

Alibaba Cloud ApsaraDB for MongoDB

Product Usage

Issue: 20200601









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Document conventions

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

Style	Description	Example
{ } or {a b}	This format is used for a required value, where only one item can be selected.	switch {active stand}

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1 Hot issues


1.1 How to troubleshoot logon issues for the mongo shell

You can use DMS or the mongo shell to log on to ApsaraDB for MongoDB. This topic describes the typical problems that may occur when you use the mongo shell to log on to ApsaraDB for MongoDB and the corresponding solutions.

The message "connection attempt failed" is displayed

Symptom:

```
#mongo --host ali12345678.mongodb.rds.aliyuncs.com:3717 --authenticationDatabase
admin -u root -p xxx
MongoDB shell version: 3.2.3
DB Prefix:
connecting to: 10.1.2.8:3717/admin
2016-05-31T15:25:58.940+0800 W NETWORK Failed to connect to 10. *. *.8:3717 after
5000 milliseconds, giving up.
2016-05-31T15:25:58.943+0800 E QUERY Error: couldn't connect to server 10. *. *.8:
3717 (10.1.2.8), connection attempt failed
  at connect (src/mongo/shell/mongo.js:181:14)
  at (connect):1:6 at src/mongo/shell/mongo.js:181
exception: connect failed
```

Possible cause	Solution
The ECS instance on which you run the mongo shell command and the ApsaraDB for MongoDB instance are not in the same VPC or have different network types.	<ul style="list-style-type: none"> If they are not in the same VPC, switch the network type of the ApsaraDB for MongoDB instance to classic network and then switch back to VPC. <div style="background-color: #f0f0f0; padding: 5px; margin-top: 10px;">  Note: The VPC must be the same as that of the ECS instance. </div> <ul style="list-style-type: none"> If they have different network types, perform troubleshooting by referring to #unique_5.

Supplementary troubleshooting method: You can run the Telnet command, such as `telnet dds-ali123456789.mongodb.rds.aliyuncs.com 3717`, to check whether the network of the ApsaraDB for MongoDB instance is accessible.

```
root@mongotest:~# telnet [REDACTED].mongodb.rds.aliyuncs.com 3717
Trying [REDACTED] 7...
Connected to [REDACTED].mongodb.rds.aliyuncs.com.
Escape character is '^]'.
```

This figure shows that the URL can be resolved and port 3717 works properly.

The message "Authentication failed" is displayed

Symptom:

```
#mongo --host ali12345678.mongodb.rds.aliyuncs.com:3717 --authenticationDatabase
admin -u root -p xxx
MongoDB shell version: 3.2.3
connecting to: 10.1.2.8:3717/test
2016-05-31T15:50:18.623+0800 E QUERY Error: 18 Authentication failed.
  at DB._authOrThrow (src/mongo/shell/db.js:1271:32)
  at (auth):6:8
  at (auth):7:2 at src/mongo/shell/db.js:1271
exception: login failed
```

Possible cause	Solution
The username used for database logon is incorrect.	Log on to the database with the correct username.
The password used for database logon is incorrect.	Log on to the database with the correct user password. If you forget the password, reset the password for the root user in the console. For details, see #unique_6 .
The logon user does not match the authentication database.	The user must match the authentication database. For example, the root user is a user of the admin database, so the authentication database must be assigned as admin if this user is used to log on.
The client version is outdated.	The mongo shell version must be 3.0 or later. For information about how to install the mongo shell, see Install MongoDB . For version requirements of clients in other programming languages, see Driver compatibility documentation .

A network error occurs when you run the isMaster command

Symptom:

```
#mongo --host ali12345678.mongodb.rds.aliyuncs.com:3717 --authenticationDatabase
test -u root -p xxxxxx
MongoDB shell version v3.4.10
connecting to: mongodb:ali1234567878.mongodb.rds.aliyuncs.com:3717/
2018-12-18T14:26:11.946+0800 E QUERY [thread1] Error: network error while
attempting to run command 'isMaster' on host 'ft12345678.mongodb.rds.aliyuncs.com:
3717' :
connect@src/mongo/shell/mongo.js:237:13
@(connect):1:6
```

exception: connect failed

Possible cause	Solution
The IP address of the ECS instance is not in the whitelist of the ApsaraDB for MongoDB instance.	Add the IP address of the ECS instance to the whitelist of the ApsaraDB for MongoDB instance. For more information, see Configure a whitelist .

The message "Timeout while receiving message" is displayed

```
org.springframework.data.mongodb.UncategorizedMongoDbException: Timeout while receiving message; nested exception is com.mongodb.MongoSocketReadTimeoutException: Timeout while receiving message
```

Possible cause	Solution
Abnormal slow queries occupy instance resources, causing CPU usage to surge or even peak.	Check for slow queries. We recommend that you create indexes for optimization. For more information, see Analyze slow database requests .
The configuration of the application connection pool, such as the timeout setting, is incorrect.	For more information, see Limit the number of connections for terminals .

Common connection scenarios

- [#unique_10](#)
- [#unique_5](#)
- [#unique_11](#)
- [#unique_12](#)

1.2 How to query and limit the number of connections

You can use DMS or the mongo shell to log on to ApsaraDB for MongoDB. This topic describes how to query the connection usage and how to set the maximum number of connections for a connection pool.

Query the number of current connections

The maximum number of connections depends on the specifications of the ApsaraDB for MongoDB instance you purchased. For more information, see [Instance specifications](#).



Note:

The maximum number of connections takes effect on each node in the instance. For example, if you have purchased a three-node replica set instance with one core and 2 GB memory, the maximum number of connections of the primary and secondary nodes of the instance is 500, respectively. The hidden node does not provide services for external systems due to its special architecture.

Use the mongo shell to connect to the instance. For more information, see [#unique_14](#). Then, run the `db.serverStatus().connections` command.

```
mgset-123456:PRIMARY> db.serverStatus().connections
{
  "current" : 1,
  "available" : 999,
  "internal_current" : 10,
  "internal_available" : 990,
  "totalCreated" : 632
}
```

**Note:**

You need to pay attention to the following parameters and their values.

- "current": indicates the number of established connections.
- "available": indicates the number of available connections.

Query the source IP addresses of current connections

1. Use the mongo shell to connect to an ApsaraDB for MongoDB instance. For more information, see [#unique_14](#). Then, switch to the admin database.

```
use admin
```

2. Run the `db.runCommand({currentOp: 1, $all: true})` command.

```
mgset-123456:PRIMARY> db.runCommand({currentOp: 1, $all:[{"active" : true}]})
```

You can query the source IP address of each connection by analyzing the command output. In this way, you can learn the number of connections that have been established between each terminal and the ApsaraDB for MongoDB instance.

How to query and limit the number of connections

You can use a connection string URI to connect to ApsaraDB for MongoDB. If you use a connection string URI to connect to a database, append `&maxPoolSize=<integer>` to the URI. In this way, you can set the maximum number of connections in the connection pool.

The following code is an example of using the mongo shell to connect to the database (the maximum number of connections is set to 10):

```
mongo "mongodb://root:xxxxxx@dds-bpxxxxxxx-pub.mongodb.rds.aliyuncs.com:3717,dds-bpxxxxxxx-pub.mongodb.rds.aliyuncs.com:3717/admin? replicaSet=mgset-xxxxxx &maxPoolSize=10"
```

**Note:**

For more information about how to limit the number of connections in the connection pool for clients in different programming languages, see [MongoDB API documentation](#).

