](18, 2) NULL,
    [ReservedSize] [decimal](18, 2) NULL,
    [DataSize] [decimal](18, 2) NULL,
    [IndexSize] [decimal](18, 2) NULL,
    [UnusedSiz] [decimal](18, 2) NULL,
    [AcquisitionTime] [datetime] NULL )
EXEC master.sys.sp_MSforeachdb @command1='use [?] ', @command2=N'
    use [?];
```

```

DECLARE @pages FLOAT
DECLARE @dbsize FLOAT
DECLARE @logsize FLOAT
DECLARE @reservedpages FLOAT
DECLARE @usedpages FLOAT
SELECT @dbsize = SUM(CONVERT(BIGINT, CASE WHEN status & 64 = 0 THEN
size ELSE 0 END)) ,@logsize = SUM(CONVERT(BIGINT, CASE WHEN status & 64
<> 0 THEN size ELSE 0 END))
FROM    dbo.sysfiles
SELECT @reservedpages = SUM(a.total_pages) ,
        @usedpages = SUM(a.used_pages) ,
        @pages = SUM(CASE WHEN it.internal_type IN ( 202, 204, 207,
211,212, 213, 214, 215,216, 221, 222, 236 ) THEN 0 WHEN a.type <> 1 AND
p.index_id < 2 THEN a.used_pages WHEN p.index_id < 2 THEN a.data_pages
ELSE 0 END)
FROM    sys.partitions p
        JOIN sys.allocation_units a ON p.partition_id =
a.container_id
        LEFT JOIN sys.internal_tables it ON p.object_id =
it.object_id
INSERT INTO #DBspace
        select  '?' ,
                (( CONVERT (dec(15, 2), @dbsize)+ CONVERT (dec(15,
2), @logsize) ) * 8192 / 1048576 ) ,
                (( CONVERT (dec(15, 2), @dbsize) ) * 8192 / 1048576
),
                (( CONVERT (dec(15, 2), @logsize) ) * 8192 / 1048576
),
                ( (CASE WHEN @dbsize >= @reservedpages THEN (
CONVERT (dec(15, 2), @dbsize)- CONVERT (dec(15, 2), @reservedpages) ) *
8192 / 1048576 ELSE 0 END ) ) ,
                (( CONVERT (dec(15, 2), @reservedpages) ) * 8192 /
1048576 ) ,
                (( CONVERT (dec(15, 2), @pages) ) * 8192 / 1048576)
,
                (( CONVERT (dec(15, 2), @usedpages - @pages) ) *
8192/ 1048576) ,
                (( CONVERT (dec(15, 2), @reservedpages - @usedpages)
)* 8192 / 1048576),
                (GETDATE()) '
SELECT * FROM #DBspace ORDER BY UnallocatedSize DESC
DROP TABLE #DBspace

```

## How do I view the log file size and status of a business database in a TencentDB for SQL Server instance?

Log in to the SQL Server client, connect to the instance. For details on how to connect to the instance, see [Connecting to TencentDB for SQL Server Instance from Windows CVM](#) or [Connecting to TencentDB for SQL Server Instance from Local System](#). Execute the following SQL query (for reference only) in the query box to view the log file size and status of the business database:

```
create table #T
(
    [dbname] [nvarchar](100) NULL,
    [logsize] [decimal](30, 2) NULL,
    [logused] [decimal](30, 2) NULL,
    [status] [int] NULL
)
INSERT INTO #T([dbname],[logsize],[logused],[status])
EXECUTE('dbcc sqlperf(logspace)')
select a.*,b.log_reuse_wait_desc from #T a inner join
master.sys.databases b
on a.dbname = b.name order by a.logsize desc
drop table #T
```

## How do I view the table size in a database in a TencentDB for SQL Server instance?

Log in to the SQL Server client, connect to the instance. For details on how to connect to the instance, see [Connecting to TencentDB for SQL Server Instance from Windows CVM](#) or [Connecting to TencentDB for SQL Server Instance from Local System](#). Execute the following SQL query (for reference only) in the query box to view the size of tables in data:

```
USE [DBname]
GO
CREATE TABLE #Tablespace (
    [TableName] [nvarchar](100) NOT NULL,
    [Rows] [nvarchar](100) NULL,
    [ReservedSize] [nvarchar](100) NULL,
    [DataSize] [nvarchar](100) NULL,
    [IndexSize] [nvarchar](100) NULL,
    [UnusedSiz] [nvarchar](100) NULL )
INSERT INTO #Tablespace EXEC sp_msforeachtable 'sp_spaceused ''?''
SELECT * FROM #Tablespace
```

