

Table Store

Product Introduction

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What is Table Store

Table Store is a NoSQL database service built on Alibaba Cloud's Apsara distributed operating system that can store and access large volumes of structured data in real time , which allows you to:

Organize data into instances and tables that can seamlessly scale using data partitioning and load balancing.

Protect applications from faults and errors that may occur on the underlying hardware platform, providing fast recovery capability and high service availability.

Manage data with multiple backups using solid state disks (SSDs), enabling quick data access and high data reliability.

When using Table Store, you only pay for the resources you reserve and use. Services including cluster resizing, upgrades, and maintenance of database software and hardware are managed free of charge.

Basic concepts

Data Model

The data model of Table Store is defined by Table, Row, Primary Key, and Attribute. A table is a set of rows, and a row consists of the primary key and attribute.

Time To Live

Time To Live (TTL) is a data table attribute measured in seconds that indicates the validity period of data. To save data storage space and reduce storage costs, Table Store automatically clears any data that exceeds TTL.

Region

Region refers to a service region of Alibaba Cloud. Table Store is deployed across many service regions. You can select a suitable region tailored to your needs. For more information, see [Table Store regions](#).

Read/write throughput

The read/write throughput is measured by read/write capacity units (CUs), which is the smallest billing unit for the data read and write operations. Read/write throughput includes Reserved throughput and Additional throughput.

Related services

After you load your data to Table Store, you can use it with other Alibaba Cloud products and services.

- For more information about how to export full data and synchronize incremental data in Table Store to OSS, see [Overview](#).
- For more information about how to establish a seamless connection between Table Store and MaxCompute under an Alibaba Cloud account, see [Allow MaxCompute to access Table Store using one account](#).
- For more information about how to use Function Compute to perform real-time computation on incremental data in Table Store data tables, see [Introduction to Function Compute](#).

Use Table Store

Alibaba Cloud provides an intuitive operation interface for you to manage your Table Store resources. You can log on to the Table Store console to operate your instances.

You can also use APIs and SDKs to manage your Table Store resources. For more information, see [Table Store API Reference](#) and [Table Store SDK Reference](#).

Table Store pricing

Billing items of Table Store include Data storage, Reserved read/write throughput, Additional read/write throughput and Downstream Internet traffic. For more information, see [Billing items and pricing](#).

For more information about Table Store pricing, see [Table Store Pricing page](#).

Benefits

Table Store provides the following benefits:

Scalability

Dynamic adjustment of reserved read/write throughput

When creating a table, you can configure the reserved read/write throughput for an application based on business requirements and data access conditions. Table Store schedules and reserves resources, based on the table's reserved read/write throughput, to minimize the resource usage costs. You can dynamically adjust the table's reserved read/write throughput based on the application.

Unlimited capacity

The amount of data stored in Table Store tables is unlimited. If a table size increases, Table Store adjusts the data partitions for immediate storage space allocation to the resized table.

Data reliability

Table Store stores multiple data copies across different servers in different racks. If a failure occurs, backup servers with copied data immediately restore services, resulting in zero data loss.

High availability

Through automatic failure detection and data migration, Table Store protects applications from both hardware and network-related faults to deliver high availability.

Ease of management

Table Store automatically manages complex tasks, such as the management of data partitions, software upgrades, hardware upgrades, configuration updates, and cluster resizing, allowing you to focus on growing your business.

Secure access platform

Table Store performs identity authentication for each application request, preventing

unauthorized data access and ensuring data access security.

High consistency

Table Store guarantees high consistency of writing data. Once a successful result is returned for a write operation, applications can read the latest data.

Flexible data models

Table Store tables do not require a fixed format. The column numbers of each row, and the value types in columns of the same name but different rows, can be varied. Table Store supports multiple data types, such as Integer, Boolean, Double, String, and Binary.

Multi-tenancy mechanism

Table Store uses a shared storage mechanism, which allows multiple instances of different users to share the same cluster resource. Table Store uses the data partition as the smallest unit, which supports the load balancing mechanism at the data partition level to isolate the impact between different instances.

Pay-As-You-Go

Table Store only charges fees based on the actual resources you have reserved and used.