1.3 What do I do if my ApsaraDB for MongoDB instance is heavily loaded?

While an ApsaraDB for MongoDB instance is running, it may be overloaded, which slows down its read/write processing for your application. Analyze and adjust your application for troubleshooting.

For more information, see [#unique_8](#).

1.4 How to troubleshoot database connection failures after the number of connections reaches the upper limit

After the number of connections to an ApsaraDB for MongoDB instance reaches the limit, new connection requests cannot be responded. This topic describes how to handle database connection failures after the number of connections reaches the upper limit.

The maximum number of connections varies depending on ApsaraDB for MongoDB instance types. For more information, see [#unique_13](#).

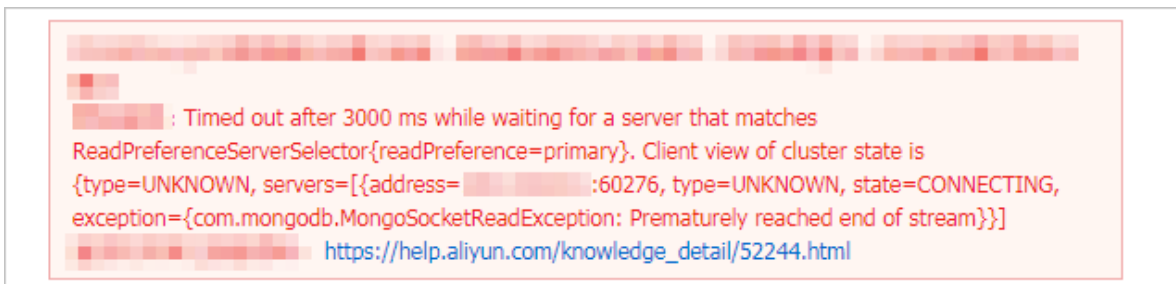
Symptom

- The application fails to connect to the database.
- The whitelist has been properly set. However, the following error message is displayed when you use the mongo shell to connect to the database:

```
2019-07-10T10:30:43.597+0800 E QUERY [js] Error: network error while attempting to run command 'isMaster' on host 'dds-bpxxxxxxx.mongodb.rds.aliyuncs.com:3717' : connect@src/mongo/shell/mongo.js:328:13
@(connect):1:6
```

exception: connect failed

- The whitelist has been properly set. However, the following error message is displayed when you use DMS to connect to the database.



Before you begin

To obtain the required monitoring information, we recommend that you set the monitoring granularity of the ApsaraDB for MongoDB instance to seconds. For more information, see [#unique_17](#).

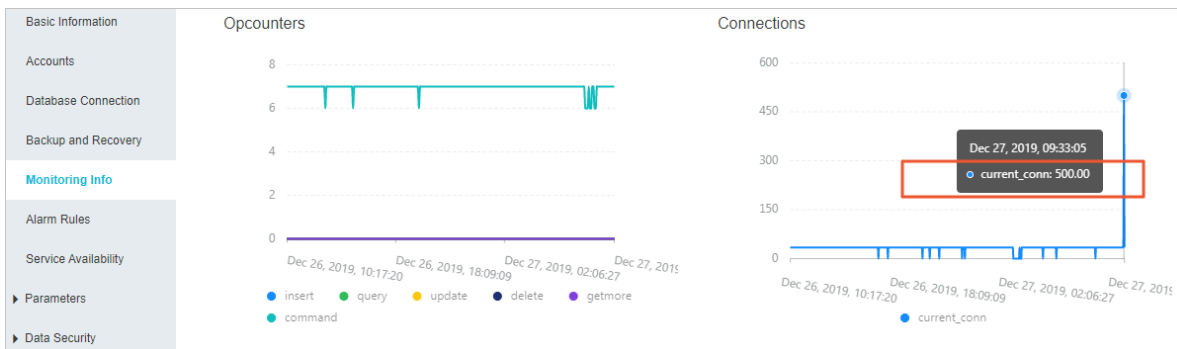
Check whether the number of connections has reached the upper limit

- Log on to the [ApsaraDB for MongoDB console](#).
- In the upper-left corner of the page, select the region of the instance.
- In the left-side navigation pane, click **Replica Set Instances** or **Sharding Instances**.
- Find the target instance and click its ID.
- In the left-side navigation pane, click **Monitoring Info**.
- On the **Monitoring Info** page, check the **Connections** information. The following figure shows that the number of connections to the instance is **500**.



Note:

If the instance is a sharded cluster instance, you must select the **Mongos** node in use in the upper-right corner on the page.



- In the left-side navigation pane, click **Basic Information**.

8. On the **Basic Information** page, query the maximum number of connections corresponding to the current instance specifications. In this example, the number is **500**.



Note:

Based on the number of current connections, you can confirm that the number of connections has reached the upper limit.

Basic Information	
Instance ID	dds- XXXXXXXXXX
Instance Name	XXXXXXXXXX Edit
Zone	Hangzhou Zone B
Network Type	Classic Network
Storage Engine	WiredTiger
Upgrade Database Version Renew Upgrade Downgrade	
Specification Information	
Specification Details	1 Core, 2 GB
Replication Factor	Three-node Add Node
Read-only Nodes	0
Specification Code	dds.mongo.mid
Version	3.4
Minor Version	mongodb_20191024_1.1.10
Disk Space	10 G (Utilization: 3.8%)
Connections	500
IOPS	8000
Maintenance Period	02:00-06:00 Edit
Billing Method	Subscription
Created At	Dec 19, 2019, 16:10:00
Expiration Time	Jan 20, 2020, 00:00:00

Solution

You can restart the instance to temporarily release all connections. For more information, see [#unique_18](#). To prevent this problem from occurring again, we recommend that you perform the following operations after restarting the instance:



Note:

If you restart the instance, all instance nodes are restarted one by one. Each node has a transient disconnection of about 30 seconds. If there are a large number of collections (more than 10,000), the transient disconnections last longer. Before restarting the instance, arrange your business and ensure that your application has a reconnection mechanism.

- Configure the connection pool. For more information, see [How to query and limit the number of connections](#).
- Analyze the connection sources. For more information, see [Query the source IP addresses of current connections](#). If the service uses all the connections, upgrade the instance specifications. For more information, see [#unique_19](#).

1.5 What do I do if my ApsaraDB for MongoDB instance is locked due to exhausted disk space?

If the disk space of an ApsaraDB for MongoDB instance is exhausted, the instance is locked and you cannot write data to or delete data from it.



Note:

If the disk space of your ApsaraDB for MongoDB instance is exhausted and you cannot run write or delete commands, refer to [Solutions](#).

Symptoms

- You can read but cannot write data in the instance.
- The administrator enters the following command in the mongo shell, and not authorized on xxxx to execute command is returned.

```
db.customer.insert({"name":"zhangsan"})
WriteCommandError({
  "operationTime" : Timestamp(1563437183, 1),
  "ok" : 0,
  "errmsg" : "not authorized on db1 to execute command {insert: \"customer\",
ordered: true, lsid: { id: UUID(\"8d43461c-5c51-49ef-b9b3-9xxxxxxxxf\") }, $clusterTime: { clusterTime: Timestamp(1563437183, 1), signature: { hash: BinData(0, 0C3FAAE747xxxxxxxx), keyId: 668293399xxxxxx } }, $db: \"db1\" }",
  "code" : 13,
  "codeName" : "Unauthorized",
  "$clusterTime" : {
    "clusterTime" : Timestamp(1563437183, 1),
    "signature" : {
      "hash" : BinData(0,"DD+q50dPTuIQKTzytT5SiTPYX4Q="),
      "keyId" : NumberLong("66xxxxxxxx")
    }
  }
})
```

- The administrator finds that the instance status is **Locked** in the ApsaraDB for MongoDB console.