```
order by convert(int,replace(DataSize,'KB','')) desc,2 desc
DROP TABLE #Tablespace
```

## How does TencentDB for SQL Server repossess the tablespace?

TencentDB for SQL Server instance can shrink all database files to free up unused space. For more information, see [Shrinking Database](#).

## How do I avoid data disk space usage surges caused by massive amounts of data pushed to a TencentDB for SQL Server instance within a short time?

In dual-node (formerly high-availability/cluster edition) primary and standby instances, pushing large amounts of data may cause synchronization delays between the primary and standby instances, preventing log truncation and shrinkage, ultimately resulting in a surge in data disk space. It is recommended to stop for a while when pushing data, wait for full synchronization, and then continue to push the next batch of data.

## How do I solve the problem of slow queries in TencentDB for SQL Server?

You can solve this problem in the following ways:

1. By examining the slow SQL log, it's possible to identify if there are any slow-running SQL queries and the performance characteristics of each query, thereby pinpointing the reasons for slow query execution. Log in to the [SQL Server Console](#), in the instance list, click on the instance ID to enter the slow log page [to query and download the slow log](#). TencentDB for SQL Server can also locate the reasons for slow query execution by querying the DMV views.
2. View the CPU utilization metric to assist in problem diagnosis. For more information, see [Monitoring Metrics](#).
3. Create a read-only instance dedicated for query to reduce the load of the primary instance and mitigate the database pressure.
4. Add an index to the joined field in multi-table correlated subqueries.
5. Avoid using `select*` statements for full table scans. Specify fields or add where conditions instead.

## How do I troubleshoot the problem of a high CPU utilization in a TencentDB for SQL Server instance?

The instance CPU utilization may increase for the following reasons:

1. The business SQL statements are unreasonable, as they have a lot of I/O reads and logical operations, such as compilations, recompilations, sorting, aggregations, and table joins. Symptom: There are slow queries, the curves of changes in the QPS and CPU utilization don't match, and there are statements with a high I/O among CPU-consuming statements. Troubleshooting method and solution: Use the following query statements (or monitoring records in the event monitor) together with the slow queries to locate the slow SQL statements and analyze them for optimization. (We recommend you create an index in a table and use it in statements as much as possible. Use SSMS to analyze the actual execution plans of the statements. Then, use optimization suggestions provided by execution plan analysis to optimize the statements based on the specific business conditions.)

```
-- Query the CPU usage by real-time sessions:
SELECT C.text,DB_NAME(A.dbid) dbname,A.loginame,A.* FROM
sys.sysprocesses A
CROSS APPLY sys.dm_exec_sql_text(A.sql_handle) C
where status in ('runnable','suspended')
order by cpu desc
-- Query the CPU usage by top 20 session SQL statements:
SELECT TOP 20
total_worker_time/1000 AS [total CPU time (ms)],execution_count
[number of executions],
qs.total_worker_time/qs.execution_count/1000 AS [average CPU time
(ms)],
last_execution_time AS [last execution time],min_worker_time /1000 AS
[minimum execution time (ms)],
max_worker_time /1000 AS [maximum execution time (ms)],
SUBSTRING(qt.text,qs.statement_start_offset/2+1,
(CASE WHEN qs.statement_end_offset = -1
THEN DATALENGTH(qt.text)
ELSE qs.statement_end_offset END -qs.statement_start_offset)/2 +
1)
AS [statement using CPU], qt.text [complete syntax],
qt.dbid, dbname=db_name(qt.dbid),
qt.objectid,object_name(qt.objectid,qt.dbid) ObjectName
FROM sys.dm_exec_query_stats qs WITH(nolock)
CROSS apply sys.dm_exec_sql_text(qs.sql_handle) AS qt
WHERE execution_count>1
--ORDER BY (qs.total_worker_time/qs.execution_count/1000) DESC -- (top
20 SQL statements with the highest CPU utilization)
```

```
--ORDER BY total_worker_time DESC -- (top SQL statement with the
longest total CPU time)
```

## 2. The degree of parallelism setting for the instance is inappropriate.

**Symptom:** A large number of the same session blocks can be found in the query instance's current session. The wait type is CXPACKET.

**Explanation:** CXPACKET indicates that threads are waiting for each other to finish parallel processing. Generally, the CXPACKET wait type is normal for SQL Server, indicating that SQL Server uses a parallel plan when executing queries, which is usually faster compared to executing queries in a serialized manner. When using a parallel plan, the query is executed across multiple threads, and the query can only proceed once all parallel threads are completed. This means the query will be as fast as the slowest thread. However, when encountering simple queries with excessively high parallelism or complex queries where the data packets processed by parallel threads are unbalanced, unreasonable parallel execution plans or multiple threads waiting for a slower thread may cause CXPACKET waits.

**Troubleshooting and handling methods:**

```
SELECT C.text,DB_NAME(A.dbid) dbname,A.loginname,A. wait_type,A.* FROM
sys.sysprocesses A
CROSS APPLY sys.dm_exec_sql_text(A.sql_handle) C
where spid in (select SPID from sys.sysprocesses where blocked <> 0 )
```

- **Statement-level setting.** Identify high consumption statements through real-time queries or slow logs, and specify `OPTION (MAXDOP 1)` to cancel parallel processing.

**Example:** `SELECT * FROM TABLE WHERE L1='*****' OPTION (MAXDOP 1)`

- **From the instance level setting.** Query the current instance's MAXDOP value

