

Alibaba Cloud Elasticsearch

Quick Start

Issue: 20190426

Legal disclaimer

Alibaba Cloud reminds you to carefully read and fully understand the terms and conditions of this legal disclaimer before you read or use this document. If you have read or used this document, it shall be deemed as your total acceptance of this legal disclaimer.

1. You shall download and obtain this document from the Alibaba Cloud website or other Alibaba Cloud-authorized channels, and use this document for your own legal business activities only. The content of this document is considered confidential information of Alibaba Cloud. You shall strictly abide by the confidentiality obligations. No part of this document shall be disclosed or provided to any third party for use without the prior written consent of Alibaba Cloud.
2. No part of this document shall be excerpted, translated, reproduced, transmitted, or disseminated by any organization, company, or individual in any form or by any means without the prior written consent of Alibaba Cloud.
3. The content of this document may be changed due to product version upgrades , adjustments, or other reasons. Alibaba Cloud reserves the right to modify the content of this document without notice and the updated versions of this document will be occasionally released through Alibaba Cloud-authorized channels. You shall pay attention to the version changes of this document as they occur and download and obtain the most up-to-date version of this document from Alibaba Cloud-authorized channels.
4. This document serves only as a reference guide for your use of Alibaba Cloud products and services. Alibaba Cloud provides the document in the context that Alibaba Cloud products and services are provided on an "as is", "with all faults" and "as available" basis. Alibaba Cloud makes every effort to provide relevant operational guidance based on existing technologies. However, Alibaba Cloud hereby makes a clear statement that it in no way guarantees the accuracy, integrity , applicability, and reliability of the content of this document, either explicitly or implicitly. Alibaba Cloud shall not bear any liability for any errors or financial losses incurred by any organizations, companies, or individuals arising from their download, use, or trust in this document. Alibaba Cloud shall not, under any circumstances, bear responsibility for any indirect, consequential, exemplary, incidental, special, or punitive damages, including lost profits arising from the use

or trust in this document, even if Alibaba Cloud has been notified of the possibility of such a loss.

5. By law, all the content of the Alibaba Cloud website, including but not limited to works, products, images, archives, information, materials, website architecture, website graphic layout, and webpage design, are intellectual property of Alibaba Cloud and/or its affiliates. This intellectual property includes, but is not limited to, trademark rights, patent rights, copyrights, and trade secrets. No part of the Alibaba Cloud website, product programs, or content shall be used, modified, reproduced, publicly transmitted, changed, disseminated, distributed, or published without the prior written consent of Alibaba Cloud and/or its affiliates. The names owned by Alibaba Cloud shall not be used, published, or reproduced for marketing, advertising, promotion, or other purposes without the prior written consent of Alibaba Cloud. The names owned by Alibaba Cloud include, but are not limited to, "Alibaba Cloud", "Aliyun", "HiChina", and other brands of Alibaba Cloud and/or its affiliates, which appear separately or in combination, as well as the auxiliary signs and patterns of the preceding brands, or anything similar to the company names, trade names, trademarks, product or service names, domain names, patterns, logos, marks, signs, or special descriptions that third parties identify as Alibaba Cloud and/or its affiliates).
6. Please contact Alibaba Cloud directly if you discover any errors in this document.

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.	Danger: 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.	Warning: 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.	Notice: 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.	Note: You can use Ctrl + A to select all files.
>	Multi-level menu cascade.	Settings > Network > Set network type
Bold	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 <i>Instance_ID</i></code>
<code>[] or [a b]</code>	It indicates that it is an optional value, and only one item can be selected.	<code>ipconfig [-all -t]</code>

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

Contents

Legal disclaimer.....	I
Generic conventions.....	I
1 Prerequisites.....	1
2 Calculate the amount of resources.....	5
3 Purchase and configuration.....	8
4 Buy page parameters.....	13
5 Elasticsearch access test.....	25
6 Client access.....	31

1 Prerequisites

Access Elasticsearch from the Internet

You can use a public address to access an Elasticsearch instance from the Internet.

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



Note:

- To access an Elasticsearch instance from the Internet, you must first create a [Public IP address whitelist](#). By default, no public addresses are allowed to access Elasticsearch.
- Alibaba Cloud Elasticsearch 6.3.2 with X-Pack does not support `9300` port.

Access Elasticsearch from an intranet

You can use a private address to access an Elasticsearch instance from an ECS instance in a VPC. For more information, see [Basic information](#).



Note:

- Alibaba Cloud Elasticsearch 6.3.2 with X-Pack does not support `9300` port.
- Information security is not guaranteed when you access an Elasticsearch instance from the Internet. To secure access to Elasticsearch, we recommend that you purchase an ECS instance that meets the requirements described in the following purchase instructions and use a private address to access the Elasticsearch instance from a VPC.

Purchase instructions

- Before you purchase an Elasticsearch instance, make sure that you have created a VPC and VSwitch in the same region as the Elasticsearch instance.

- If you choose to access an Elasticsearch instance from an ECS instance, make sure that the Elasticsearch instance and ECS instance are in the same region.
 - If your Alibaba Cloud ECS instance is deployed in a VPC, make sure that the ECS instance and your Alibaba Cloud Elasticsearch instance are connected to the same VPC.
 - If the network type of your ECS instance is Classic, make sure that the instance meets the requirements as described in VPC network segments of [Classic network errors](#).
- You can only select VSwitches in the same zone, region, and VPC as the Elasticsearch instance.
 - You must create a VSwitch if no VSwitch is available in the zone and VPC where the Elasticsearch instance resides.
 - Make sure that the number of VSwitch IP addresses is no less than 200. Otherwise, the system displays a message indicating insufficient private IP addresses.



Note:

- If your Alibaba Cloud Elasticsearch instance and ECS instance share the same VPC and region but reside in different zones, you must create a VSwitch in the zone where the ECS instance resides to ensure that the ECS instance can access your Elasticsearch instance.
- New Elasticsearch users can choose to purchase free trial Elasticsearch instances for testing.

Elasticsearch Subscription

All discounts for Alibaba Cloud Elasticsearch instances are offered based on the subscription duration that you have specified.

You cannot request a refund with no reason in five days. Subscription products on the international site do not support refunds. If you want to terminate your subscription services, make sure that the data backup is complete, and log on to the Alibaba cloud console > Billing Management > Renewal to manually disable the Don't Renew button. You can still use Alibaba Cloud services before the current billing cycle. The Subscription-based fees will not be returned to you. Auto renewal will be terminated in the next billing cycle.