Note:

Sharded cluster instances are a special case. When the disk space of a sharded cluster instance is exhausted, the instance does not enter the **Locked** state.

Check whether disk space is exhausted

- Log on to the [ApsaraDB for MongoDB console](#).
- In the upper-left corner of the page, select the region of the instance.
- In the left-side navigation pane, click **Replica Set Instances** or **Sharding Instances**.

4. Find the target instance and click its ID.
5. Check whether disk space is exhausted.

**Note:**

The system collects data on disk space usage at intervals of five minutes.

- Standalone or replica set instances

On the **Basic Information** page, view the instance status and its disk space usage. In this example, the instance status is **Locked**, and the disk space usage of the instance exceeds 100%, which indicates that the disk space is exhausted.

The screenshot shows the 'Basic Information' page for an instance. The instance status is 'Locked'. The 'Disk Space' section indicates 10 G of space with 108.1% utilization. Other details include Instance ID, Instance Name, Zone, Storage Engine, Version, and Billing Method.

- Sharded cluster instances

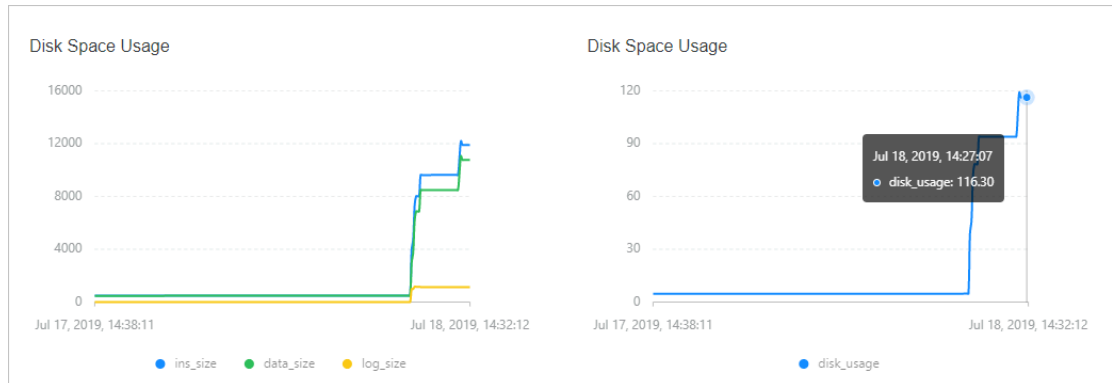
- a. In the left-side navigation pane, click **Monitoring Info**.
- b. On the **Monitoring Info** page that appears, select the target shard.

The screenshot shows the 'Monitoring Info' page. The 'Monitor Granularity Setting' is set to '1 Seconds'. The 'Instance Information Collection Frequency' is '1 Seconds'. The 'Monitor Granularity Setting' dropdown is open, showing a list of shards. The 'd-bp' shard is selected. The CPU Usage chart shows a spike in usage for the selected shard.

**Note:**

If an ID starts with the letter d, it indicates a shard. If an ID starts with the letter s, it indicates a mongos.

- c. View disk space usage. In this example, the disk space usage of the shard exceeds 100%, which indicates that the disk space is exhausted.



Solutions

- Expand the disk space of the instance. For more information, see [#unique_19](#).



Note:

Maximum disk space varies with instance types. For more information, see [#unique_13](#).

- A replica set instance supports up to 3,000 GB of disk space. If you need greater disk space, we recommend that you deploy a [sharded cluster instance](#) where you can add shards to expand the disk space up to 96,000 GB.



Note:

You can use Data Transmission Service (DTS) to migrate data from a source instance to a new sharded cluster instance. For more information, see [#unique_22](#).

Suggestions

If you have executed the `db.collection.remove` command to delete a large volume of data or you have not defragmented your disk, you can still increase disk space by performing defragmentation. For more information, see [#unique_23](#).

1.6 Why does ApsaraDB for MongoDB trigger primary/standby switchovers?

ApsaraDB for MongoDB uses high availability (HA) architecture. When an ApsaraDB for MongoDB instance detects that one of its nodes is unavailable, it triggers a primary/

standby switchover. It also sends a Short Message Service (SMS) message or internal notice to inform you of the switchover.

Internal notice

[Alibaba Cloud] Dear *****: Your ApsaraDB for MongoDB instance dds-bpxxxxxxx (name : xxxxxx) has an error. A switchover is triggered to ensure stable running of your instance. Please check whether your application is still connected to your instance. We recommend that you configure your application to reconnect to the instance after it is disconnected.

Why do I receive the internal notice?

ApsaraDB for MongoDB uses HA architecture. A replica set instance of ApsaraDB for MongoDB contains three nodes by default, and a sharded cluster instance of ApsaraDB for MongoDB has each of its shards contain three nodes. Primary and secondary nodes are used for you to connect your application, and hidden nodes are used for primary/standby switchovers, which ensures HA. For more information, see [#unique_25](#) or [#unique_21](#).

ApsaraDB for MongoDB supports node health monitoring. When the monitoring results show an unavailable node, a primary/standby switchover is triggered.

Impact of primary/standby switchovers

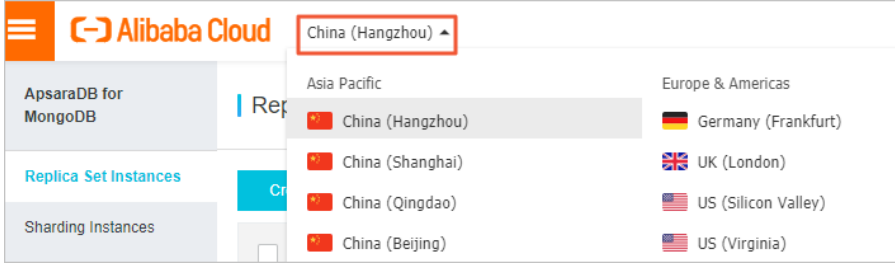

- A primary/standby switchover causes a brief disconnection of less than 30 seconds.
- If you connect your application to a primary node, the read/write operations of your application are affected as a result of the primary/secondary switchover.

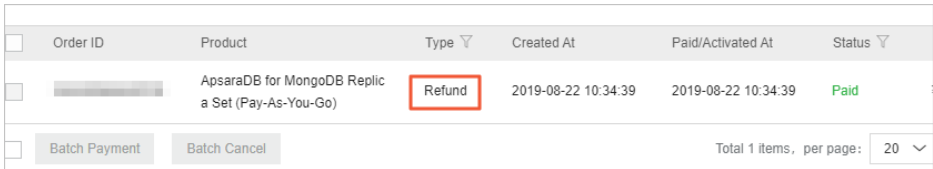
Suggestions

- We recommend that you configure your application to reconnect to an ApsaraDB for MongoDB instance after it is disconnected.
- If your application runs in a production environment, we recommend that you use a connection string URI to connect your application to the instance. In this way, the read/write operations of your application remain available even if a node fails as a result of a primary/secondary switchover. For more information, see [#unique_26](#) or [#unique_27](#).

