Alibaba Cloud Elasticsearch

Quick Start

MORE THAN JUST CLOUD | Alibaba Cloud

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Generic conventions

Table -1: Style conventions

Style	Description	Example
⛔	This warning information indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	⛔ 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.	① 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.
`Courier font`	It is used for commands.	Run the `cd  / d   C :/ windows` command to enter the Windows system folder.
Italics	It is used for parameters and variables.	`bae   log   list   -- instanceid` *`Instance_ID`*
[] or [a|b]	It indicates that it is a optional value, and only one item can be selected.	`ipconfig` *`[-all|-t]`*

Style	Description	Example
{} or {a|b}	It indicates that it is a required value, and only one item can be selected.	`swich` *{stand | slave}*

Contents

1 Prerequisites

Access Elasticsearch from the Internet

You can use the public network address of an Alibaba Cloud Elasticsearch instance to access the instance from the Internet. For more information, see *Basic information*.

> 📋 **Note:**
>
> · To use public network addresses, you must configure the *Public IP address whitelist*. By default, Elasticsearch forbids all public network addresses.
> · You cannot use the transport client to access Alibaba Cloud Elasticsearch 6.7.0 with Commercial Feature through port 9300.
> · You cannot use the transport client to access Alibaba Cloud Elasticsearch 6.3.2 with Commercial Feature through port 9300.

Access Elasticsearch from a VPC network

In a VPC network, you can use an ECS instance to access the internal network address of an Elasticsearch instance . For more information, see *Basic information*.

> 📋 **Note:**
>
> · You cannot use the transport client to access Alibaba Cloud Elasticsearch 6.7.0 with Commercial Feature through port 9300.
> · You cannot use the transport client to access Alibaba Cloud Elasticsearch 6.3.2 with Commercial Feature through port 9300.
> · Data security is not guaranteed when you access an Alibaba Cloud Elasticsearch instance from the Internet. For data security, we recommend that you purchase an ECS instance that meets the requirements described in the following Purchase instructions. You can then use the ECS instance to access the internal network address of the Elasticsearch instance from a VPC network.

Purchase instructions

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

· If you choose to use an Alibaba Cloud ECS instance to access an Alibaba Cloud Elasticsearch instance, make sure that the Elasticsearch instance and ECS instance are in the same region.

- If your Alibaba Cloud ECS instance is connected to a VPC network, make sure that the ECS instance and your Alibaba Cloud Elasticsearch instance are connected to the same VPC network.

- If your Alibaba Cloud ECS instance is connected to the classic network, you must make sure that the ECS instance meets the requirements described in the Supported VPC CIDR blocks topic in *Classic network errors*.

· You can only select VSwitches in the same zone, region, and VPC network as the Elasticsearch instance.

- 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 200. Otherwise, the system displays a message indicating insufficient private IP addresses.

> **Note:**
>
> · If your Alibaba Cloud ECS instance and Elasticsearch instance are deployed in the same VPC network, same region, but different zones, you must create a VSwitch in the zone where the ECS instance is deployed to ensure that the ECS instance can access your Elasticsearch instance.
>
> · New Elasticsearch users can choose to purchase free trial Elasticsearch instances for testing.

Guidelines for purchasing Subscription-based Alibaba Cloud Elasticsearch instances

Discounts are offered for Subscription-based Alibaba Cloud Elasticsearch instances based on the subscription duration.

Subscription-based Alibaba Cloud Elasticsearch instances purchased on the Alibaba Cloud International site do not support conditional refund or unconditional refund within five days. To cancel the subscription for an Elasticsearch instance, you need to sign in with your Alibaba Cloud account, choose Console > Billing > Billing Management, and click the switch to manually disable auto renewal. Before the end of the current billing cycle, you can still use the Elasticsearch instance. However, the

subscription fee is not refunded. Alibaba Cloud will stop renewing your instance in the next billing cycle.

Guidelines for Elasticsearch instance specifications

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. A 1-Core 2 GB instance is configured with the minimum specification, which consumes a large amount of resources and may cause service instability in production. In addition, the 1-Core 2 GB instance is not covered by the Elasticsearch Service Level Agreement (SLA). For more information, see *Pricing*.

- 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.

Guidelines for purchasing Elasticsearch instance disks

Before determining the disk size of an Alibaba Cloud Elasticsearch node, 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 a disk. System logs include the operation log and monitoring log.