Elasticsearch instance types

Alibaba Cloud has provided multiple types of Elasticsearch instances. The 1-Core 2 GB instances are only for testing purposes. These instances are not suitable for production. An Elasticsearch instance with the minimum specification consumes a large amount of resources and may cause service instability in production. In addition, the 1 Core 2 GB specification is not covered by the Elasticsearch Service Level Agreement (SLA). For more information, see [Product Overview](#).

- If you are using a 1-Core 2 GB Elasticsearch instance in production, we recommend that you upgrade the instance to ensure the stability and availability of your service.
- The minimum specification for Elasticsearch instances used in production is 2-Core 4 GB.

Purchase Elasticsearch instance disks

Before determining the disk size of an Alibaba Cloud Elasticsearch node you want to purchase, learn about what type of data is saved in the disk. Determine the disk size based on your business requirements.

We recommend that you preserve disk space for storing the system logs when selecting an Elasticsearch instance disk. System logs include the running log and monitoring log.

Data types



Note:

Before you purchase an Elasticsearch instance disk, make sure that the disk has enough space to store Elasticsearch cluster logs and X-Pack monitoring indexes.

- User data that has been pushed to Elasticsearch.
- Elasticsearch replicas. The number of replicas is user-configurable. However, Elasticsearch will retain a minimum of one replica.
- Elasticsearch cluster logs. The amount of storage space that Elasticsearch consumes increases with the number of queries and pushes that Elasticsearch

has received. By default, Elasticsearch only keeps cluster logs for seven days after creation. Elasticsearch cluster logging is not currently available.

- Running log
- Access log
- Slow query log
- X-Pack monitoring indexes for troubleshooting exceptions. X-Pack is an Elasticsearch component. Monitoring indexes include the following:
 - .monitoring-es-6-2018.01.08. The indexes consume a large amount of storage space. Elasticsearch creates only one index each day and keeps indexes for seven days after creation.
 - .monitoring-kibana-6-2018.01.08. The amount of storage space that the indexes consume increases with the number of the indexes. Elasticsearch creates only one index each day and keeps indexes for seven days after creation.
 - .watcher-history-3-2018.01.08. The indexes consume only a small amount of storage space. Elasticsearch creates only one index each day and keeps all indexes that have been created. You must manually delete the indexes that you no longer need.



Note:

When an Elasticsearch instance has a high disk usage, such as a disk usage higher than 80%, the Elasticsearch cluster health status changes to yellow or red, and the Elasticsearch instance cannot be restarted. To restart an Elasticsearch instance, make sure that the health status of the instance is green. For more information, see [Instance management](#).

2 Calculate the amount of resources

Before you purchase an Alibaba Cloud Elasticsearch instance, you must estimate and calculate the amount of Elasticsearch resources that you need. Based on testing results and user feedback, Alibaba Cloud offers some common methods to estimate and calculate the amount of Elasticsearch resources. These methods are for reference only.

Supported disk types

This topic applies to Alibaba Cloud Elasticsearch instances that use SSD disks.

Calculate disk capacity

The capacity of disks that are used by Alibaba Cloud Elasticsearch instances is determined based on the following factors:

- The number of replicas. You must store a minimum of one replica.
- The index overheads are generally 10% larger than those of the source data. The index overheads of the `_all` field are not calculated.
- Reserved space of the operating system. The operating system reserves 5% of the disk space for critical processes, system recovery, and disk fragments by default.
- Elasticsearch overheads. Elasticsearch reserves 20% of the disk space for internal operations, such as segment merging and logging.
- A minimum of 15% of the disk space must be reserved as the security threshold.

Minimum disk space = Size of source data x 3.4

$$\begin{aligned} \text{Total disk space} &= \text{Size of source data} \times (1 + \text{Number of replicas}) \times (1 + \text{Indexing overheads}) / (1 - \text{Linux reserved space}) / (1 - \text{Elasticsearch overheads}) / (1 - \text{Threshold overheads}) \\ &= \text{Size of source data} \times (1 + \text{Number of replicas}) \times 1.7 \\ &= \text{Size of source data} \times 3.4 \end{aligned}$$

We recommend that you do not set the `_all` field unless it is required by your business.

Indexes that have this field enabled generate larger overheads. Based on testing results and user feedback, we recommend that you add extra 50% of the estimated space to the final amount of disk space.

$$\text{Total disk space} = \text{Size of source data} \times (1 + \text{Number of replicas}) \times 1.7 \times (1 + 0.5)$$

```
= Size of source data × 5 . 1
```

Determine cluster specifications

The performance of an Alibaba Cloud Elasticsearch cluster is determined by the specifications of the individual Elasticsearch instances in the cluster. Based on testing results and user feedback, we recommend that you determine the specification of your cluster as follows:

```
Maximum number of nodes in a cluster = Number of vCPUs per node × 5
```

The maximum workload of an Elasticsearch node varies depending on different scenarios. Examples:

- Data acceleration and query aggregation

```
Maximum workload per node = Memory size per node ( GB ) × 10
```

- Logging and analysis

```
Maximum workload per node = Memory size per node ( GB ) × 50
```

- Common scenarios

```
Maximum workload per node = Memory size per node ( GB ) × 30
```

Cluster specifications

Specification	Maximum number of cluster nodes	Maximum memory size per node (query)	Maximum memory size per node (log)	Maximum memory size per node (common)
2C 4 GB	10	40 GB	200 GB	100 GB
2C 8 GB	10	80 GB	400 GB	200 GB
4C 16GB	20	160 GB	800 GB	512 GB
8C 32 GB	40	320 GB	1.5 TB	1 TB
16C 64 GB	50	640 GB	2 TB	2 TB

Calculate shard size

Both the number of shards and the size of each shard contribute to the stability and performance of an Alibaba Cloud Elasticsearch cluster. An Elasticsearch cluster creates five shards for each index by default. However, you may need to modify the default settings to improve performance in most cases.

- For small Elasticsearch nodes, the size of each shard must be smaller than or equal to 30 GB. For large Elasticsearch nodes, the size of each shard must be smaller than or equal to 50 GB.
- For log analysis or extremely large indexes, the size of each shard must be smaller than or equal to 100 GB.
- The number of shards, including replicas, must be equal to the number of nodes or equal to an integer multiple of the number of nodes.
- We recommend that you create a maximum of five shards for one index on a node.