1.7 Why am I unable to find the ApsaraDB for MongoDB instance that I created?

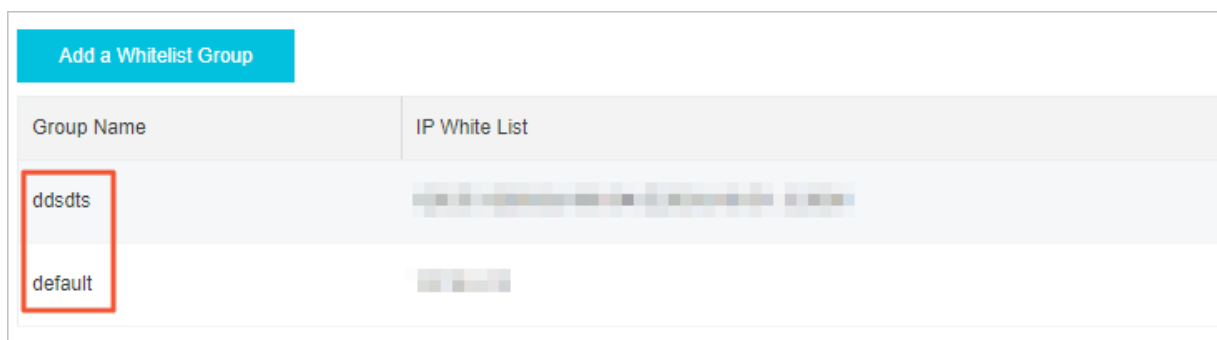
If you cannot find your instance in the ApsaraDB for MongoDB console, see the following table.

Possible cause	Troubleshooting
You selected the wrong region in the console.	<p>Follow these steps to select the correct region:</p> <ol style="list-style-type: none"> Log on to the ApsaraDB for MongoDB console. In the top navigation bar, select the region where your instance resides. 
Your instance does not belong to the instance list you selected.	<p>Follow these steps to switch to the instance list:</p> <ol style="list-style-type: none"> Log on to the ApsaraDB for MongoDB console. In the top navigation bar, select the region where your instance resides. In the left-side navigation pane, click Replica Set Instances or Sharding Instances. <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <p> Note: Standalone and replica set instances both appear on the Replica Set Instances page.</p> </div>

Possible cause	Troubleshooting
The instance list in the ApsaraDB for MongoDB console was not updated or was updated before your instance was created.	Wait several minutes and then update the instance list to check whether the instance appears on the Replica Set Instances or Sharding Instances page.
Resources are insufficient.	<p>The system may fail to create your instance due to insufficient resources. In this case, your payment is refunded. You can check the refund on the Orders page.</p>  <p>After you confirm the refunded fees, you can try to create your instance in another region or zone. If you cannot select another region or zone, submit a ticket.</p>

1.8 How do I understand the names and sources of an IP address whitelist for ApsaraDB for MongoDB?

This topic describes the names and sources of an IP address whitelist for ApsaraDB for MongoDB. After you create an ApsaraDB for MongoDB instance, it has a default IP address whitelist. While you perform operations such as configuring data migration, more whitelists are generated.




Add a Whitelist Group	
Group Name	IP White List
ddsdts	[Blurred IP list]
default	[Blurred IP list]



Note:

You can open the **Whitelist Settings** page by following the instructions provided in [#unique_30](#).

IP address whitelist name	Source
default	The default IP address whitelist. You cannot delete it.
ddsdt	<p>The IP address whitelist automatically generated when you migrate your ApsaraDB for MongoDB instance. It contains the IP addresses of DTS servers.</p> <div data-bbox="488 651 552 719"></div> <p>Note: While you migrate data, do not delete this IP address whitelist. Otherwise, data migration fails.</p>

2 Product features

2.1 What configurations are available for ApsaraDB for MongoDB?

For more information, see [#unique_13](#).

2.2 Does ApsaraDB for MongoDB support embedded/nested documents?

Yes, ApsaraDB for MongoDB supports embedded/nested documents. In the following example, the fields key specifies an embedded/nested document.

```
{
  "_id" : ObjectId("5cf0e51d8d1acb8a892ca65e"),
  "id" : "16399864",
  "timestamp" : "1453185620",
  "tablename" : "houseinfo",
  "dbname" : "corp_officebuilding",
  "primaryKeys" : "id",
  "class" : "class com.uban.dts.bean.DtsLog",
  "dbType" : "MYSQL",
  "fieldCount" : "138",
  "opt" : "UPDATE",
  "fields" : {
    "Status" : {
      "dest" : "0",
      "orgi" : "1420041600"
    }
  }
}
```

2.3 What is the difference between ApsaraDB for MongoDB and MongoDB?

ApsaraDB for MongoDB is a document database service that is compatible with MongoDB protocols. It supports most of the MongoDB commands and allows access from MongoDB-compatible clients.

For more information about the advantages of ApsaraDB for MongoDB, see [#unique_35](#).

For more information about ApsaraDB for MongoDB, see [#unique_36](#).

2.4 Can I add nodes to an ApsaraDB for MongoDB instance?

Yes, you can add nodes to a replica set or sharded cluster instance.



Note:

You are not allowed to add nodes to standalone instances.

- Replica set instances

By default, a replica set instance has three nodes. For more information, see [#unique_38](#).

- Sharded cluster instances

By default, a sharded cluster instance has two shards and two mongos. For more information, see [#unique_39](#).

2.5 How do I back up and restore an ApsaraDB for MongoDB instance?

You can back up an ApsaraDB for MongoDB instance in either the automatic or manual mode, and restore it from backup files or to a point in time.

Backup

ApsaraDB for MongoDB stores its backup files in [Object Storage Service \(OSS\)](#) to reduce the storage space usage of its instances. You can perform an automatic or manual backup in the ApsaraDB for MongoDB console. For more information, see [#unique_41](#) or [#unique_42](#).





Note:

If you choose automatic backup, only physical backup is supported.

Table 2-1: Backup methods supported by ApsaraDB for MongoDB

Instance	Backup method	Impact
Standalone instances	Snapshot backup Note: The status of disk data at a specific point in time is retained.	Snapshot backup affects the I/O performance of standalone instances.

Instance	Backup method	Impact
<ul style="list-style-type: none"> Replica set instances Sharded cluster instances 	Physical backup  Note: Physical data files of an instance are backed up.	Physical backup runs on a hidden node, which does not affect the read/write performance of the primary and secondary nodes. Backing up a large volume of data may take a long time.
	Logical backup  Note: mongodump is used to logically back up each database.	

Restoration

For more information, see [#unique_43](#).

2.6 Does ApsaraDB for MongoDB support Mongoose?

Yes, ApsaraDB for MongoDB is fully compatible with MongoDB Community Edition.

2.7 Does ApsaraDB for MongoDB support KMS encryption?

Yes, ApsaraDB for MongoDB supports Key Management Service (KMS) encryption. You can enable Transparent Data Encryption (TDE) in the ApsaraDB for MongoDB console to encrypt and decrypt I/O flow for data files in real time. This way, data is encrypted before being written to disks and decrypted before being read from disks to memory. For more information, see [#unique_46](#).

2.8 What commands are supported and not supported by ApsaraDB for MongoDB?

For more information about the commands supported by MongoDB, visit <http://docs.mongodb.org/master/reference/command/>.

For more information about the commands supported by ApsaraDB for MongoDB, see the following table.