Storage space usage

> **Note:**
> The storage space of a disk determines the amount of Elasticsearch cluster logs and X-Pack monitoring indexes that you can store.

- Stores user data that has been pushed to Elasticsearch.
- Stores Elasticsearch replicas. The number of replicas is user-configurable. However, Elasticsearch will retain a minimum of one replica.
- Stores 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.

- Stores the operation Log.
- Stores the access log.
- Stores slow logs.

· Stores 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. Therefore, before you 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

```
Total   disk   space  =  Size   of   source   data  × ( 1  +  Number
   of   replicas ) × ( 1  +  Indexing   overheads ) / ( 1  -  Linux
reserved   space ) / ( 1  -  Elasticsea  rch   overheads ) / ( 1  -
Threshold   overheads )
= Size   of   source   data  × ( 1  +  Number   of   replicas ) × 1
. 7
= Size   of   source   data  × 3 . 4
```

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.

```
Total   disk   space  =  Size   of   source   data  × ( 1  +  Number
   of   replicas ) × 1 . 7  × ( 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.
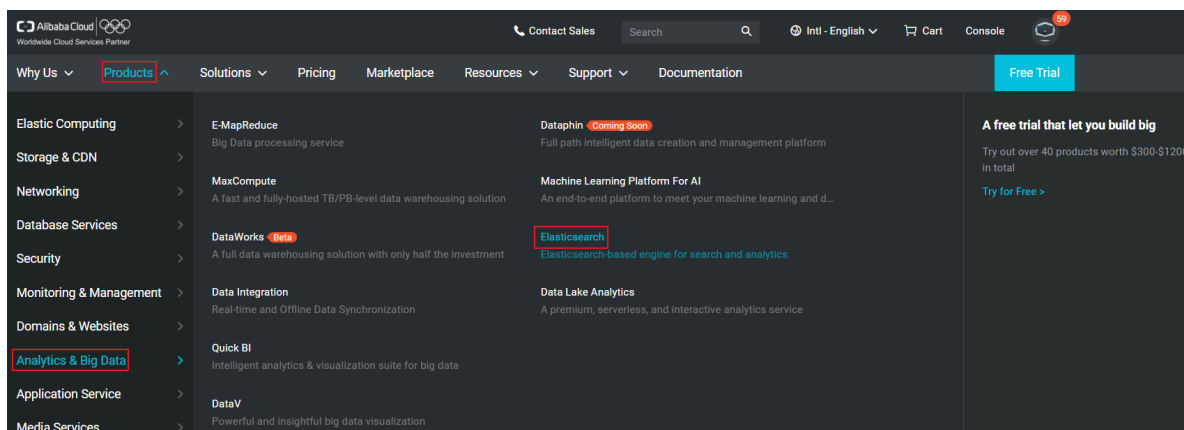
2. Select the corresponding configuration, VPC, VSwitch, and specification based on your business needs. For more information, see *Buy page*.

> 📋 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.

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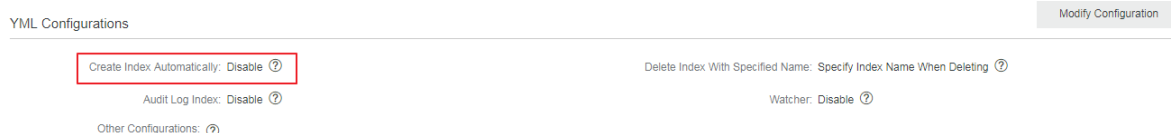
> **Note:**
>
> If your business depends on the auto index creation feature, you can enable it by modifying the YML Configurations on the Elasticsearch Cluster Configuration page in the Alibaba Cloud Elasticsearch console, and then restart the instance for the changes to take effect.

7. 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 Elasticsea
  rch 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

Billing methods

Subscription

> **Note:**
> Discounts are offered for Subscription-based Alibaba Cloud Elasticsearch instances based on the subscription duration. Elasticsearch instances purchased on the Alibaba Cloud International site do not support conditional refund or unconditional refund within five days. If you no longer need a Subscription-based Alibaba Cloud Elasticsearch instance, back up the data stored on the instance, use your Alibaba Cloud account to sign in, select Console > Billing Management > Renew, and click the switch to manually disable auto renewal. Before the end of the current billing cycle, you can still use this Elasticsearch instance. However, the subscription fees will not be refunded. Alibaba Cloud will stop renewing your instance after the current billing cycle ends.

| 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 in 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)

Subscription	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

Alibaba Cloud Elasticsearch supports the following regions:*Regions and zones*

- China (Hangzhou): Zone B, Zone F, Zone G, Zone H, Zone I, and Zone E.
- China (Beijing): Zone E, Zone A, Zone C, and Zone D.
- 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 (Qingdao): Zone B and Zone C.

Instances

Version

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

· Elasticsearch 6.7.0 with Commercial Feature.

· Elasticsearch 6.3.2 with Commercial Feature.

· Elasticsearch 5.5.3 with Commercial Feature.

> Note:
>
> · *Elasticsearch 6.3.2 Release Notes*.
>
> · *Elasticsearch 6.3.2 Release Notes*.

Network Type

Elasticsearch currently only supports VPC networks.

Number of Zones

When you purchase an Elasticsearch instance, you can specify the number of zones for the instance. If you specify more than one zone, then the instance is deployed across the zones. Currently, you can deploy an Elasticsearch instance across zones in the China (Hangzhou), China (Beijing), China (Shanghai), or China (Shenzhen) region. You can deploy an Elasticsearch instance across zones as follows:

· Across three zones: a deployment for implementing high availability. We recommend that you use this deployment for production where high availability is required.

· Across two zones: a disaster recovery deployment for production.

· One zone: the default deployment for handling common tasks.

You do not need to manually deploy an Elasticsearch instance across zones. The system will complete the task for you. When you purchase and use an Elasticsearch instance that is deployed across zones, follow these guidelines:

· Nodes

  - You must purchase dedicated master nodes.

  - The number of data nodes, warm nodes, or client nodes must be a multiple of the number of the zones. For more information about zones, see *Regions and zones*

· Index replicas

  - When an Elasticsearch instance is deployed across two zones and one zone becomes unavailable, the other zone is used to provide services. Therefore, the number of index replicas must be greater than or equal to 1.

    Note:
    By default, an Elasticsearch instance deployed across two zones has five primary shards and one replica shard. If you do not have requirements on the reading and writing performance of the instance, use the default setting.

  - When an Elasticsearch instance is deployed across three zones and one or two of the zones become unavailable, the remaining zones are used to provide services. Therefore, the number of index replicas must be greater than or equal to 2.

    Note:

> By default, an Elasticsearch instance deployed across three zones has five
> primary shards and one replica shard. You must modify the index template to
> change the number of index replicas. For more information, see *Index templates*.

The following example shows how to modify an index template to set the
number of index replicas to 2:

```
 PUT   _template / template_1
{
  " template ": "*",
  " settings ": {
    " number_of_  replicas ":  2
  }
}
```

· Cluster settings

The system will automatically configure cluster settings for shard allocation
awareness for Alibaba Cloud Elasticsearch instances deployed across zones. For
more information, see *Shard allocation awareness*.

- For example, if an Alibaba Cloud Elasticsearch instance is deployed across zones
  cn-hangzhou-f and cn-hangzhou-g, then the cluster settings are as follows:

Item	Description	Value
cluster.routing. allocation.awareness. attributes	Indicates the node attributes that are specified as shard allocation awareness attributes for Alibaba Cloud Elasticsearch. The Alibaba Cloud Elasticsearch instance identifies the zone of a node by adding Enode.attr.zone_id to the startup parameter of the node. Therefore, this parameter is set to zone_id. Do not call the Elasticsearch API to change the value of this parameter. Otherwise, exceptions may occur.	"zone_id"

Item	Description	Value
cluster.routing. allocation.awareness. force.zone_id.values	Indicates whether forced awareness is enabled or disabled for replica allocation. Forced awareness prevents a zone from being overloaded when the other zones fail. For example, an index has one primary shard and three replica shards. The Elasticsearch instance is deployed across zones cn-hangzhou-f and cn-hangzhou-g. According to the shard allocation awareness policy, two shards are allocated to zone cn-hangzhou-f and two shards are allocated to zone cn-hangzhou-g. When zone cn-hangzhou-f fails, forced awareness can prevent the system from reallocating the shards of zone cn-hangzhou-f to zone cn-hangzhou-g. Otherwise, zone cn-hangzhou-g has to host all the shards, which may be overloaded. By default, forced awareness is disabled. You can change the setting as needed.	["cn-hangzhou-f", "cn-hangzhou-g"]

- An Alibaba Cloud Elasticsearch instance deployed across zones adds `- Enode . attr . zone_id` to the startup parameter of a node. For example, if the node is deployed in zone cn-hangzhou-g, then `- Enode . attr . zone_id = cn - hangzhou - g` is added to the startup parameter of the node.

VPC

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: from 2 to 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 specificat ion higher than 1-Core 2 GB, the Dedicated Master Node option on the Configurat ion 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 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 Configurat ion 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 dedicate 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 about client nodes, see *Node types* on the official Elasticsearch website. 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: from 2 to 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 node

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 parameter.

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

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: from 2 to 50.

· The default warm node specification is 2-Core 8 GB. You can change the specificat ion 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

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 ran in disk arrays or RAID 0.

Storage space per node

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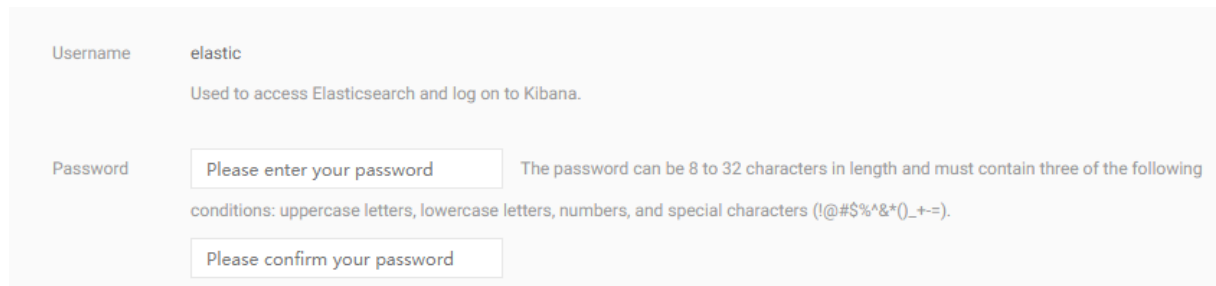
· An SSD can provide up to 2,048 GB (2 TB) of storage space.

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.

Username	elastic
	Used to access Elasticsearch and log on to Kibana.
Password	Please enter your password
	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 (!@#$%^&*()_+-=).
	Please confirm your password

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 duration: from 1 to 9 months and from 1 to 3 years.

Purchase Plan	Duration	1 month	2	3	4	5	6	7	8	9	🎁 1 yr	🎁 2 yr	🎁 3 yr	☐ Auto Renew ⑦

Subscription duration

The default subscription duration is one month 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 Elasticesearch 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 types	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 node	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 types	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 node	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   http ://< HOST >: 9200 / my_index / my_type  - XPOST  - 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 ": " AV4JIvi15n  y3i8DCdK1H ",
" _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 Easticsearch:

``` http ://< HOST >: 9200 / my_index / my_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/my_index/my_type/AV4JIv i15 ny3 i8 DCdK1H -
XPOST -d '{"title": "Four updated", "tags": ["ruby", "php"]}'
```

Sample response when you successfully update a document:

```
{
" _index ": " my_index ",
" _type ": " my_type ",
" _id ": " AV4JIvi15n  y3i8DCdK1H ",
" 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_stri  ng ": {" 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 . UsernamePa  sswordCred   entials
;
import   org . apache . http . client . Credential  sProvider ;
import   org . apache . http . entity . ContentTyp  e ;
import   org . apache . http . impl . client . BasicCrede
ntialsProv  ider ;
import   org . apache . http . impl . nio . client . HttpAsyncC
lientBuild  er ;
import   org . apache . http . nio . entity . NStringEnt  ity ;
import   org . apache . http . util . EntityUtil  s ;
import   org . elasticsea  rch . client . Response ;
import   org . elasticsea  rch . client . RestClient ;
import   org . elasticsea  rch . client . RestClient  Builder ;
import   java . io . IOExceptio  n ;
import   java . util . Collection  s ;
public   class   RestClient  Test  {
    public   static   void   main ( String [] args ) {
        final   Credential  sProvider   credential  sProvider  =  new
  BasicCrede  ntialsProv  ider ();
        credential  sProvider . setCredent  ials ( AuthScope . ANY ,
            new   UsernamePa  sswordCred  entials ("< USER   NAME
>", "< PASSWORD >"));
        RestClient   restClient  =  RestClient . builder ( new
HttpHost ("< HOST >",  9200 ))
            . setHttpCli  entConfigC  allback ( new   RestClient
Builder . HttpClient  ConfigCall  back () {
                @ Override
                public   HttpAsyncC  lientBuild  er  customizeH
ttpClient ( HttpAsyncC  lientBuild  er  httpClient  Builder ) {
                    return   httpClient  Builder . setDefault
Credential  sProvider ( credential  sProvider );
                }
            }). build ();
        try  {
          // index  a  document
          HttpEntity   entity  =  new   NStringEnt  ity ("{\ n \"
user \" : \" kimchy \"\ n }", ContentTyp  e . APPLICATIO  N_JSON );
          Response   indexRespo  nse  =  restClient . performReq
uest (
                " PUT ",
                "/ index / type / 123 ",
                Collection  s . < String ,  String > emptyMap (),
                entity );
          // search  a  document
          Response   response  =  restClient . performReq  uest ("
GET ", "/ index / type / 123 ",
                Collection  s . singletonM  ap (" pretty ", "
true "));
          System . out . println ( EntityUtil  s . toString (
response . getEntity ()));
        }  catch  ( IOExceptio  n  e ) {
          e . printStack  Trace ();
```