Note:

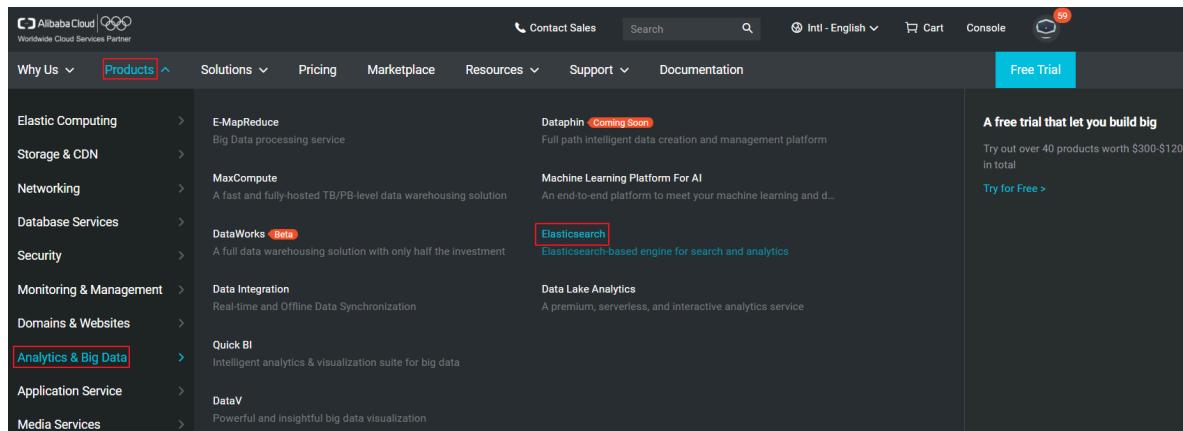
The calculation methods described in this topic may vary depending on the data structure, query requirements, data size, performance, and data changes. You must determine the number of shards and calculate the size of the shards based on your actual situation.

We recommend that you run tests and determine a best practice that satisfies your requirements based on the actual data and usage scenario. You can use the elastic scaling feature of Alibaba Cloud Elasticsearch to make a plan based on this topic. You can increase disk size, add more nodes, and upgrade node specifications based on your actual needs.

3 Purchase and configuration

Purchase Elasticsearch products

1. You can find the Alibaba Cloud Elasticsearch product page from the Alibaba Cloud product navigation. You can also visit the [Alibaba Cloud Elasticsearch product details page](#) directly. Click Buy Now to go to the buy page.



The screenshot shows the Alibaba Cloud product navigation interface. The top navigation bar includes links for Contact Sales, Search, International English, Cart, Console, and a Free Trial button. The main menu has categories like Why Us, Products (which is highlighted with a red box), Solutions, Pricing, Marketplace, Resources, Support, and Documentation. Under the Products category, there's a list of services: E-MapReduce, Dataphin (Coming Soon), Storage & CDN, MaxCompute, Machine Learning Platform For AI, Networking, DataWorks (Beta), Data Integration, Data Lake Analytics, Database Services, Security, Monitoring & Management, Domains & Websites, Analytics & Big Data (which is highlighted with a red box), Application Service, and Media Services. On the right side, there's a sidebar with a 'Free trial that let you build big' section, a note about trying over 40 products worth \$300-\$1200 in total, and a 'Try for Free' button.

2. Select the corresponding configuration, VPC, VSwitch, and specification based on your business needs. For more information, see [Buy page parameters](#).



Note:

If you have not activated the VPC or VSwitch service, activate the services by referring to [Virtual Private Cloud](#) under VPC. If you have activated the VPC and vSwitch services, you can directly use the services.

3. Follow the instructions on the page to complete the configuration and then click Buy Now. You will be redirected to the order confirmation page. Confirm the

information, agree to the terms of service, and click Activate. The page will display that your service has been successfully activated.

Confirm Order

Confirm Order		Activated Successfully		
Item Information	Method of Payment	Quantity	Discount	Fee
Elasticsearch (Pay-As-You-Go) Client Node Storage Class: Efficient cloud disk Region: China (Hangzhou) Dedicated Master Node: Yes Disk Type: SSD Amount: 2 Client Node Storage Space: 20G Network Type: VPC Version: 5.5.3 with X-Pack Dedicated Master Nodes: 3 (default) Node Storage: 20 Instance Type: TCore2G Client Node false Zone: Hangzhou Zone B Dedicated Master Node Disk Type: SSD Client Node Type: 2x8GB VSwitch: vswitch111 Dedicated Master Node Storage: 20 GB Client Nodes: 2 VPC: 雲_vpc Dedicated Master Node Specifications: 2 Cores 8 GB	Pay-As-You-Go	1	\$0.261 / hour(s)	Base Price: \$1.071 / hour(s)

4. After your service has been activated, click Elasticsearch Console to log on the Alibaba Cloud Elasticsearch console.
 5. You can view the Elasticsearch instances that you have purchased on the Alibaba Cloud Elasticsearch console. Please wait until the instance is activated.

6. Before importing data to the activated Elasticsearch instance, you must manually create indexes and mappings. Errors may occur if the indexes and mappings are not created at the same time. For example, if data is being imported to the instance after you have deleted the existing index mappings on the instance, the instance

will automatically create index mappings that do not meet your requirements. This may cause errors.

To prevent this problem, the Create Index Automatically feature is disabled by default. You must first create indexes and mappings before importing data. Otherwise, an error will occur.

YML Configurations

Create Index Automatically: Disable

Audit Log Index: Disable

Delete Index With Specified Name: Specify Index Name When Deleting

Watcher: Disable

Other Configurations:

Modify Configuration



Note:

If your business depends on the auto index creation feature, you can enable it by modifying the YML Configurations on the Elasticsearch Cluster Configuration page in the Alibaba Cloud Elasticsearch console, and then restart the instance for the changes to take effect.

- After completed these steps, import data to the instance and test the search function.



Note:

The default Alibaba Cloud Elasticsearch account is `elastic`, and its password is the one that you have set on the buy page. The password is the same as the one that is used to log on to Kibana. For more information about importing data and testing the search function, see [Elasticsearch access test](#).

