

# Alibaba Cloud ApsaraDB for Redis

## Product Usage

Issue: 20190804

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## Generic conventions

Table -1: Style conventions

Style	Description	Example
	This warning information indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	 <b>Danger:</b> Resetting will result in the loss of user configuration data.
	This warning information indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	 <b>Warning:</b> Restarting will cause business interruption. About 10 minutes are required to restore business.
	This indicates warning information, supplementary instructions, and other content that the user must understand.	 <b>Notice:</b> Take the necessary precautions to save exported data containing sensitive information.
	This indicates supplemental instructions, best practices, tips, and other content that is good to know for the user.	 <b>Note:</b> You can use Ctrl + A to select all files.
>	Multi-level menu cascade.	Settings > Network > Set network type
<b>Bold</b>	It is used for buttons, menus, page names, and other UI elements.	Click OK.
<code>Courier font</code>	It is used for commands.	Run the <code>cd / d C :/ windows</code> command to enter the Windows system folder.
<i>Italics</i>	It is used for parameters and variables.	<code>bae log list --instanceid Instance_ID</code>
[ ] or [a b]	It indicates that it is an optional value, and only one item can be selected.	<code>ipconfig [-all -t]</code>

Style	Description	Example
<code>{}</code> or <code>{a b}</code>	It indicates that it is a required value, and only one item can be selected.	<code>swich {stand   slave}</code>



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# 1 Product features

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## 1.1 Does ApsaraDB for Redis support distributed cluster instances?

ApsaraDB for Redis supports distributed cluster instances. Cluster instances provide a larger storage capacity and higher processing performance.

For more information about Redis commands that ApsaraDB for Redis cluster instances support, see [Supported Redis commands](#).

## 1.2 Do a replica node and the corresponding master node receive data and perform updates simultaneously?

A master node automatically synchronizes updates to the corresponding replica node. However, the updates on the replica node may lag behind that on the master node due to Redis asynchronous replication. In this replication mechanism, the speed of I/O write operations on the master node may be higher than the speed of synchronization to the replica node. Also, network latency may exist between the master node and the replica node. Therefore, some data may be inconsistent between the master node and the replica node in a certain period.

If the issue persists, please submit a ticket.

## 1.3 How does ApsaraDB for Redis evict data by default?

By default, an ApsaraDB for Redis instance evicts data by using the volatile-lru policy. To modify the eviction policy, log on to the ApsaraDB for Redis console, click the target instance ID on the Instance List page to go to the Instance Information page, and click `System Parameters` in the left-side navigation pane.

- volatile-lru

The system only evicts data that has Time To Live (TTL) configured according to the Least Recently Used (LRU) algorithm.

- volatile-ttl

The system only evicts data that has TTL configured, and evicts the data in ascending order of TTL.

- allkeys-lru

The system evicts data according to the LRU algorithm.

- volatile-random

The system only randomly evicts data that has TTL configured.

- allkeys-random

The system randomly evicts data.

- noeviction

The system does not evict any data, but returns an error when you write new data to the system.

- volatile-lfu

The system only evicts least frequently used keys that have TTL configured according to the Least Frequently Used (LFU) algorithm.

- allkeys-lfu

The system evicts least frequently used keys according to the LFU algorithm.

## 1.4 Which version of Redis is compatible with ApsaraDB for Redis?

ApsaraDB for Redis is compatible with Redis version 3.2. ApsaraDB for Redis does not support a few commands in Redis version 3.2. For more information, see [Supported Redis commands](#).

## 1.5 Does a master node of an ApsaraDB for Redis instance work with multiple replica nodes?

One master node of each ApsaraDB for Redis instance can work with only one replica node instead of multiple replica nodes.

## 1.6 Does ApsaraDB for Redis support data persistence?

An ApsaraDB for Redis instance stores data in memory and hard disks, and supports data persistence. You are insensitive to the operations and management of data persistence. You cannot manually specify the method and frequency of data persistence. Instead, ApsaraDB for Redis automatically manages this feature and performs related operations.

## 1.7 What is the relationship between ApsaraDB for Redis and Redis?

Alibaba Cloud ApsaraDB for Redis is a key-value cloud storage service that is compatible with Redis protocols. ApsaraDB for Redis supports most Redis commands. All clients compatible with Redis can connect to the ApsaraDB for Redis service to complete data storage and related operations.

## 1.8 Does ApsaraDB for Redis support master-replica replication?

Yes. ApsaraDB for Redis automatically manages the synchronization and failover operations between the master and replica nodes.

## 1.9 How does an ApsaraDB for Redis instance delete expired data?

An ApsaraDB for Redis instance deletes expired data in two ways:

- **Automatic deletion:** the system periodically detects and deletes expired keys in the background.
- **Passive deletion:** when you access a key that has been expired, the system deletes this key.

If the issue persists, submit a ticket to [request technical support](#).

## 1.10 Does any ApsaraDB for Redis instance have a read-only replica node?

## 1.11 Does each ApsaraDB for Redis instance such as a cluster instance have one master node and one replica node running simultaneously?

All ApsaraDB for Redis instances including cluster instances have one master node and one replica node running at the backend. Each shard server in a cluster instance also has one master and one replica.

## 1.12 What is the size of each database on an ApsaraDB for Redis instance and how can I choose databases?

By default, each ApsaraDB for Redis instance has 256 databases named from DB 0 to DB 255.