Command category	Supported	Not supported
Aggregation commands	<ul style="list-style-type: none"> aggregate distinct count group mapReduce 	N/A
Geospatial commands	<ul style="list-style-type: none"> geoNear geoSearch 	N/A
Query and write operation commands	<ul style="list-style-type: none"> insert update delete findAndModify getLastError getPrevError resetError parallelCollectionScan 	eval (not supported since version 4.2)
Query plan cache commands	<ul style="list-style-type: none"> planCacheListFilters planCacheSetFilter planCacheClearFilters planCacheListQueryShapes planCacheListPlans planCacheClear 	N/A
Authentication commands	<ul style="list-style-type: none"> logout authenticate getnonce 	<ul style="list-style-type: none"> authSchemaUpgrade copydbgetnonce
User management commands	<ul style="list-style-type: none"> createUser updateUser dropUser dropAllUsersFromDatabase grantRolesToUser revokeRolesFromUser usersInfo 	N/A

Command category	Supported	Not supported
Role management commands	<ul style="list-style-type: none"> • createRole • updateRole • dropRole • dropAllRolesFromDatabase • grantPrivilegesToRole • revokePrivilegesFromRole • grantRolesToRole • revokeRolesFromRole • rolesInfo • invalidateUserCache 	N/A
Diagnostic commands	<ul style="list-style-type: none"> • explain • listDatabases • dbHash • listCommands • availableQueryOptions • buildInfo • collStats • dbStats • cursorInfo • dataSize • ping • profile • top • whatsmyuri • serverStatus • features • isSelf • validate 	<ul style="list-style-type: none"> • driverOIDTest • connPoolStats • shardConnPoolStats • getCmdLineOpts • netstat • diagLogging • hostInfo

Command category	Supported	Not supported
Instance administration commands	<ul style="list-style-type: none"> • renameCollection • dropDatabase • listCollections • drop • create • cloneCollectionAsCapped • convertToCapped • filemd5 • createIndexes • listIndexes • dropIndexes • fsync • connectionStatus • collMod • reIndex • touch • getParameter • compact 	<ul style="list-style-type: none"> • copydb • clone • clean • shutdown • logRotate • repairDatabase • repairCursor • setParameter • connPoolSync • setReadOnly • cloneCollection
Replication commands	<ul style="list-style-type: none"> • isMaster • applyOps 	<ul style="list-style-type: none"> • replSetInitiate • replSetFreeze • replSetMaintenance • replSetGetConfig • replSetRequestVotes • replSetReconfig • replSetStepDown • replSetSyncFrom • replSetElect • replSetUpdatePosition • resync • appendOplogNote
Sharding commands	N/A	<ul style="list-style-type: none"> • addShard • removeShard • getShardVersion • setShardVersion • unsetSharding • checkShardingIndex

2.9 What database versions does ApsaraDB for MongoDB support?

ApsaraDB for MongoDB supports the following database versions: **3.2**, **3.4**, **4.0** and **4.2**.

We recommend that you use drivers running the same database version as the ApsaraDB for MongoDB [official website](#).



Note:

For more information about the differences between the database versions, see [#unique_49](#).

View the database version of an ApsaraDB for MongoDB instance

1. Connect to a replica set instance by using the Mongo Shell. For more information, see [#unique_50](#).
2. Run the following command to view the database version:

```
db.version()
```

The command output shows that the database version is 4.0.0.

```
mgset-12xxxx:PRIMARY> db.version()  
4.0.0
```

Reference

[#unique_51](#)

2.10 How frequent is monitoring data collected in ApsaraDB for MongoDB?

The default collection frequency for monitoring data is 300 seconds, which you can view on the **Monitoring Info** page in the ApsaraDB for MongoDB console. For easy O&M and problem locating, you can also change the frequency to 1 second on that page. For more information, see [#unique_17](#).

2.11 What is the impact of changes made to the storage space on an ApsaraDB for MongoDB instance?

If the storage space of an ApsaraDB for MongoDB instance is insufficient, you can expand the storage space. For more information, see [#unique_54](#).

When you change the storage space of an ApsaraDB for MongoDB instance, there is a brief disconnection of about 30 seconds. This brief disconnection does not affect data in the instance.

**Note:**

If your application is in a production environment, we recommend that you use a connection string URI to connect to the instance. This way, the read/write operations of your application remain available even if there is a primary/secondary switchover. For more information, see [#unique_26](#).

3 Database connections

3.1 What client languages does ApsaraDB for MongoDB support?

ApsaraDB for MongoDB is fully compatible with MongoDB. It supports all MongoDB-compliant clients.

Programming languages such as C, C++, C#, Java, Node.js, Python, PHP, and Perl are all supported. For more information, visit [MongoDB Drivers and ODM](#).

**Note:**

To be authenticated when you connect to an ApsaraDB for MongoDB instance, install drivers that run MongoDB 3.0 or later.

3.2 How can I install and use the mongo shell in a Windows operating system?

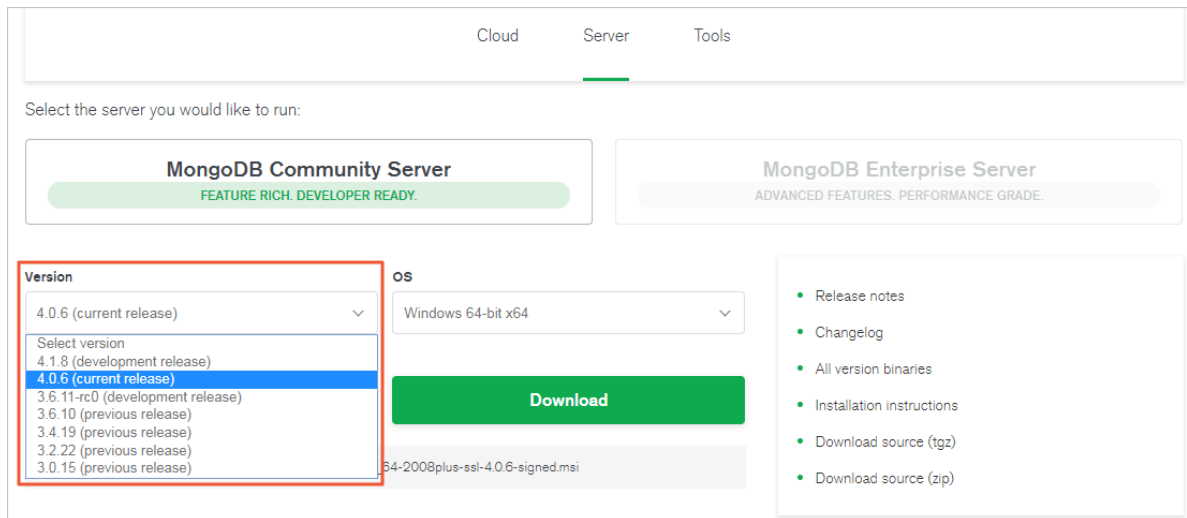
This topic describes how to install and use the mongo shell in a Windows operating system.

The mongo shell allows you to connect to both MongoDB and ApsaraDB for MongoDB.

Install the mongo shell

1. Visit the [MongoDB downloading center](#).

2. From the **Version** drop-down list, select the target MongoDB version.



The screenshot shows the MongoDB download page with the 'Server' tab selected. Under 'Select the server you would like to run:', there are two options: 'MongoDB Community Server' (FEATURE RICH. DEVELOPER READY.) and 'MongoDB Enterprise Server' (ADVANCED FEATURES. PERFORMANCE GRADE.). Below these, there are two dropdown menus: 'Version' and 'OS'. The 'Version' dropdown is open, showing a list of versions: 4.0.6 (current release), 4.1.8 (development release), 4.0.6 (current release), 3.6.11-rc0 (development release), 3.6.10 (previous release), 3.4.19 (previous release), 3.2.22 (previous release), and 3.0.15 (previous release). The 'OS' dropdown is set to 'Windows 64-bit x64'. A green 'Download' button is visible. To the right, there is a list of links: Release notes, Changelog, All version binaries, Installation instructions, Download source (tgz), and Download source (zip).