Configure monitoring and alerts

Alibaba Cloud Elasticsearch allows you to monitor instances and supports SMS message alerts. Elasticsearch also allows you to set an alert threshold. For more information, see [ES CloudMonitor alarm](#).

- Cluster status
- Cluster query QPS (count/second)
- Cluster write QPS (count/second)
- Node CPU utilization (%)
- Node disk utilization (%)
- Node HeapMemory utilization (%)
- Node load_1m

Elasticsearch access configuration

Access methods

- Search for data using the Kibana console integrated in the Alibaba Cloud Elasticsearch console.
- Search for data using a user application or the cURL command line tool. You must deploy the application or install the cURL command line tool on an Alibaba Cloud ECS instance that shares the same VPC with your Alibaba Cloud Elasticsearch instance. The ECS and Elasticsearch instances must be in the same region.
- Access through the Public Address of Alibaba Cloud Elasticsearch.

Precautions for ECS-based access

- If your ECS instance is in a classic network, configure ClassicLink for Elasticsearch access. For details, see [Classic network errors](#).
- ClassicLink supports only unidirectional access from a classic network to a VPC and does not allow bidirectional access between the two networks.

ECS-based access (optional)

If you have purchased an Alibaba Cloud ECS instance (in the same region as your Alibaba Cloud Elasticsearch instance) under the VPC of Alibaba Cloud Elasticsearch , you can use this ECS instance as the client to deploy the user program or install the cURL command line tool for search.

If you do not have a qualified Alibaba Cloud ECS instance, purchase one in the same VPC as your Alibaba Cloud Elasticsearch instance. Select the required instance type on the [Elastic Compute Service](#) page.

- ECS products purchased in the same VPC as Alibaba Cloud Elasticsearch are used to deploy user applications. They can be used as clients.
- If no ECS product is available in the same VPC as Alibaba Cloud Elasticsearch, you can still test the search function using the Kibana console. You can also choose to buy an ECS product in the same VPC.

ECS cURL-based access (optional)

1. Log on to the ECS instance in the same VPC as the Elasticsearch cluster through SSH, and install the cURL command line tool on the instance.
2. Add cURL to the environment variables and use it to access the Alibaba Cloud Elasticsearch service remotely.

Configure the Elasticsearch blacklist and whitelist

Alibaba Cloud Elasticsearch provides an X-Pack plug-in of the enterprise edition to enhance the security when you access a node through the URL of your Alibaba Cloud Elasticsearch instance. You can create an IP blacklist and whitelist to control the access to an Elasticsearch instance. For more information, see [Advanced configuration](#).

4 Buy page parameters

Billing methods

Subscription



Note:

Promotional offers are currently available for Elasticsearch monthly and annual subscriptions. You cannot request a refund with no reason in five days. Subscription products on the international site do not support refunds. If you want to terminate your subscription services, make sure that the data backup is complete, and log on to the Alibaba Cloud console > Billing Management > Renewal to manually disable the Don't Renew button. You can still use Alibaba Cloud services before the current billing cycle. The Subscription-based fees will not be returned to you. Auto renewal will be terminated in the next billing cycle.

| Elasticsearch (Subscription)

Subscription

Pay-As-You-Go

- If the auto renewal function is disabled, you must log on to the Elasticsearch console and manually renew the overdue instances. For more information, see [Overdue payments](#).
- Elasticsearch instances cannot be manually released in the console.
- Auto renewal is supported and disabled by default. For more information, see the Auto renewal section of this topic.

Pay-As-You-Go



Note:

We recommend that you purchase Pay-As-You-Go Elasticsearch instances for testing purposes at the development and testing stages.

Elasticsearch (Pay-As-You-Go)



- Auto renewal is supported. For more information, see [Overdue payments](#).
- You can click More and then select Release to manually release an Elasticsearch instance.

Regions and zones

Region	China (Hangzhou)	China (Beijing)	China (Shanghai)	China (Shenzhen)	Asia Pacific SOU 1 (Mumbai)	Asia Pacific SE 1 (Singapore)
region	China (Hong Kong)	US West 1 (Silicon Valley)	Asia Pacific SE 3 (Kuala Lumpur)	Germany (Frankfurt)	Japan	亚太东南 2 (澳大利亚)
Zone	Asia Pacific SE 5 (Jakarta)	China North 1 (Qingdao)				

Alibaba Cloud Elasticsearch supports the following [Regions and zones](#).

- China (Hangzhou): Zone B, Zone F, Zone G, Zone H, and Zone I.
- China (Beijing): Zone E.
- China (Shanghai): Zone B and Zone D.
- China (Shenzhen): Zone C.
- India (Mumbai): Zone A.
- Singapore: Zone A and Zone B.
- Hong Kong: Zone B and Zone C.
- US (Silicon Valley): Zone A and Zone B.
- Malaysia (Kuala Lumpur): Zone A and Zone B.
- Germany (Frankfurt): Zone A and Zone B.
- Japan (Tokyo): Zone A.
- Australia (Sydney): Zone A.
- Indonesia (Jakarta): Zone A.
- China North 1 (Qingdao): Zone B and Zone C.

Instances

Version	5.5.3 with X-Pack	6.3 with X-Pack
Network Type	VPC	
VPC	.vpc	
<small>Create VPC/Subnet (Switch). Refresh the page after the creation is complete</small>		
VSwitch	vswitch111	
Instance Type	1Core2G	
<small>1Core2G Instance type is intended for testing only. It is not suitable for the production environment and is excluded from the SLA after-sales guarantee.</small>		
Amount	<input type="text" value="2"/>	<input type="button" value="▲"/>
<small>Two node cluster has the risk of split-brain, please choose very carefully</small>		
Username	elastic	
<small>Used to access Elasticsearch and log on to Kibana.</small>		
Password	<input type="password" value="Please enter your password"/>	<small>The password can be 8 to 32 characters in length and must contain three of the following conditions: uppercase letters, lowercase letters, numbers, and special characters (!@#\$%^&*()_+-=).</small>
<input type="password" value="Please confirm your password"/>		

Instance	
Dedicated Master Node	<input checked="" type="checkbox"/>
Dedicated Master Nodes	3 (default)
Dedicated Master Node Specifications	2 Cores 8 GB
Dedicated Master Node Disk Type	SSD
Dedicated Master Node Storage	20 GB
Client Node	<input checked="" type="checkbox"/>
Client Nodes	2
Client Node Type	2C 8GB
Client Node Storage Class	Efficient cloud disk
Client Node Storage Space	20G

Versions

Alibaba Cloud Elasticsearch supports the following versions. You can select a version based on your business needs:

- Elasticsearch 6.3.2 with X-Pack (recommended).
- Elasticsearch 5.5.3 with X-Pack.