The size of each database is not restricted. But the available database space is limited by the overall space of the ApsaraDB for Redis instance.

To switch between different databases, run the `SELECT` command.

For example, to select DB 1, run the `SELECT 1` command.

## 1.13 Description of redis-benchmark

Redis includes the `redis-benchmark` utility to test performance of the Redis service.

Options of `redis-benchmark` are described as follows:

```
Usage : redis - benchmark [- h ] [- p ] [- c ] [- n ] [- k ]
- h      Server hostname ( default 127 . 0 . 0 . 1 )
- p      Server port ( default 6379 )
- s      Server socket ( overrides host and port )
- c      Number of parallel connection s ( default 50 )
- n      Total number of requests ( default 10000 )
- d      Data size of SET / GET value in bytes (
default 2 )
- k      1 = keep alive 0 = reconnect ( default 1 )
- r      Use random keys for SET / GET / INCR , random
values for SADD
Using this option the benchmark will get / set keys
in the form mykey_rand : 0000000124 56 instead of
constant
keys , the argument determines the max
number of values for the random number . For
instance
```

```

if set to 10 only rand : 0000000000 00 - rand :
0000000000 09
range will be allowed .
- P Pipeline requests . Default 1 ( no pipeline ).
- q Quiet . Just show query / sec values
- csv Output in CSV format
- l Loop . Run the tests forever
- t Only run the comma - separated list of tests
. The test
names are the same as the ones produced as output
.
- I Idle mode . Just open N idle connection s
and wait .

```

Some testing commands are listed as follows:

1. `redis - benchmark - h 192 . 168 . 1 . 201 - p 6379 - c 100 - n 100000`

This command is used to test the performance of a Redis server. The Redis server runs on a local host and `-h` specifies the IP address of the host. This server provides the service port 6379. In this testing, the Redis server processes 100 concurrent connections and 100,000 requests.

2. `redis - benchmark - h 192 . 168 . 1 . 201 - p 6379 - q - d 100`

This command is used to test the performance of accessing 100-byte packets.

3. `redis - benchmark - t set , lpush - n 100000 - q`

This command is only used to test the performance of specified operations.

4. `redis - benchmark - n 100000 - q script load " redis . call ( ' set ' , ' foo ' , ' bar ' )"`

This command is only used to test the performance of accessing some values.

In the actual testing, the system returns the following error: `writing to`

`socket : connection timed out .`

```
[root@iZ... ~]# redis-benchmark -h ... -p 18000 -c 5000 -n 100000 -q
PING_INLINE: 66622.25 requests per second
PING_BULK: 50709.94 requests per second
SET: 52910.05 requests per second
GET: 58823.53 requests per second
INCR: 35161.74 requests per second
LPUSH: 60024.01 requests per second
LPOP: 54024.85 requests per second
SADD: 57240.98 requests per second
SPOP: 62305.30 requests per second
LPUSH (needed to benchmark LRANGE): 30854.68 requests per second
LRANGE_100 (first 100 elements): 52356.02 requests per second
LRANGE_300 (first 300 elements): 32905.56 requests per second
Writing to socket: Connection timed out63
Writing to socket: Connection timed out
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Writing to socket: Connection timed out
Writing to socket: Connection timed out
```

Run the `netstat -an` command to check whether the ApsaraDB for Redis instance has used too many ports. If so, restart the instance to release the connections, and perform the testing again.

```
root@iZ... ~]# redis-benchmark -h ... -p 18000 -c 5000 -n 100000 -q
PING_INLINE: 38314.18 requests per second
PING_BULK: 37693.18 requests per second
SET: 37341.30 requests per second
GET: 37271.71 requests per second
INCR: 37439.16 requests per second
LPUSH: 36832.41 requests per second
LPOP: 37678.97 requests per second
SADD: 36284.47 requests per second
SPOP: 34293.55 requests per second
LPUSH (needed to benchmark LRANGE): 37622.27 requests per second
LRANGE_100 (first 100 elements): 33772.38 requests per second
LRANGE_300 (first 300 elements): 27397.26 requests per second
LRANGE_500 (first 450 elements): 23293.73 requests per second
LRANGE_600 (first 600 elements): 20391.52 requests per second
MSET (10 keys): 37565.74 requests per second
```

You can submit a ticket to [request technical support](#).

## 1.14 How many databases does each ApsaraDB for Redis instance support?

Each instance supports 256 databases.

## 2 Developing and testing

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### 2.1 How can I use the redis-cli tool to connect to ApsaraDB for Redis?

To use the redis-cli tool to connect to ApsaraDB for Redis, run the following command :

```
redis - cli - h < Connection address of the target  
instance > - a < Instance ID > : < Password >
```



**Notice:**

An ECS instance and an ApsaraDB for Redis instance can interconnect with each other only when they run on the same node. Because ApsaraDB for Redis only supports connections over an internal network. You cannot connect to the service over a public network or from a server on another node in a public network.

If the issue persists, submit a ticket to [request technical support](#).

### 2.2 Where can I download ApsaraDB for Redis clients?

Clients compatible with Redis protocols can connect to Alibaba Cloud ApsaraDB for Redis. You can choose any Redis client based on the features of your application.

For more information about Redis clients, see [Clients](#).

If the issue persists, submit a ticket to [request technical support](#).