```
select * from sys.configurations where name like '%max%';
```

	configuration_id	name	value	minimum	maximum	value_in_use	description	is_dynamic	is_advanced
1	503	max worker threads	0	128	65535	0	Maximum worker threads	1	1
2	1536	max text repl size (B)	900000000	-1	2147483647	900000000	Maximum size of a text field in replication.	1	0
3	1539	max degree of parallelism	0	0	32767	0	maximum degree of parallelism	1	1
4	1544	max server memory (MB)	2560	128	2147483647	2560	Maximum size of server memory (MB)	1	1
5	1563	max full-text crawl range	4	0	256	4	Maximum crawl ranges allowed in full-text inde...	1	1
6	1565	ft notify bandwidth (max)	100	0	32767	100	Max number of full-text notifications buffers	1	1
7	1567	ft crawl bandwidth (max)	100	0	32767	100	Max number of full-text crawl buffers	1	1

**Modification method:** Changes can be made in the console parameter configuration.

Instance Details System Monitoring Backup and Restoration Publish/Subscribe Security Group Account Management Database Management Read-Only Instance Backup Management

Slow Query Log **Parameter Configuration**

Parameter Settings Modification Log

Batch Modify Parameters

Parameter Name	Instance Restart	Default Value	Current Value	Acceptable Values
fill factor(%) ⓘ	No	0	80	[0-100]
cost threshold for parallelism ⓘ	No	5	5	[0-32767]
max degree of parallelism ⓘ	No	0	0	[0-1024]
optimize for ad hoc workloads ⓘ	No	0	0	[0   1]
min server memory(MB) ⓘ	No	0	0	[0-2560]
blocked process threshold(s) ⓘ	No	0	0	[0-86400]
max worker threads ⓘ	Yes	0	0	[672-32767]

### 3. The business concurrency is high, increasing the instance load.

**Symptom:** It can be clearly seen from monitoring data that the number of requests, number of connections, and CPU utilization of the instance change in line with each other.

**Solution:** This problem is caused by a high number of requests. You can optimize the business logic to reduce the time of each request or upgrade the instance specification.

## How do I view current connections and executed SQL statements in TencentDB for SQL Server?

Log in to SQL Server client, connect to an instance. For details on how to connect to an instance, see [Connecting to SQL Server Instance from Windows CVM](#) or [Connecting to SQL Server Instance Locally](#).

### 1. Query current connections and executing SQL statements using sys.sysprocesses and sys.dm\_exec\_sql\_text views.

```
SELECT C.text,DB_NAME(A.dbid) dbname,A.* FROM sys.sysprocesses A
CROSS APPLY sys.dm_exec_sql_text(A.sql_handle) C
--where spid =
```

### 2. Query all current connections using sys.sysprocesses.

```
DBCC INPUTBUFFER(spids)
SELECT * FROM sys.sysprocesses;
```

Then use DBCC or `sys.dm_exec_input_buffer` to query the specific SQL of the connection.

```
DBCC INPUTBUFFER(spид)
SELECT * FROM sys.dm_exec_input_buffer(session_id, request_id);
```

## How do I analyze and solve blockage in TencentDB for SQL Server?

**Symptom:** When your business often runs slowly but the separate executions of individual SQL statements are fast, there is a high possibility that blocking occurs in your database and slows down the SQL execution.

**Cause:** Blocking occurs as another transaction is reading/writing the requested resource, and the current SQL statement can continue to read/write the resource only after the resource lock is released by the transaction. If there are waits, the business operations will become slower.

**Troubleshooting method:**

1. Retrieve relevant sessions that are currently blocked through the `sys.sysprocesses` system view (blocked is the spid of the blocking source, waitresource is the resource being waited for by the blocked session).

```
select * from sys.sysprocesses where blocked <> 0
SELECT C.text,DB_NAME(A.dbid) dbname,A.loginame,A.* FROM
sys.sysprocesses A
CROSS APPLY sys.dm_exec_sql_text(A.sql_handle) C
where spid in (select SPID from sys.sysprocesses where blocked <> 0 )
```

### Note:

Sometimes `sys.dm_exec_sql_text` may not retrieve the specific SQL text; you can identify the blocking source and blocked spid through previous SQL queries and use DBCC or `sys.dm_exec_input_buffer` to query specific SQL.

2. To obtain detailed blocking information, turn on blocking tracking. See [Enable Collection of Blocking and Deadlocking Events](#).

**Optimization suggestions:**

- 2.1 If the blocking has already affected the business, you can promptly kill the blocking session (kill spid).
- 2.2 Check whether the blocking source is an uncommitted transaction, and if so, commit it promptly.
- 2.3 Analyze and optimize relevant SQL statements and business logic based on the blocking source SQL statement identified in previous troubleshooting steps. For

example, if the execution time of the blocking source SQL statement is too long, you can analyze whether the execution plan can be optimized and whether the business logic is reasonable, and then make sure that resources are accessed in sequence to avoid blocking and deadlocks.

2.4 If select blocking occurs, you can use the with nolog query hint to avoid requesting locks and thus avoid blocking (e.g., `select * from table with(nolog);`).