Note:

- [Elasticsearch 6.3.2 release note](#).
- [Elasticsearch 5.5.3 release note](#).

Network types

Elasticsearch currently only supports the VPC network type.

VPC networks

Select a VPC network in the corresponding region.

**Note:**

If you want to use an Alibaba Cloud ECS instance to access your Alibaba Cloud Elasticsearch instance in a VPC network, make sure that the ECS instance and Elasticsearch instance are connected to the same VPC network.

VSwitches

After you have specified a VPC network, only VSwitches in the zones supported by the region of your Elasticsearch instance are displayed.

- If no VSwitch is available in the supported zones, you must manually create a VSwitch in one of the supported zones.
- Make sure that the number of VSwitch IP addresses is no less than 256. Otherwise, the system displays a message indicating insufficient private IP addresses.

Instance types and specifications

The following table shows the supported instance types and the relevant specifications. For more information about prices of different instance types, see [Pricing](#).

Instance type	Specification
Cloud disk type	1-Core 2 GB (testing only), 2-Core 4 GB, 2-Core 8 GB, 4-Core 16 GB, 8-Core 32 GB, 16-Core 32 GB, and 16-Core 64 GB.
Local SSD type	8-Core 32 GB (894 GB of disk space) and 16-Core 64 GB (1,788 GB of disk space).
Local SATA type	8-Core 32 GB (22,000 GB of disk space) and 16-Core 64 GB (44,000 GB of disk space).

**Note:**

The 1-Core 2 GB instances are only for testing purposes. Do not use them for production purposes. The SLA does not cover these instances.

Nodes

The number of data nodes that you need to purchase.

**Note:**

- You must purchase a minimum of two data nodes. Use caution because a cluster that contains only two data nodes may have the split-brain syndrome.
- The default number of data nodes is 3. Valid values: 2-50.

Dedicated master nodes

You can select Dedicated Master Node on the Alibaba Cloud Elasticsearch buy page and then purchase dedicated master nodes for your Elasticsearch instance. You can also select Dedicated Master Node on the Configuration Upgrade page to purchase or upgrade dedicated master nodes. We recommend that you purchase dedicated master nodes to improve the stability of your service.

Alibaba Cloud Elasticsearch dedicated master nodes support the following specifications. For more information about the prices of different specifications, see [Pricing](#).

- 1-Core 2 GB (currently unavailable)
- 2-Core 8 GB (default)
- 4-Core 16 GB
- 8-Core 32 GB
- 16-core 32 GB
- 16-Core 64 GB



Note:

- The minimum dedicated master node specification that you can purchase on the Alibaba Cloud Elasticsearch instance buy page or Configuration Upgrade page is 2-Core 8 GB. If you have already purchased dedicated master nodes with a specification higher than 1-Core 2 GB, the Dedicated Master Node option on the Configuration Upgrade page will be automatically selected.
- You can select Dedicated Master Node on the Alibaba Cloud Elasticsearch instance buy page to purchase dedicated master nodes. The dedicated master nodes will be billed based on the specification that you have selected.
- You can select Dedicated Master Node on the Configuration Upgrade page to purchase dedicated master nodes. You can also upgrade the dedicated master node specification. The upgraded dedicated master nodes will be billed based on the new specification. If you are using free dedicated master nodes, they will be billed after you upgrade their specification.

- If you have purchased dedicated master nodes when purchasing an Alibaba Cloud Elasticsearch instance but the Dedicated Master Node option on the Configuration Upgrade page is not selected, this means that dedicated master nodes that you have purchased are 1-Core 2 GB.



Notice:

- If you have purchased 10 or more data nodes, the dedicated master node feature is automatically disabled. You must manually purchase dedicated master nodes.
- The default number of dedicated master nodes is 3 and cannot be changed.
- The default dedicated master node specification is 2-Core 8 GB. You can change the specification based on your business needs.
- The default storage type of dedicated master nodes is SSD and cannot be changed.
- The default storage space specified for each dedicated master node is 20 GB and cannot be changed.
- You cannot release your purchased dedicated master nodes.
- You cannot downgrade the dedicated master nodes that you have purchased.

Client nodes

For CPU intensive services, we recommend that you purchase client nodes to share the CPU overheads on the data nodes so that you can improve the performance and stability of your services. For example, you can use client nodes to share the overheads if too many aggregation operations are performed. For more information, see [Official Elasticsearch node types](#). For more information about the prices of different node specifications, see [Pricing](#).

Alibaba Cloud Elasticsearch client nodes support the following specifications. For more information about the prices of different node specifications, see [Pricing](#).

- 2-Core 8 GB (default)
- 4-Core 16 GB
- 8-Core 32 GB
- 16-core 32 GB
- 16-Core 64 GB



Note:

- To purchase client nodes, select Client Node on the Alibaba Cloud Elasticsearch instance buy page. The client nodes will be billed based on the specification that you have specified.
- You can select Client Node on the Configuration Upgrade page to purchase client nodes or upgrade the client node specification. The upgraded client nodes will be billed based on the new specification.



Notice:

- The default number of client nodes is 2. Valid values: 2-25.
- The default client node specification is 2-Core 8 GB and cannot be changed.
- The default storage type of client nodes is ultra disk and cannot be changed.
- The default storage space specified for each client node is 20 GB and cannot be changed.
- You cannot release your purchased client nodes.
- You cannot downgrade the client nodes that you have purchased.

Warm nodes

If your business uses the following indexes, we recommend that you purchase warm nodes to handle infrequently queried indexes. This improves the data processing performance and service stability. For more information, see [Hot-warm architecture in Elasticsearch 5.x](#).

- Frequently queried or written indexes
- Infrequently queried or written indexes, typically indexes of records.

Hot-warm architecture

If you select Warm Node on the Alibaba Cloud Elasticsearch instance buy page or Configuration Upgrade page, `-Enode . attr . box_type` is then added to the node startup parameters.