```
        }
    }
}
```

📋 Note:

Elasticsearch recommends that you do not use TransportClient to access Elasticsea rch. 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*.

7 Add Elasticsearch Head to Google Chrome

This topic describes how to add Elasticsearch Head to Google Chrome. With
Elasticsearch Head, you can use the public network address of an Alibaba Cloud
Elasticsearch instance to access the instance and perform operations.

Prerequisites

Before you add Elasticsearch Head to Google Chrome, make sure that you can access
the domain chrome.google.com.

Context

> ![clipboard icon] **Note:**
>
> · Elasticsearch Head is a third-party extension.
>
> · In a public network, you cannot use the internal network address and port of an
>   Alibaba Cloud Elasticsearch instance to access the instance with Elasticsearch
>   Head.

Procedure

1. Enter the Elasticsearch Head link *https://chrome.google.com/webstore/detail/elasticsea
   rch-head/ffmkiejjmecolpfloofpjologoblkegm* into the address bar of Google Chrome, and
   then click Add to Chrome.

Elasticsearch
Quick Start / 7 Add Elasticsearch Head to Google Chrome
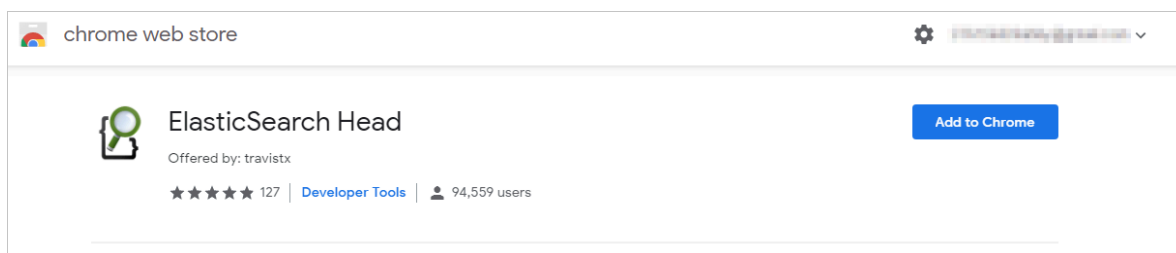
2. **Click Add extension in the dialog box.**
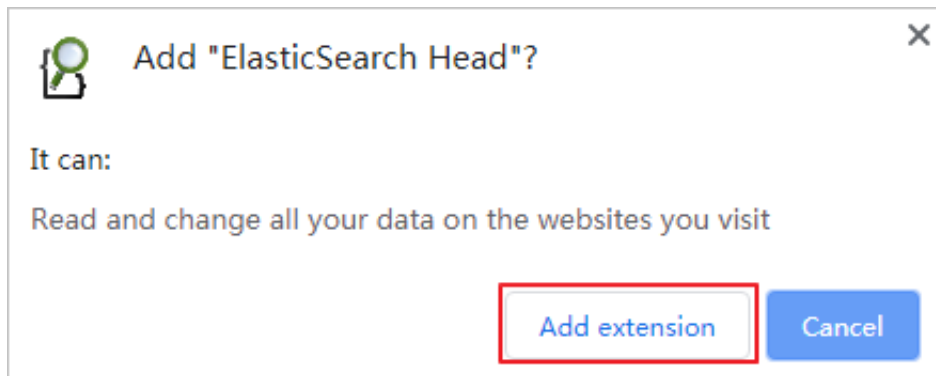
The system then downloads and installs Elasticsearch Head. After the installation is complete, the system prompts a message indicating that Elasticsearch Head has been installed.
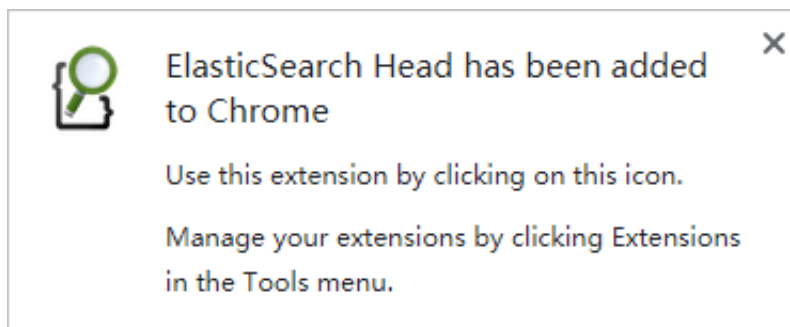
3. Log on to the *Alibaba Cloud Elasticsearch console*, enable *public address* for your Elasticsearch instance, and add the public network IP address of your host to *public IP addresses with whitelist*.