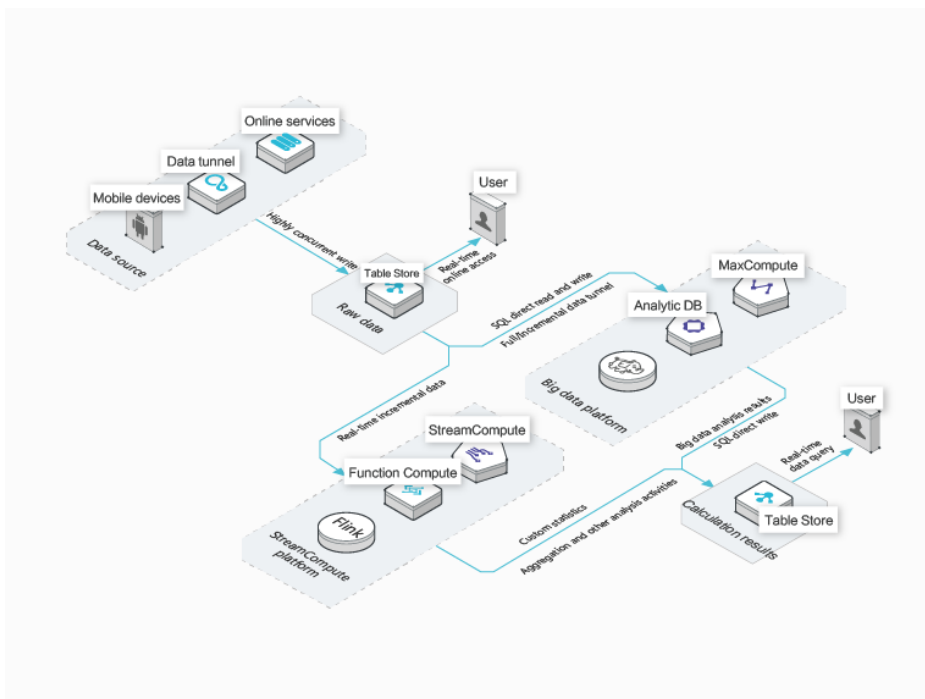
Monitoring integration

The Table Store console provides real-time monitoring information, including the request number per second and the average response latency.

Scenarios

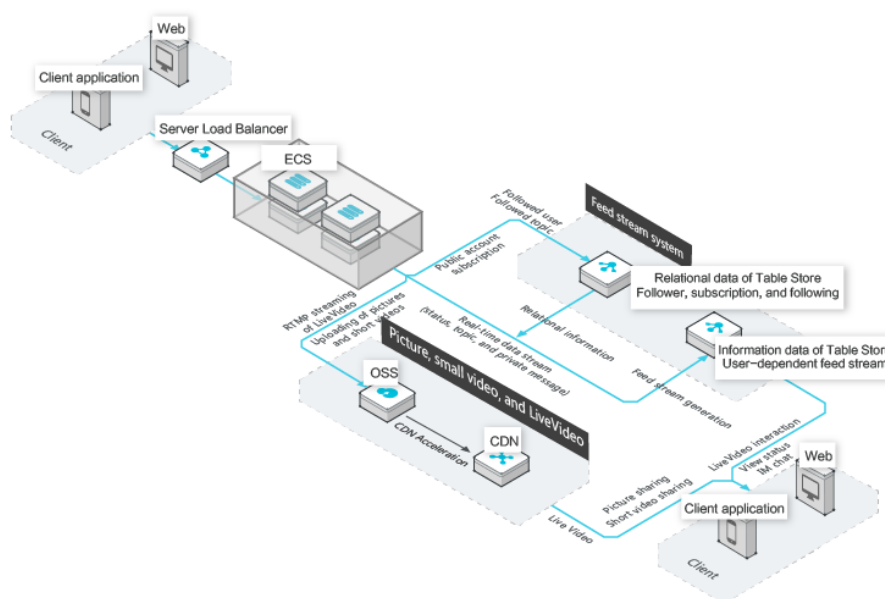
Big data storage and analysis

Table Store provides low-cost, low-latency, and high-concurrency storage and online access of high volumes of data. In addition, Table Store provides incremental and full data tunnels, and also SQL direct read and write on big data analysis platforms, such as MaxCompute. An efficient incremental streaming read interface is provided for easy computing of real-time data streams.