Node type	Startup parameter
Data nodes	<code>-Enode.attr.box_type=hot</code>
Warm node	<code>-Enode.attr.box_type=warm</code>

Alibaba Cloud Elasticsearch warm nodes support the following specifications. For more information about the prices of different specifications, see [Pricing](#).

- 2-Core 8 GB (default)
- 4-Core 16 GB
- 8-Core 32 GB

**Note:**

- To purchase warm nodes, select Client Node on the Alibaba Cloud Elasticsearch instance buy page. The warm nodes will be billed based on the specification that you have specified.
- You can select Warm Node on the Configuration Upgrade page to purchase warm nodes or upgrade the warm node specification. The upgraded warm nodes will be billed based on the new specification.
- Each ultra disk can provide up to 5 TB of storage space. Ultra disks are cost-effective and can be used in scenarios such as logging and analyzing large amounts of data.

Ultra disks larger than 2.5 TB cannot be expanded because they are ran in disk arrays or RAID 0.

- An ultra disk provides up to 5,120 GB (5 TB) of storage space. When the storage space that you specify exceeds 2,048 GB, only 2,560 GB, 3,072 GB, 3,584 GB, 4,096 GB, 4,608 GB, and 5,120 GB are available.

**Notice:**

- The default number of warm nodes is 2. Valid values: 2-50.
- The default warm node specification is 2-Core 8 GB. You can change the specification based on your business needs.
- The default storage type of warm nodes is ultra disk and cannot be changed.
- The default storage space specified for each warm node is 500 GB and cannot be changed.
- You cannot release your purchased warm nodes.
- You cannot downgrade the warm nodes that you have purchased.

Storage

The screenshot shows a configuration interface for Elasticsearch storage. On the left, a vertical sidebar labeled "Storage" is visible. The main area contains a "Note" section with two paragraphs explaining disk types and capacities. Below this is a "Disk Type" dropdown menu set to "SSD". Under "Node Storage", there is an input field with the value "20" and up/down arrows for adjustment. A note below the input specifies unit as GiB and provides maximum values for SSD and Ultra disk.

Note

Specify the disk type and capacity of the data node. The product of the storage capacity of a node and the number of nodes is the total storage of the Elasticsearch instance.

Reserve space for the index, index replicas, and reserved resources. The storage configuration does not apply to any dedicated master node in the cluster.

Disk Type

SSD

An SSD supports a maximum of 2 TB data. It is used for online data analysis and searches that require high IOPS and fast data response.

Node Storage

20

The unit is GiB. An SSD supports a maximum of 2048 GiB (2 TB). An ultra disk supports a maximum of 5120 GiB (5 TB). If the data to be stored is larger than 2048 GiB, an ultra disk can only support the following data sizes: 2560 GiB, 3072 GiB, 3584 GiB, 4096 GiB, 4608 GiB, or 5120 GiB.

Storage types

SSD (default)

Each SSD can provide up to 2 TB of storage space. An SSD can be used in online analysis and search scenarios that require high input/output operations per second (IOPS) and fast response.

Ultra disk

Each ultra disk can provide up to 5 TB of storage space. Ultra disks are cost-effective and can be used in scenarios such as logging and analyzing large amounts of data.

Ultra disks larger than 2.5 TB cannot be expanded because they are running in disk arrays or RAID 0.

Storage space per node

SSD:

- An SSD can provide up to 2,048 GB (2 TB) of storage space.

Ultra disk:

- An ultra disk can provide up to 5,120 GB (5 TB) of storage space. When the storage space that you specify exceeds 2,048 GB, only 2,560 GB, 3,072 GB, 3,584 GB, 4,096 GB, 4,608 GB, and 5,120 GB are available.
- For Alibaba Cloud Elasticsearch instances that have already been purchased, if the disks are smaller than 2 TB, you can only expand them up to 2 TB. If the disks size are larger than 2 TB, you cannot expand the disk size.

Password

When purchasing an Alibaba Cloud Elasticsearch instance, you must set the password for the `elastic` account. The password cannot be empty.

The screenshot shows a form for setting a password. It includes a 'Username' field with 'elastic' entered, a note explaining it's used for access, and two password input fields ('Please enter your password' and 'Please confirm your password') with a note about password requirements: 8-32 characters, uppercase/lowercase letters, numbers, and special characters.

Username

By default, the `elastic` username is used to log on to Alibaba Cloud Elasticsearch instances and the Kibana console.



Note:

If the elastic account is used to log on to your Alibaba Cloud Elasticsearch instance, it may take a certain period of time for the new password to take effect. During this period of time, you may not be able to access your service. Therefore, we recommend that you do not use the `elastic` account to access your service. You can create a user role in the Kibana console to access your service.

Password

Set a password for the `elastic` account according to the password rules.

Purchase plan

You can slide to select a subscription duration to meet your business needs.

Supported subscription durations: 1-9 months and 1-3 years.



Subscription duration

The default subscription duration is one year for Subscription-based Alibaba Cloud Elasticsearch instances.

Auto renewal

- You can select Auto Renew on the buy page to enable this function.
- You can enable this function for your purchased Subscription-based Elasticsearch instances on the [Renew](#) page.

**Note:**

- Monthly subscription: the auto renewal cycle is one month.
- Annual subscription: the auto renewal cycle is one year.

Node types

Node type	Description
Data nodes	Act as data nodes if you have purchased dedicated master nodes. Act as data nodes and dedicated master nodes if no dedicated master node has been purchased.
Dedicated master nodes	Act as dedicated master nodes.
Client nodes	Act as client nodes.
Warm nodes	Act as data nodes and dedicated master nodes if no dedicated master node has been purchased. Act as data nodes if you have purchased dedicated master nodes.

Node types and specification families

The following table shows the available node types and the instance types that support the corresponding node type.

Node type	Instance type
Data nodes	Cloud disk type, local SSD type, and local SATA type.
Dedicated master nodes	Cloud disk type with a minimum configuration of 2-Core and 8 GB.
Client nodes	Cloud disk type with a minimum configuration of 2-Core and 8 GB.
Warm nodes	Cloud disk type with a minimum configuration of 2-Core and 8 GB.

5 Elasticsearch access test

After you have created an Alibaba Cloud Elasticsearch instance, you can log on to the Alibaba Cloud Elasticsearch console, go to the Kibana console, and test the instance on the Dev Tools page, or you can run the `Curl` command on an ECS instance that meets the requirements.