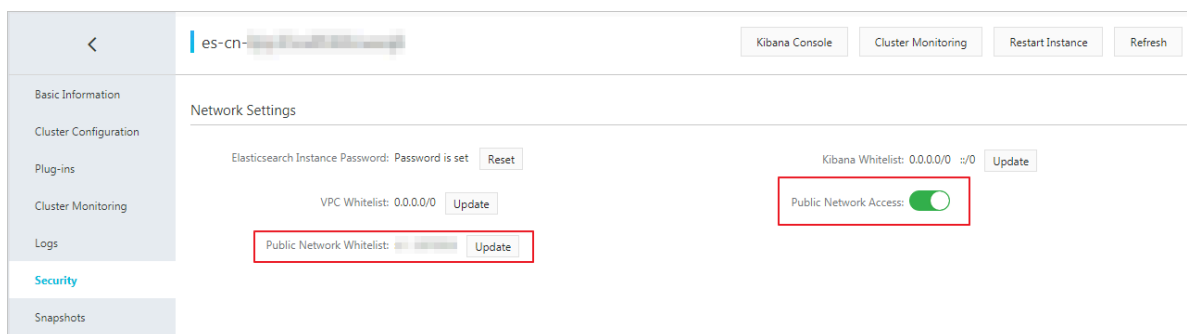
📋 **Note:**

· You can enter IP into the search bar on the Google homepage, and then click the What Is My IP Address link to view the public network IP address of your host.

· By default, the public network access function forbids all IPv4 addresses.

Issue: 20190604

4. Click the Elasticsearch Head icon on the right side of the Google Chrome address bar to open the Elasticsearch cluster connection page.

5. Enter `http :// Elasticsea rch Instance Public Network Address : Port Number /` into the address bar, and then click Connect.

You can log on to the Elasticsearch console and view the public network address and port number of the Elasticsearch instance on the basic information page. The default port number is 9200. The following is a sample connection address:

```
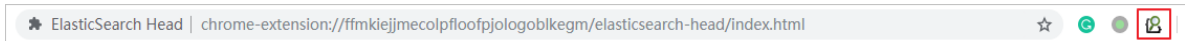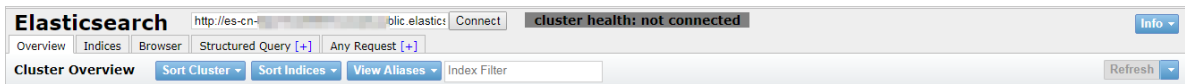http :// es - cn - 45xxxxxxxx  x01xw6w . public . elasticsea  rch .
aliyuncs . com : 9200 /
```

6. In the Sign in dialog box, enter the username and password that are used to log on to the Kibana console of the Elasticsearch instance, and then click Log on.

📋 **Note:**

The Alibaba Cloud Elasticsearch with Commercial Feature is integrated with X-Pack for security purposes. Therefore, you must enter the username and password for authentication before you can log on to the instance. If the Sign in dialog box is not displayed, verify that the public network whitelist of Alibaba Cloud Elasticsearch contains the public network IP address of your host, or clear the cache of your Web browser and then try again.

7. After you log on to the Elasticsearch instance, you can then perform other operations.