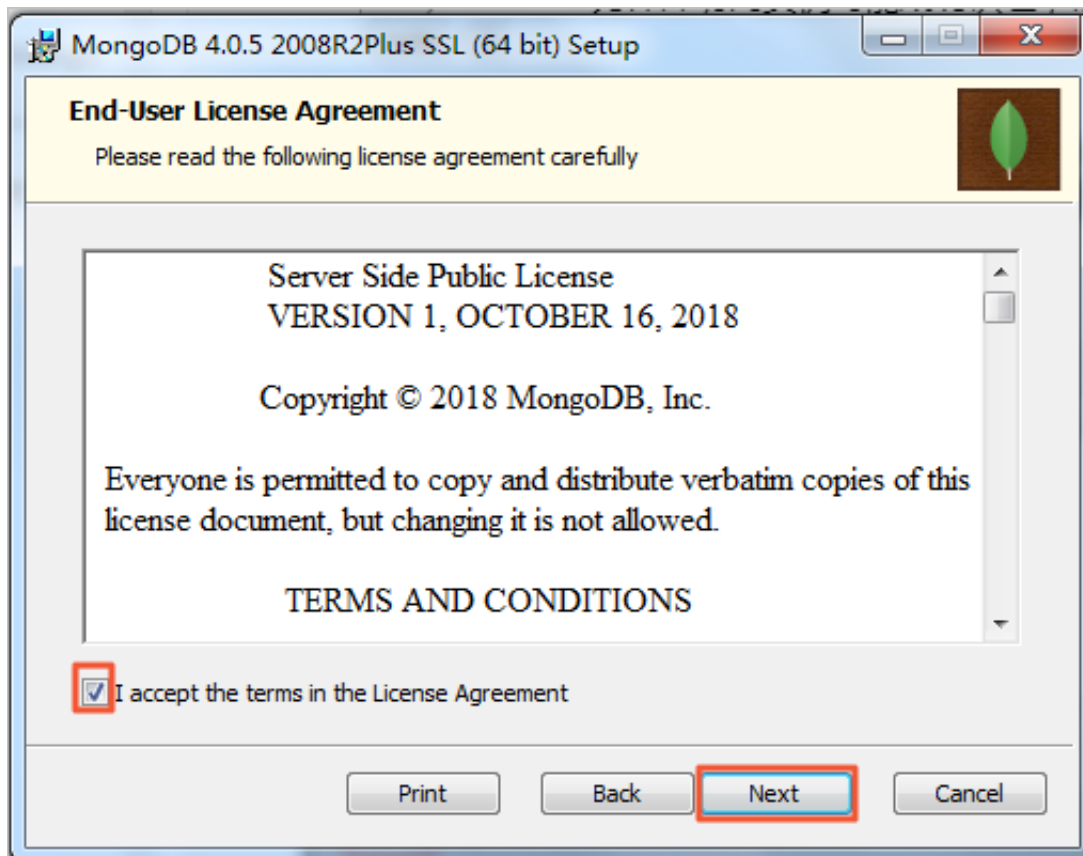


Note:

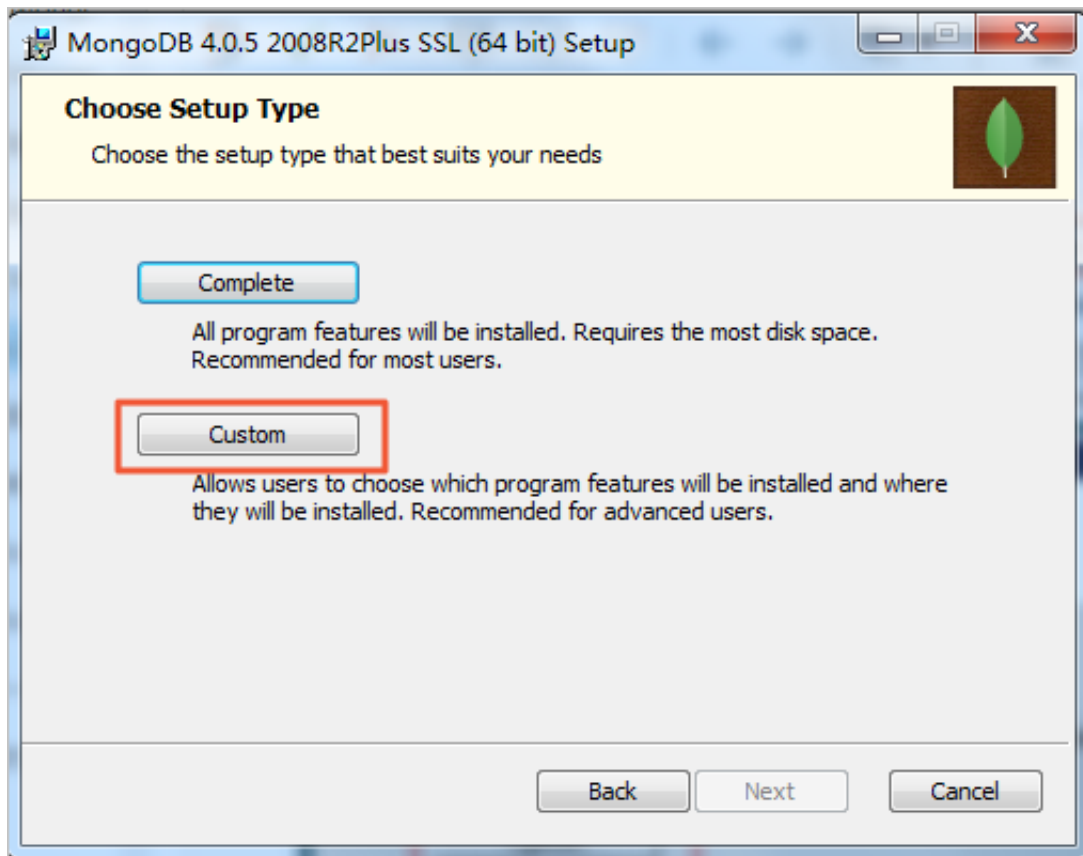
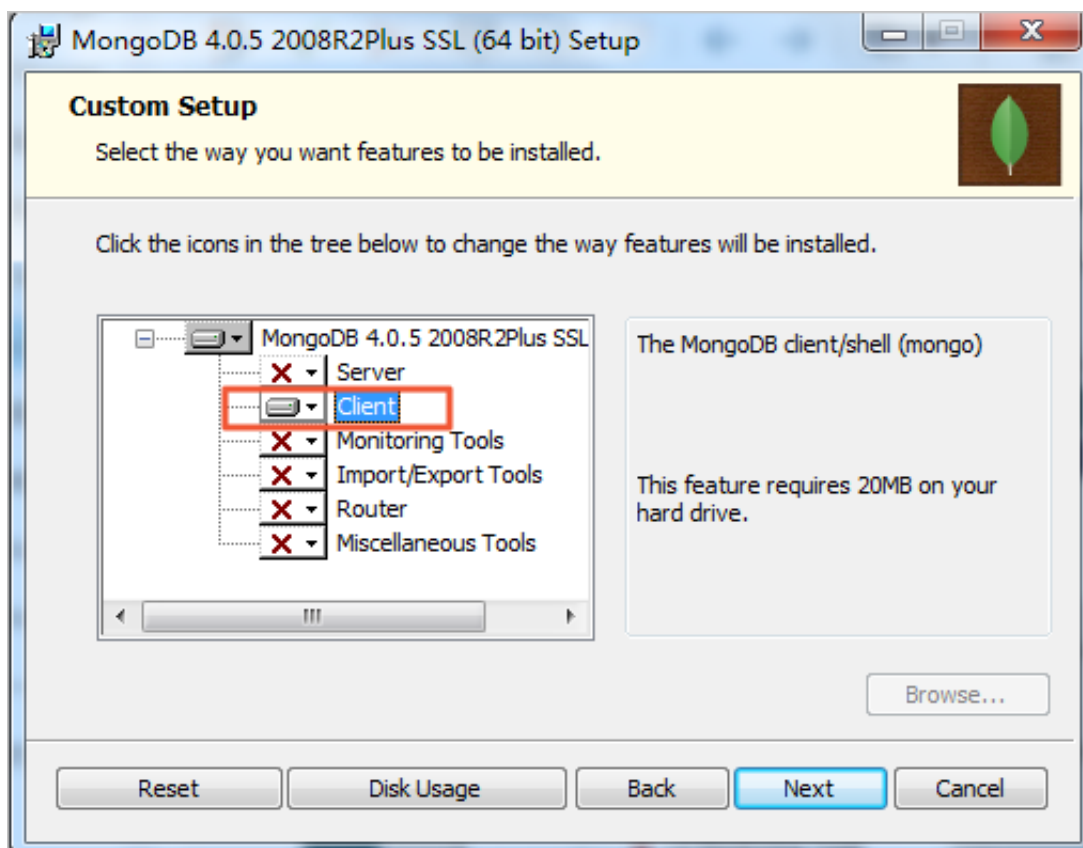
To be authenticated when you connect to an ApsaraDB for MongoDB instance, select MongoDB 3.0 or later.