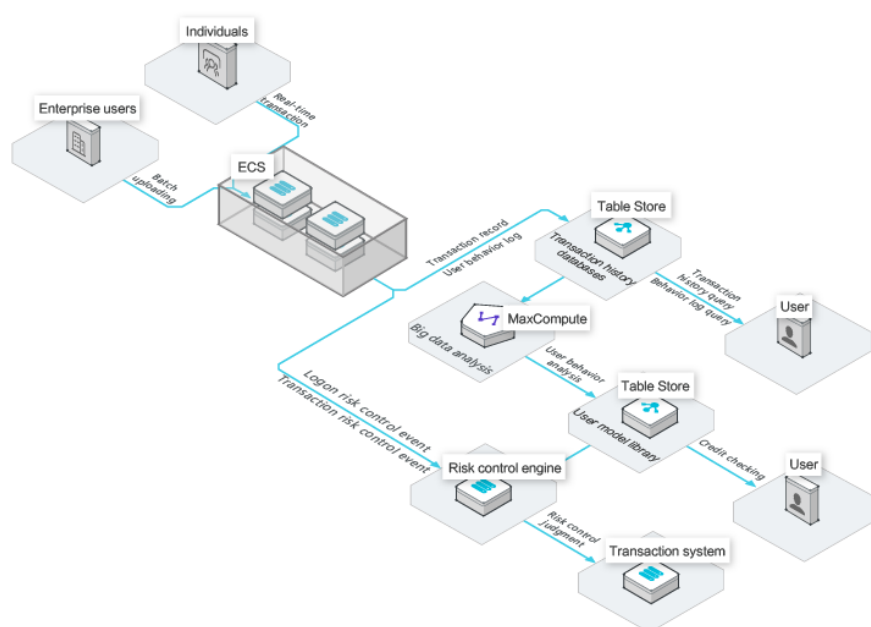
Social feed stream storage

Table Store can store high volumes of social information produced by interactions between people, including instant messaging (IM) chats, comments, and threads. The elastic resources stored in Table Store are billed in Pay-As-You-Go method. At a very competitive cost, Table Store can meet the needs of applications that feature significant traffic fluctuations and high concurrency when low latency is required. Table Store stores images and videos on OSS and, with CDN acceleration, provides an optimal user experience.



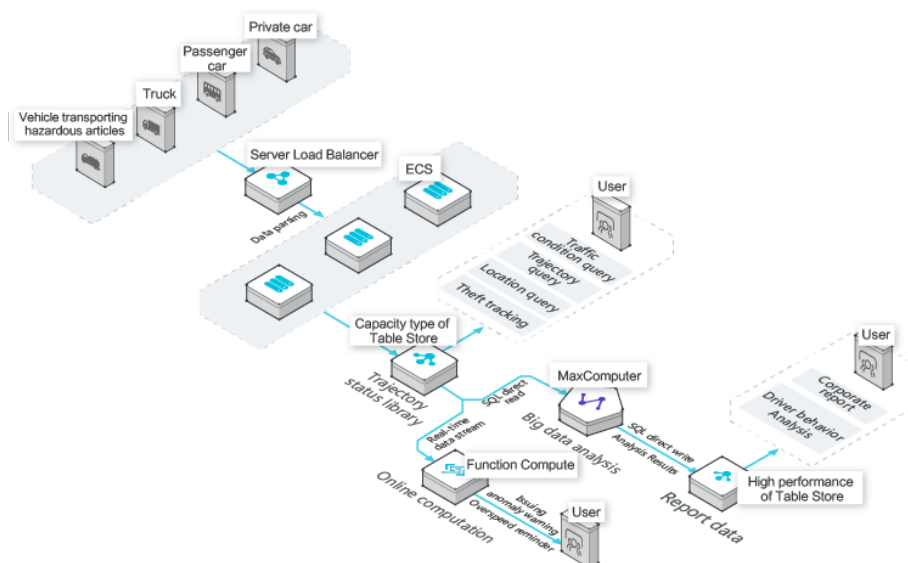
Financial risk control

The advantages of Table Store such as low latency, high concurrency, and Pay-As-You-Go billing of elastic resources combine to optimize the financial risk control system, allowing you to strictly limit transaction risks. Flexible data structures enable fast iteration of business models as market needs shift.