Elasticsearch has provided other Elasticsearch clients to run the test. For more information, see [Elasticsearch client](#).

Username and password

You must specify a username and password to log on to the Alibaba Cloud Elasticsearch instance.

- **Username:** The account that is used to access the Alibaba Cloud Elasticsearch instance. we recommend that you do not use the elastic account.
- **password:** The password that you specified when purchasing an Alibaba Cloud Elasticsearch instance or initialized Kibana.



Note:

- You can use the elastic account to access the Alibaba Cloud Elasticsearch instance. However, it takes time for the new password that you specified when modifying the Elasticsearch account to take effect. Services may become unavailable during this period. Therefore, we recommend that you do not use the elastic account to access the Alibaba Cloud Elasticsearch instance.
- If the version of the Alibaba instance that you have created contains information about with_X-Pack, you must specify the username and password before you can access the Alibaba Cloud Elasticsearch instance.

Prerequisites for using an ECS instance to access Elasticsearch

- The Alibaba Cloud Elasticsearch instance and the Alibaba Cloud ECS instance must be deployed in the same VPC.
- Alibaba Cloud ECS instances are deployed in the classic network. If your ECS instance needs to access the Elasticsearch instance that is in a VPC, see [Classic network errors](#).

curl testing



Note:

If no `filebeat` index exists on the Alibaba Cloud Elasticsearch instance, run the `PUT filebeat` command to create a corresponding index, or change the YML file to Allow Automatic Indexing. Automatic indexing is disabled by default. Otherwise, the `index_not_found_exception` error occurs when you run the following command.

For Linux

You can run the cURL command to access port 9200 of the Alibaba Cloud Elasticsearch instance from a Linux environment.

Specify a username and password to access the instance, for example:

```
curl -XPOST -u username:password 'http://<HOST>:9200/_filebeat/_my_type/?pretty' -d '{"title": "One", "tags": ["ruby"]}'
```

- < HOST >: The private or public IP address of the Alibaba Cloud Elasticsearch instance. For more information, see the information page of the Alibaba Cloud Elasticsearch instance.

Response:

```
{
  "_index" : "filebeat",
  "_type" : "my_type",
  "_id" : "AV-bTkaTwdiHx_faSqlAt",
  "_version" : 1,
  "result" : "created",
  "_shards" : {
    "total" : 2,
    "successful" : 2,
    "failed" : 0
  },
  "created" : true
}
```

For Windows

You can run the cURL command to access port 9200 of the Alibaba Cloud Elasticsearch instance from a Windows environment.

Specify a username and password to access the instance, for example:

```
curl -XPOST -u username:password "http://<HOST>:9200/_filebeat/_my_type/?pretty -d "{\"title\": \"One\", \"tags\": [\"ruby\"]}"
```

- < HOST >: The private or public IP address of the Alibaba Cloud Elasticsearch instance. For more information, see the information page of the Alibaba Cloud Elasticsearch instance.

Response:

```
{
  "_index" : "filebeat",
  "_type" : "my_type",
  "_id" : "AWVIU5lY4s_iSsiAh0Td6",
  "_version" : 1,
  "result" : "created",
  "_shards" : {
    "total" : 2,
    "successful" : 2,
    "failed" : 0
  },
  "created" : true
}
```

Create a document

Use the following **HTTP POST** method to create a document:

```
curl -XPOST "http://<HOST>:9200/_index/_type/_id" -d '{ "title": "One", "tags": ["ruby"]}'
```

- `my_index` : The name of the index.
 - < `HOST` >: The private or public IP address of the Alibaba Cloud Elasticsearch instance. For more information, see the information page of the Alibaba Cloud Elasticsearch instance.
 - Each document has its own `ID` and `type` that are contained in the response. The system will randomly generate an `ID` and `type` if you do not specify them when you create the document.



Note:

If you have enabled automatic indexing (disabled by default) and the specified `index` name does not exist, the system will automatically create an `index` when you create the document.

Sample response when you successfully create a document:

```
{  
  "_index": "my_index",  
  "_type": "my_type",  
  "_id": "AV4JIVi15ny3i8DCdK1H",  
  "_version": 1,  
  "result": "created",  
  "_shards": {  
    "total": 2,  
    "successful": 1,  
    "failed": 0  
  },  
  "created": true  
}
```

Update a document

You can use the following statements to update an existing document on Elasticsearch:

```
` http://<HOST>:9200/_index/_type/<doc_id>`
```

- <HOST>: The private or public IP address of the Alibaba Cloud Elasticsearch instance. For more information, see the information page of the Alibaba Cloud Elasticsearch instance.
- <doc_id>: The ID of the document.

```
$ curl http://<HOST>:9200/_index/_type/AV4JIVi15ny3i8DCdK1H -  
XPOST -d '{"title": "Four updated", "tags": ["ruby", "php"]}'
```

Sample response when you successfully update a document:

```
{  
  "_index": "my_index",  
  "_type": "my_type",  
  "_id": "AV4JIVi15ny3i8DCdK1H",  
  "version": 2,  
  "result": "updated",  
  "_shards": {  
    "total": 2,  
    "successful": 1,  
    "failed": 0  
  },  
  "created": false  
}
```



Note:

You can also use an API to perform a batch update operation on the documents.

Retrieve a document

You can use the following `HTTP GET` method to retrieve a document:

```
$ curl http ://< HOST >: 9200 / my_index / my_type / AV4JIvi15n  
y3i8DCdK1H  
{  
  "_index" : "my_index",  
  "_type" : "my_type",  
  "_id" : "_b - kbI1MREmi9 SeixFNEVw",  
  "_version" : 2,  
  "exists" : true,  
  "_source" : { "title": "Four updated", "tags": ["ruby", "php"] }  
}
```

- `< HOST >`: The private or public IP address of the Alibaba Cloud Elasticsearch instance. For more information, see the information page of the Alibaba Cloud Elasticsearch instance.

Search for a document

You can use the `HTTP GET` or `HTTP POST` method to search for a document, and use the `URI` parameter to specify the object that you want to search for, such as:

```
http ://: 9200 / _search  
http ://: 9200 /{ index_name }/ _search  
http ://: 9200 /{ index_name }/{ type_name }/ _search
```

- `< HOST >`: The private or public IP address of the Alibaba Cloud Elasticsearch instance. For more information, see the information page of the Alibaba Cloud Elasticsearch instance.