3. Double-click the downloaded software package to start the installation.

Select **I accept the terms in the License Agreement** and click **Next**.



The screenshot shows the 'MongoDB 4.0.5 2008R2Plus SSL (64 bit) Setup' window. The title bar includes the MongoDB logo and the text 'MongoDB 4.0.5 2008R2Plus SSL (64 bit) Setup'. The main content area is titled 'End-User License Agreement' and contains the text: 'Please read the following license agreement carefully', 'Server Side Public License', 'VERSION 1, OCTOBER 16, 2018', 'Copyright © 2018 MongoDB, Inc.', 'Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.', and 'TERMS AND CONDITIONS'. At the bottom, there is a checkbox labeled 'I accept the terms in the License Agreement' which is checked. Below the checkbox are four buttons: 'Print', 'Back', 'Next', and 'Cancel'. The 'Next' button is highlighted with a red box.

4. Click Custom.**5. Only select Client and click Next.**

6. Wait until the mongo shell is installed.

Use the mongo shell

Open the command prompt window and go to the directory where the mongo.exe program is stored.

Example:

```
cd C:\Program Files\MongoDB\Server\4.0\bin
```



Note:

After you open the directory of mongo.exe, you can use the mongo shell.

References

[#unique_26](#)

3.3 What do I do if the "Connection reset by peers" error is returned when I try to establish a connection to an ApsaraDB for MongoDB instance by using the mongo shell?

Errors

Errors similar to the following may be returned when you try to establish a connection by using the mongo shell:

```
2015-12-21T10:20:36.084+0800 I NETWORK Socket recv() errno:54 Connection reset by peer 1.2.3.4:27017
2015-12-21T10:20:36.087+0800 I NETWORK SocketException: remote: 1.2.3.4:27017 error: 9001 socket exception [RECV_ERROR] server [1.2.3.4:27017]
2015-12-21T10:20:36.087+0800 I NETWORK DBClientCursor::init call() failed
```

Possible causes

The ApsaraDB for MongoDB instance rejects the connection request of your application because its connections are at the upper limit and cannot connect your application.

Solutions

1. Restart the ApsaraDB for MongoDB instance to release all connections.
2. [#unique_50](#).

3. Analyze the source IP addresses of connections and limit the number of connections from a client. For more information, see [How to query and limit the number of connections](#).

**Note:**

If the source IP addresses are normal, perhaps your current ApsaraDB for MongoDB instance is unqualified for your business needs. You can upgrade the instance to increase the upper limit of connections allowed. For more information, see [#unique_54](#).

3.4 How can I connect to an ApsaraDB for MongoDB instance by using DMS?

For more information, see [#unique_60](#).

3.5 Does ApsaraDB for MongoDB support password-free access?

Yes, ApsaraDB for MongoDB supports password-free access if your instance is in a VPC. For more information, see [#unique_62](#).

3.6 How can I change the password of a database in an ApsaraDB for MongoDB instance?

You can set the password of the root user when you create an instance. You can also change or reset the password in the ApsaraDB for MongoDB console. For more information, see [#unique_64](#).

3.7 Does ApsaraDB for MongoDB support access over the Internet?

Yes, ApsaraDB for MongoDB supports access over the Internet. For more information, see [#unique_66](#).

3.8 What do I do if the "Authentication failed" message appears?

If the "Authentication failed" message appears while you run the following command to connect to your ApsaraDB for MongoDB instance with the account that you created in the instance (both the username and password are test), see explanations below:

```
mongo --host $myhost --port $myport -u test -p test
```

In ApsaraDB for MongoDB, an account is authorized for certain databases. To be authenticated when you connect to an ApsaraDB for MongoDB instance, you must specify the database where your account is created. Assume that the test account is created in the admin database. You can run the following command to connect to your instance:

```
mongo --host $myhost --port $myport -u test -p test --authenticationDatabase admin
```

Or

```
mongo --host $myhost --port $myport
mongo> use admin
mongo> db.auth("test", "test")
```

4 Performance and storage space

4.1 How can I check slow requests in an ApsaraDB for MongoDB instance?

ApsaraDB for MongoDB records the details of slow requests in the `system.profile` collection of each database. It enables slow request analysis by default.

You can view the `system.profile` collection to check slow requests. For more information, see [#unique_8/unique_8_Connect_42_section_n2c_ltv_1gb](#).

4.2 If the request is being processed and cannot be terminated, can I forcefully terminate it?

If the request is in process and cannot be terminated, you can forcefully terminate it, see [View and manage in-progress requests](#).

4.3 What is the log deletion policy of an ApsaraDB for MongoDB instance?

Logs are automatically deleted when their size reaches a specific threshold.

In emergencies, you can run the `compact` command to delete oplogs. For more information, see [#unique_23](#).

**Note:**

- You can only run this command on replica set instances.
- Before running `compact`, you must log on to the local database where the `oplog.rs` collection is stored.

5 Account and permission management

5.1 What privileges does the root account have?

The root account created for the admin database has the permissions of the built-in root account for the MongoDB. After you log on to the database with the root account, you can create more accounts as needed. For more information, see [How can I create an account for an ApsaraDB for MongoDB instance?](#).

5.2 How can I create an account for an ApsaraDB for MongoDB instance?

After you create an ApsaraDB for MongoDB instance, the system automatically creates a root user in the admin database. This user has the root permissions of ApsaraDB for MongoDB. You can log on to a database as the root user to create other users and grant them permissions.

To create a user by running the `db.createUser()` command, visit [db.createUser\(\)](#).