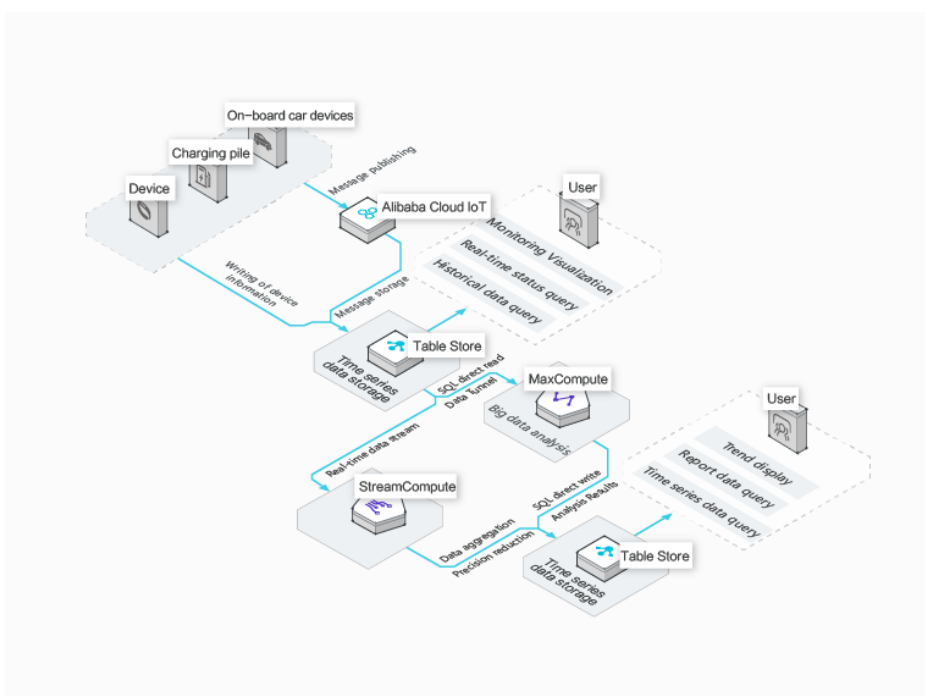
IoV data storage

A single table can store petabytes of data without distributing data in separate databases and tables, which simplifies the business logic. The schema-free data model enables easy access to the monitoring data of different vehicle-mounted devices. Table Store can be seamlessly integrated with multiple big data analysis platforms and real-time computing services for ease of real-time online query and business report analysis.