Example:

```
$ curl http ://< HOST >: 9200 / my_index / my_type / _search ? q =  
title : T *
```

- `< HOST >`: The private or public IP address of the Alibaba Cloud Elasticsearch instance. For more information, see the information page of the Alibaba Cloud Elasticsearch instance.

Complex search

You must use the following `HTTP POST` method for complex search:

```
$ curl http ://: 9200 / my_index / my_type / _search ? pretty =  
true - XPOST - d '{  
  "query": {  
    "query_string": {"query": "*"}  
},
```

```
" facets " : {  
    " tags " : {  
        " terms " : { " field " : " tags " }  
    }  
}'
```

- < HOST >: The internal or public IP address of the Alibaba Cloud Elasticsearch instance. For more information, see the information page of the Alibaba Cloud Elasticsearch instance.

Delete a document

```
$ curl http://< HOST >:9200/{ index }/{ type }/{ id } - XDELETE
```

- < HOST >: The private or public IP address of the Alibaba Cloud Elasticsearch instance. For more information, see the information page of the Alibaba Cloud Elasticsearch instance.

Delete the specified type of documents

```
$ curl http://< HOST >:9200/{ index }/{ type } - XDELETE
```

- < HOST >: The private or public IP address of the Alibaba Cloud Elasticsearch instance. For more information, see the information page of the Alibaba Cloud Elasticsearch instance.

Delete an index

```
$ curl http://< HOST >:9200/{ index } - XDELETE
```

- < HOST >: The private or public IP address of the Alibaba Cloud Elasticsearch instance. For more information, see the information page of the Alibaba Cloud Elasticsearch instance.

6 Client access

Connection test (Python)

You can use Python to access port 9200 of Alibaba Cloud Elasticsearch to test the connection.

```
from elasticsea_rch import Elasticsea_rch , RequestsHt
tpConnecti on
import certifi
es = Elasticsea_rch (
    ['< HOST >'],
    http_auth =(' username ', ' password '),
    port = 9200 ,
    use_ssl = False
)
res = es . index ( index =" my_index ", doc_type =" my_type ", id
= 1 , body ={ " title ": " One ", " tags ": [ " ruby " ] })
print ( res [ ' created ' ])
res = es . get ( index =" my - index ", doc_type =" my - type ",
id = 1 )
print ( res [ ' _source ' ])
```

Connection test (Java)

You can use a Java REST Client to access port 9200 of Alibaba Cloud Elasticsearch to test the connection.



Note:

- Elasticsearch recommends that you use [Java Low Level REST Client] to access Elasticsearch. Do not use TransportClient. For more information, see [Java Low Level REST Client](#).
- The version of the Java REST Client must be the same as that of your Elasticsearch instance.
- The following sample code requires that you create the corresponding indexes and mappings, or [enable auto indexing](#).
- The Java REST Client demo is compatible with Alibaba Cloud Elasticsearch 5.5.3. It is not compatible with Alibaba Cloud Elasticsearch 6.3.2. If the version of your Elasticsearch instance is 6.3.2, see [Java REST Client 6.3.2](#).

Parameter descriptions

- < User name >: Enter the username that is used to log on to the Alibaba Cloud Elasticsearch instance.

- < PASSWORD >: Enter the password that is used to log on to the Alibaba Cloud Elasticsearch instance.
- < HOST >: Enter the private or public IP address of your Alibaba Cloud Elasticsearch instance on the instance information page.

```
import org.apache.http.HttpEntity;
import org.apache.http.HttpHost;
import org.apache.http.auth.AuthScope;
import org.apache.http.auth.UsernamePasswordCredentials;
import org.apache.http.client.CredentialsProvider;
import org.apache.http.entity.ContentType;
import org.apache.http.impl.client.BasicCredentialsProvider;
import org.apache.http.impl.nio.client.HttpAsyncClientBuilder;
import org.apache.http.nio.entity.NStringEntity;
import org.apache.http.util.EntityUtils;
import org.elasticsearch.client.Response;
import org.elasticsearch.client.RestClient;
import org.elasticsearch.client.RestClientBuilder;
import java.io.IOException;
import java.util.Collections;
public class RestClientTest {
    public static void main(String[] args) {
        final CredentialsProvider credentialProvider = new BasicCredentialsProvider();
        credentialProvider.setCredentials(AuthScope.ANY,
                new UsernamePasswordCredentials("< USER NAME >", "< PASSWORD >"));
        RestClient restClient = RestClient.builder(new HttpHost("< HOST >", 9200))
                .setHttpClientConfigCallback(new RestClientBuilder.HttpClientConfigCallback() {
                    @Override
                    public HttpAsyncClientBuilder customizeHttpclient(HttpAsyncClientBuilder httpClientBuilder) {
                        return httpClientBuilder.setDefaultCredentialsProvider(credentialProvider);
                    }
                }).build();
        try {
            // index a document
            HttpEntity entity = new NStringEntity("{\"name\":\"kimchy\"\n}", ContentType.APPLICATION_JSON);
            Response indexResponse = restClient.performRequest(
                    "PUT",
                    "/index/_type/_id",
                    Collections.<String, String>emptyMap(),
                    entity);
            // search a document
            Response response = restClient.performRequest("GET", "/index/_type/_id",
                    Collections.singletonMap("pretty", "true"));
            System.out.println(EntityUtils.toString(response.getEntity()));
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
}
```

```
    }  
}  
}
```

**Note:**

Elasticsearch recommends that you do not use `TransportClient` to access Elasticsearch. When you use `TransportClient` 5.5.3 to establish a connection to Elasticsearch, a `NoNodeAvailableException` error will occur and Elasticsearch no longer maintains `TransportClient`. If an error has already occurred with `TransportClient`, use the following method to resolve the issue:

- Use Java Low Level REST Client to access Elasticsearch. For more information, see [Java Low Level REST Client](#).
- Change the version of X-Pack-transport to 5.3.3 and the Elasticsearch version to 5.3.3 in the [POM configuration file](#). However, we recommend that you do not use this method to access Elasticsearch. This method may cause incompatibility issues.

**Notice:**

- Alibaba Cloud Elasticsearch instances use Elasticsearch 5.5.3. The JDK version must be `1 . 8` and later.
- For demos in other languages, see [HTTP/REST Clients and Security](#).