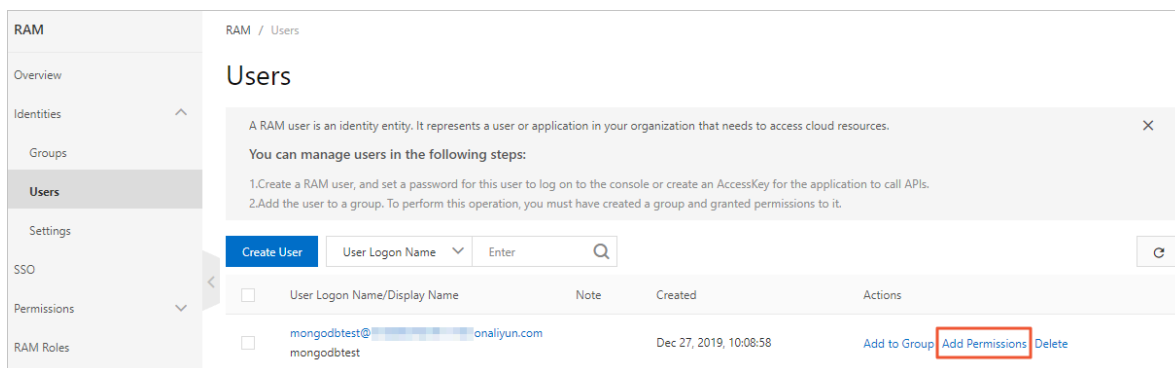
5.3 How to configure RAM user permissions on ApsaraDB for MongoDB

To implement fine-grained access control and improve account security, you can use Resource Access Management (RAM) to grant the management permissions on ApsaraDB for MongoDB to RAM users. In this way, RAM users can manage ApsaraDB for MongoDB instances.

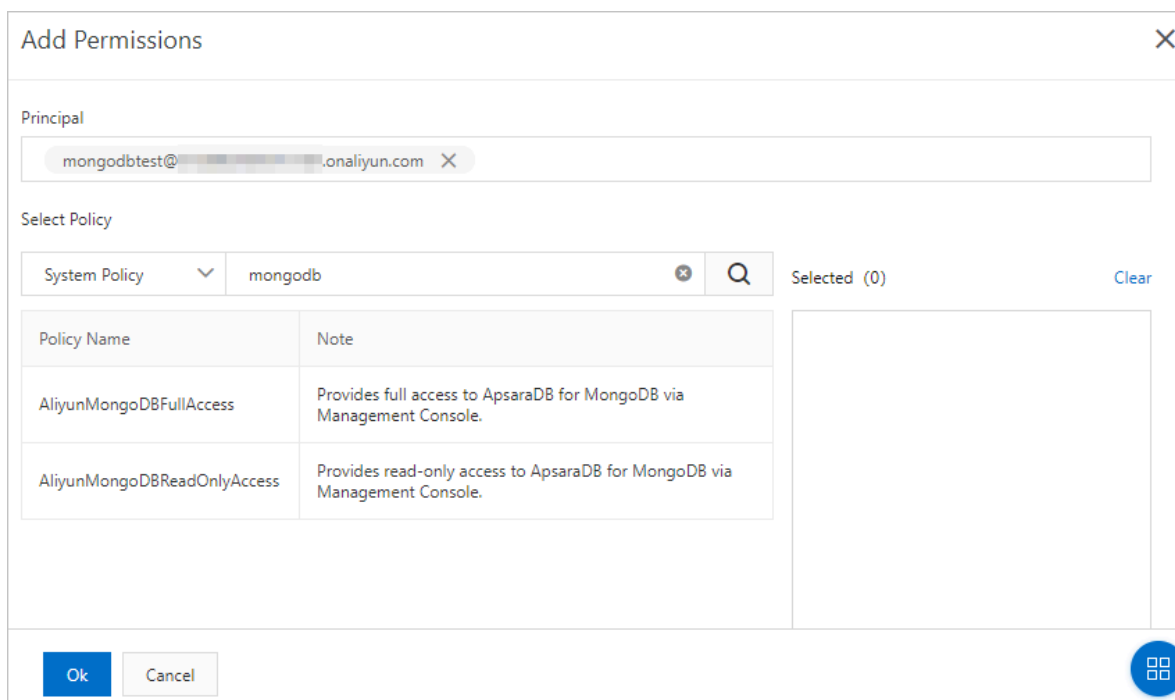
Grant permissions to RAM users

1. Log on to the [RAM console](#) by using an Alibaba Cloud account.
2. [#unique_76](#).
3. In the left-side navigation pane, click **Users** under **Identities**.
4. In the **User Logon Name/Display Name** column, find the target RAM user.


5. Click **Add Permissions** in the Actions column.



6. In the **Add Permissions** dialog box that appears, select permission policies as needed.



a. Enter **mongodb** in the search box to display related permission policies.

 **Note:**

- **AliyunMongoDBFullAccess:** grants RAM users full management permissions on ApsaraDB for MongoDB.
- **AliyunMongoDBReadOnlyAccess:** grants RAM users the read-only permissions on ApsaraDB for MongoDB.

b. Click a policy name to add it to the **Selected** section.

7. Click **OK**.

8. Click **Finished**.

Customize permission policies in the RAM console

You can use system permission policies to grant RAM users permissions on all ApsaraDB for MongoDB resources. You can also customize permission policies as needed to grant RAM users specific operation permissions on specific instances. For information about the syntax of custom permission policies, see [Policy structure and syntax](#).

Use RAM to grant permissions on ApsaraDB for MongoDB resources

You can only use RAM to grant permissions on ApsaraDB for MongoDB instances of the `dbinstance` type. When granting permissions using RAM, you can describe resources in the Resource field of the policy as follows.

Resource type	Resource description in the permission policy
<code>dbinstance</code>	<ul style="list-style-type: none"> <code>acs:dds:\$regionid:\$accountid:dbinstance/\$dbinstanceid</code> <code>acs:dds:\$regionid:\$accountid:dbinstance/</code> <code>acs:dds:::dbinstance/</code>

Parameter description

Parameter	Description
<code>\$regionid</code>	The region ID, which can be an asterisk (*).
<code>\$dbinstanceid</code>	The instance ID, which can be an asterisk (*).
<code>\$accountid</code>	The ID of your Alibaba Cloud account, which can be an asterisk (*).

Actions that you can authorize

In the RAM console, you can authorize RAM users to perform the following actions on a single ApsaraDB for MongoDB resource.

Action	Description
<code>CreateDBInstance</code>	Creates an instance.
<code>ModifyDBInstanceSpec</code>	Modifies instance specifications.
<code>DeleteDBInstance</code>	Deletes an instance.
<code>DescribeDBInstances</code>	Queries instances.
<code>RestartDBInstance</code>	Restarts an instance.

Action	Description
DescribeSecurityIps	Queries IP addresses in the whitelist.
ModifySecurityIps	Modifies IP addresses in the whitelist.
ResetAccountPassword	Resets the password of an account.
DescribeBackupPolicy	Queries the backup policy.
ModifyBackupPolicy	Modifies the backup policy.
CreateBackup	Creates a backup.
RestoreDBInstance	Restores an instance.
DescribeAccounts	Queries account information.
DescribeDBInstancePerformance	Queries the instance status.
DescribeReplicaSetRole	Queries the primary/secondary attribute of an instance.
ModifyDBInstanceDescription	Modifies the description of an instance.
ModifyAccountDescription	Modifies information about an account.
DescribeDBInstanceAttribute	Queries attributes of an instance.
RenewDBInstance	Renews an instance.
ModifyDBInstanceNetworkType	Modifies the network type of an instance.