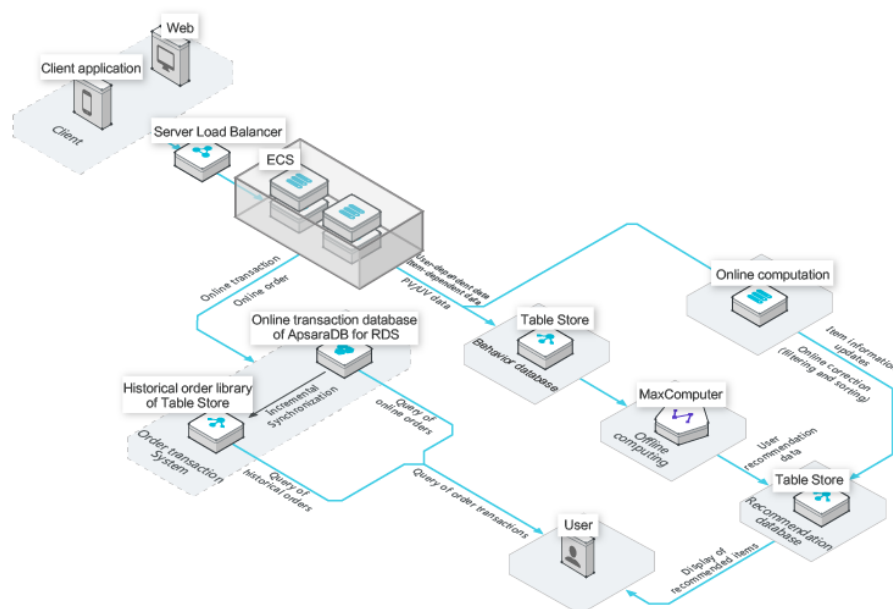
IoT time series data storage

With a single table capable of storing petabytes of data and processing thousands of queries per second (QPS), Table Store makes it easy to store the time series data of IoT devices and monitoring systems. The big data analysis SQL direct read function and the efficient incremental streaming read interface provide an easy way of offline data analysis and real-time streaming computing.



E-commerce recommendation

Table Store makes it possible for you to deal with data volumes and access performance with ease when handling a large number of historical transaction orders. Combined with MaxCompute, Table Store enables precision marketing, elastic resource storage, and Pay-As-You-Go billing. Table Store allows you to easily manage peak hours when a large majority of customers go online.



Terms

Region

Region refers to a service region of Alibaba Cloud. Table Store is deployed across many service regions. You can select the most suitable region according to your requirements.

The following table lists the regions supported by Table Store.

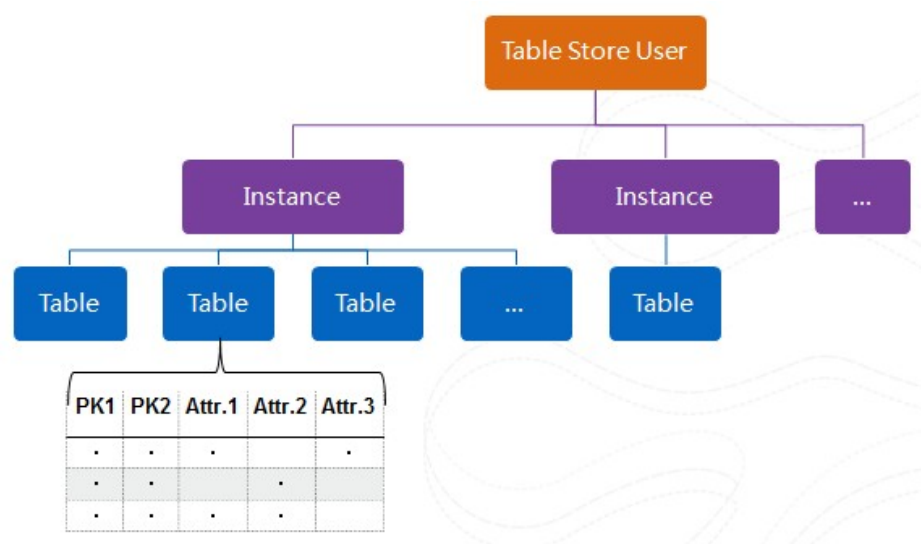
Region name	RegionID
China East 1 (Hangzhou)	cn-hangzhou
China East 2 (Shanghai)	cn-shanghai

China North 2 (Beijing)	cn-beijing
China North 3 (Zhangjiakou)	cn-zhangjiakou
China North 5 (Huhehaote)	cn-huhehaote
China South 1 (Shenzhen)	cn-shenzhen
Hong Kong	cn-hongkong
Singapore	ap-southeast-1
US East 1 (Virginia)	us-east-1
US West 1 (Silicon Valley)	us-west-1
Asia Pacific NE 1 (Japan)	ap-northeast-1
Germany 1 (Frankfurt)	eu-central-1
Middle East 1 (Dubai)	me-east-1
Asia Pacific SE 2 (Sydney)	ap-southeast-2
Asia Pacific SE 3 (Kuala Lumpur)	ap-southeast-3
Asia Pacific SE 5 (Jakarta)	ap-southeast-5
Asia Pacific SOU 1 (Mumbai)	ap-south-1

Instance

Overview

An instance is a logical entity in Table Store used to manage tables as a database in a relational database management system (RDBMS). After activating Table Store, create an instance in the Table Store console and then create and manage tables within this instance. An instance is the basic unit in the resource management system of Table Store. Table Store implements access control and resource metering at the instance level.



You can create different instances for multiple businesses to manage their respective tables. You can also create multiple instances for one business based on different development, testing, and production purposes.

Table Store allows one Alibaba Cloud account to create up to 10 instances, and up to 64 tables can be created within each instance. If more instances or tables are needed, [open a ticket](#).

Name format

The name of each instance is unique within each region. You can create instances of the same names across different service regions. Naming rule for each instance must:

- Contain English letters, numbers, and hyphens(-)

- Start with English letters

- Not end with a hyphen(-)

- Be case-insensitive

- Be 3 Bytes to 16 Bytes in length

- Not contain the words, such as 'ali' , 'ay' , 'ots' , 'taobao' ,and 'admin'

Instance type

Table Store supports two instance types: high-performance instance and capacity instance.

Note: An instance type cannot be modified once the instance is created.

The two instance types have the same functions and support petabyte-sized data volumes for a single table, however, they differ in costs and scenarios.

High-performance instance

High-performance instances support millions of read-write transactions per second (TPS) with 1 ms average latency of read and write operations per row. High-performance instances are suitable for scenarios requiring high read and write performance and concurrency, such as gaming, financial risk control, social networking applications, product recommendation systems, and public opinion sensing.

Capacity instance

Capacity instances provide write throughput and write performance comparable to that of the high-performance instances, but with lower costs. However, the capacity instances do not equal the read performance and concurrency of high-performance instances. The capacity instances are suitable for services with high write frequency but low read frequency, and services with high affordability and reduced performance requirements. This includes access to log monitoring data, Internet of Vehicles data, device data, time sequence data, and logistics data.

Note: Capacity instances do not support reserved read/write throughput. All reads and writes are billed based on the additional read/write throughput.

Instance type supported by region

Region	High-performance instance	Capacity instance
China East 1 (Hangzhou)	Support	Support
China East 2 (Shanghai)	Support	Support
China North 2 (Beijing)	Support	Support
China North 3 (Zhangjiakou)	In development	Support
China North 5 (Huhehaote)	In development	Support
China South 1 (Shenzhen)	Support	Support
Hong Kong	In development	Support
Singapore	Support	In development
US East 1 (Virginia)	Support	In development
US West 1 (Silicon Valley)	Support	In development

Asia Pacific NE 1 (Japan)	In development	Support
Germany 1 (Frankfurt)	In development	Support
Middle East 1 (Dubai)	In development	Support
Asia Pacific SE 2 (Sydney)	In development	Support
Asia Pacific SE 3 (Kuala Lumpur)	In development	Support
Asia Pacific SE 5 (Jakarta)	In development	Support
Asia Pacific SOU 1 (Mumbai)	In development	Support

Endpoint

Each instance corresponds to an endpoint that is also known as the connection URL. The endpoint needs to be specified before any operations on the tables and data of Table Store.

To access the data in Table Store from the Internet, the endpoint uses the following format:

```
https://instanceName.region.ots.aliyuncs.com
```

To access the data in Table Store from an Alibaba Cloud ECS instance of the same region through the intranet, the endpoint uses the following format:

```
https://instanceName.region.ots-internal.aliyuncs.com
```

For example, to access the Table Store instance in China East 1 (Hangzhou) region, with the instance name of myInstance:

```
Endpoint for Internet access: https://myInstance.cn-hangzhou.ots.aliyuncs.com  
Endpoint for intranet access: https://myInstance.cn-hangzhou.ots-internal.aliyuncs.com
```

Better performance, such as lower response latency and no unnecessary Internet traffic, can be expected through the intranet.

If an application accesses Table Store from an ECS instance in VPC, the endpoint uses the following format:

```
https://vpcName-instanceName.region.vpc.ots.aliyuncs.com
```

For example, the service address used by an application in China East 1 (Hangzhou) region to access the instance named myInstance from a network named testVPC:

```
Endpoint of VPC access: https://testVPC-myInstance.cn-hangzhou.vpc.ots.aliyuncs.com
```

This VPC access address is only used for access initiated by servers in the testVPC network.